Chapter 2

Review of Theoretical and Empirical Literature

The role of fiscal policy in influencing economic growth has been a widely debated issue in economic literature. The impact of budget deficits on economic activity has been one of the subjects of long-standing debate in macroeconomic literature as each major school of economic thought views the situation differently. There is clear a division of opinion on this issue. Some economists argue that budget deficit have a positive effect on the macroeconomic activity. While voicing concern against high level of budget deficit, economists argue that budget deficit have detrimental effect on economic growth. In contrast to the above two arguments, another view holds on the idea that budget deficits are neutral in terms of its effect on economic growth. As there has been a wide spectrum of views in the literature on the issue of the impact of budget deficit on economic growth, some of the views are put forth below in order to provide a theoretical background to the issue concerning the relationship between that budget deficit and economic growth. To the theoretical arguments, empirical evidences have been brought with a view to formulating suitable models later for empirical testing of effects of fiscal deficit on economic growth in the Indian context.

The main focus of this chapter is on the conduct of an overview, both theoretical and empirical literature, related to the relationship between fiscal deficit and economic growth. The chapter is divided into two sections. Section 2.1 identifies the theoretical debate between fiscal deficit and economic growth. First, it will intensively discuss alternative measurement of government deficit and second, the alternative school of thought on deficit and its impact on economic growth. Section 2.2 will review some of the previous empirical studies with respect to the impact the fiscal deficit on economic growth. Some of the most substantive and important empirical studies will be identified in this section in context of both India and other countries. It will cover topics such as
concept, definition and measurement of deficit in context of India, and impact of fiscal deficit on economic growth in context of both other countries and India. Chart below summarizes the overall outline of literature review chapter.

**Fiscal Imbalance and Economic Growth: Theoretical and Empirical Considerations**

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2.1 The Theoretical Perspectives

The role of fiscal deficit in influencing economic growth has been widely debated issue in economic literature. In the light of this, an attempt is made here to review theoretical literature relating to the impact of fiscal deficit on economic growth as follows

(a) Alternative measures of government deficit
(b) Alternative school of thought
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   (ii) The Neoclassical View
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2.1.1 Alternative Measures of Government Deficit

The term “budget deficit or budget balance” appears regularly in news articles, in government policy documents – usually with the warning that it is very undesirable\textsuperscript{11}. Although the current attention given to the budget deficit issue appears quite new, it has been analyzed for more than two centuries. Adam Smith (1723-1790) discussed the budget deficit issue in his 1776 book: ‘An Inquiry into the Nature and Causes of the Wealth of Nations’. Smith mentioned that budgets need to be balanced and this balance should be the norm of government budgeting. He asserted, however, that this norm may be violated during war or emergencies.

The way in which the budget deficit is defined and measured determines its size and has implications for its effect on the performance. As Easterly and Schmidt-Hebbel, (1994), point out, different measurement of fiscal deficit can result in major interpretational problems with regards to the effects of the deficits. This was also noted by Blejer and Cheasty (1991) who asserted that depending on how it is measured and over what period of time, the fiscal deficit can show different fiscal stance, and thus call

for different fiscal policies. He suggested that in order to diagnose the economic problem and to find appropriate fiscal policies to solve the problem; the net public sector’s requirements must be correctly measured.

According to economic literature and practices by institutions such as World Bank and the IMF, a couple of different ways to measure the conventional budget deficit exists. The most commonly accepted measure used by government world-wide to define the conventional budget is the resources utilized by the government in a fiscal year that need to be financed after revenues were deducted from the expenditure. According to Tanzi and Blejer and Cheasty (1993), the conventional deficit can therefore, usually be defined as the difference between current revenues and current expenditure of the government. It thus reflects the financing gap that needs to be closed by way of net lending, including lending from central bank.

According to Esterly and Schmidt-Hebble (1994), the most accurate measure of a country’s position and public sector resources transfer would be the deficit measure based on the most inclusive definition of the public sector. However, such information is not always available and is subject to accounting conventions. The World Bank defined the conventional budget deficit as the difference between expenditure items such as salaries and wages, expenditure on goods and services including capital expenditure, interest on public debt, transfer and subsidies, and revenue items including taxes, user charges, grant received and profits of non-financial public enterprises and sale of assets.12

The IMF stated in its 1980 Manual on Government Finance Statistics that the budget deficit equals the following fiscal deficit:

Fiscal deficit = \{(revenue + grants) – (expenditure on goods and services + transfers) – (lending – repayments)\}

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Agenor and Montiel (1999), said the conventional budget deficit can be measured on cash basis or an accrual (or payment order) basis. In the first case, the deficit equals the difference between total cash flow expenditure and fiscal revenue. In the second case, the deficit reflects accrued income and spending flows regardless of whether they involve cash payment or not. Accumulation of arrears on payments or revenue is reflected by higher deficit when measured on an accrual basis compared with a cash-based measure.

Tanzi, Blejer and Teijeiro in Blejer and Cheasty (1993) defined the conventional budget deficit on each basis as the difference between total government expenditure (including interest payments on public debt but excluding any amortization payments) and total cash receipts (including taxes and non-tax revenues plus grants, without loans). It does not, however, provide a direct measure of monetary expansion nor of the pressure as a result of increased demand for financial instruments in the short-term markets. This definition of a conventional budget deficit is therefore, independent from the maturity schedules of outstanding domestic public debt and the reason related to monetary policy. But it also poses a problem, public debt management and open market transactions can, in the end, greatly influences the size of the budget deficit.

The conventional budget balance was originally developed in an effort to provide a measure of the government’s contribution to aggregate demand in the economy and the lack of equilibrium on the current account of the balance of the payments, or to measure the crowding out of the private sector in the financial sector. Another definition of the conventional budget balance could be the measurement of the extent to which government expenditures (for policy purposes) exceed government revenues without incurring new liabilities, as proposed by Leviathan in Blejer and Cheasty (1993).

Heller et al. (1986) described the conventional measurement of the deficit as a reflection of the current flow position of government-calculated by only using the cash receipts and cash expenditure in a given time period. Expenditure includes interest payments but excludes repayments of public debt.
Alternative indicators to measure the different interpretation of fiscal policy have increasingly been used by a large group of countries and international organizations such as the IMF, the World Bank, the OECD and the European Union (EU). Countries use different definitions of the budget deficit mainly because of convention, relationship with other levels of government and the structure of their budget.

The conventional budget deficit can be regarded as the resources needed during a fiscal year after government income has been deducted from total expenditure. The latter expenditure total includes interest payments but not any amortization of public debt.

Rutayisire (1987) has criticized the use of the conventional deficit as a measure of a country’s fiscal stance and as a basis for a country’s fiscal planning on the ground that it fails to isolate cyclical influences of the economy on the budget and fails to reconcile a country’s fiscal policy with medium or long term objectives of economic policy. He further argued that it will incorrectly report the monetary and inflationary implication of the budget. He suggested that the budget should be manipulated based on cyclically standardized budget rather than on balancing the conventional budget.

To overcome the shortcoming of the conventional deficit measures, alternative measures of the fiscal deficit that supplement the information provided by the conventional deficit are necessary since the complications created by the changes in inflation in the interpretation of conventional deficit make an evaluation of fiscal performance over time difficult. These measures are discussed by several authors including Buiter (1983), Tanzi et al (1987), Blejer and Cheasty (1991) and Easterly Schmidt-Hebble (1994).

To remove the effect of inflation from the interest payments, the operational or inflation-adjusted budget deficit is used. This is defined as conventional deficit less part of the debt service that compensates debt holders for actual inflation. Alternatively, it can be defined as the primary deficit plus real interest payments. If the effects of inflation are not removed, “the deficit will be observed by the size of the amortization element
included as interest payments above the line rather than below”, Blejer and Cheasty (1991). This measurement of fiscal deficit is useful for policy making when inflation is very high.

In order to remove the effects of previous deficits on the budget, Blejer and Cheasty (1991), suggest the use of the primary deficit. This refers to all government outlays except interest payments, less all revenue. Anand and Wijnberger (1989) refer to the financeable deficit which they define as the deficit that does not require more financing than is compatible with sustainable external and internal borrowing and with existing targets for inflation and output growth.

Blejer and Cheasty (1991) and, Islam and Wetzel (1991) pronounced the structural or full employment deficit as the deficit that can be used to remove the effects of fluctuations in economic activity on the budget. This is the deficit that is adjusted for cyclical movements in the economy, as advocated earlier by Rutayisire (1987). Blejer and Cheasty (1991) point out that, in the same manner that budget deficit affects and are affected by aggregate demand, the budget deficit is also affected by the business cycle and policy implementation may have varying impact depending on the stage of business cycle at the time of implementation.

In summary, the conventional measure of the fiscal deficit is the difference between total government outlay, including interest payments but excluding amortization payment on outstanding stock of public debt, and total receipts including grants, but excluding borrowing proceeds. This measure of the deficit is easily affected by inflation; as such an alternative measure is necessary to remove the effects of inflation from the interest payments. The operational deficit is therefore used since; if the effects of inflation are not removed the deficit would be overstated. However, the calculation of the operational deficit is rather technically difficult. The primary deficit can be used to remove the effects of previous deficits on the current deficit. There are also other forms of measuring the fiscal deficit which depend on the current problem at hand, such as the
financeable or sustainable fiscal deficit, which measure the deficit that is comparable with sustainable economic targets for growth and output.

Thus, the choice of a budget deficit is mainly focused on interpretation and management of fiscal policy. There is no single superior measure of the budget deficit rather a set of different budget deficits measurements, each applicable to specific condition.

2.1.2 Macroeconomic Impact of Fiscal Imbalance on Economic Growth

The relationship between fiscal deficit and growth is a controversial topic in economic theory, empirical research and economic policy making. There is no agreement among economists on theoretical ground, whether fiscal deficit is good, bad or neutral in terms of its effect on growth.

Alternative School of Thought

Generally speaking, there are three distinct schools of thought concerning the impact of fiscal deficit on growth: Neo-classical, Keynesian and Ricardian Equivalence. Since each is providing different paradigms, it is necessary to review theoretical discussion on the three alternative frameworks.

The Classical View

Although the current attention given to the budget deficit issue appears quite new, it has been analyzed for more than two centuries. Adam Smith (1723-1790) discussed the budget deficit issue in his 1776 book; ‘An Inquiry into the Nature and Causes of the Wealth of Nations’. Smith pointed out that budgets need to be balance and this balance should be the norm of government budgeting. He asserted, however, that this norm may be violated during war and emergencies.

Smith also constructed the imocat of borrowing as opposed to taxing in order to reduce the deficit. He concluded that government’s ability to borrow increased their desire to wage war. He stated that “Wars would in general be more speedily concluded
and less wantonly undertaken” (p. 526-527) if governments had to raise money by taxes instead of borrowing.

Smith analyzed the factors that lead to government deficits, which included the desire of government officials to spend, the inability and fear of raising taxes, and the willingness of capitalists to lend. The general conclusion of Smith is that “budget deficits lead to public debts that would, in the long-run probably ruin all the great nations of Europe” (p. 511).

The mainstream of economic thought prior to the publication of Keynes General Theory in 1936 did not favor government spending for stabilization purpose. The large role of government was looked down upon not only for philosophical reasons, but also because of views regarding crowding out theory.

Adam Smith for example, opposed extensive government involvement for both philosophical and crowding out reasons. For the most part, Smith (writing in 1776) considered the transfer of resources from the private sector, whether through taxation or borrowing. Borrowing funds from the public to finance government spending was asserted to involve the “destruction of some capital which had before existed in the country; by the perversion of some portion of the annual produce which had before been destined for the maintenance labour\(^{13}\). Smith believed that “saving is spending” because one man’s saving becomes another man’s investment. Later classical economists, such as John Stuart Mill and J.B. Say, writing primarily in the first half of the nineteenth century, saw in Adam Smith’s maxim a guarantee of full employment. That is, government spending was considered unnecessary as a stabilization tool, because private investment was sufficient to utilize the funds provided by private saving.

The most elementary case for crowding out may be examined in a “Say’s Law” framework. Say’s law is widely known as “supply creates its own demand.” In an

economy in which Say’s law is operative, attempts by the government to increase total spending, by rising government expenditure and financing the increasing budget by either borrowing from the public or taxation, merely induce changes in relative prices so as to reallocate the same level of real output.

In the classical case the effect of deficit-financing i.e. increase in the level of government expenditures is a rightward shift in the IS curve. Therefore, the equilibrium interest rate rises, but the level of income velocity of money remains unchanged. In this case, the increase in the interest rate results in a reduction in private investment spending which precisely offsets the increase in government expenditure.

The classical view can be illustrated graphically with the IS-LM framework in Figure below. The IS-LM framework combines the commodity market (the market for goods and services) and the financial markets. In this model, the IS curve represents all combinations of income and interest rates that satisfy the equilibrium conditions in the commodities market. On the other hand the LM curve represents all combinations of income and interest rates consistent with financial market equilibrium. By combining the IS-LM curves, the overall equilibrium of the economy can be determined. The IS-LM framework has distinct limitations, but because of its widespread use as an expository tool, it serves a useful function in highlighting the issues in the crowding out controversy. The classical case of crowding out implies a demand for money function which is completely interest inelastic. The result, in terms of the IS-LM framework, is completely vertical LM curve. The vertical LM curve (drawn for a given price level $P_0$) in the classical case, reflecting a zero interest elasticity of the demand for and supply of money. Thus, an increase in government spending which shifts the IS curve to the right can only increase the interest rate, but does not stimulate velocity. Consequently, aggregate demand, as shown in the bottom half of the figure does not shift^{14}.

^{14} Although shown as a straight line, the true spirit of the classical case would be better preserved if aggregate demand were drawn as a rectangular hyperbola.
One or more components of private spending are crowded out by an amount equal to the amount of the government spending increase. As a result, with aggregate demand failing to shift in response to the increase in government spending, crowding out occurs in both real and nominal terms.
The Neoclassical View

The Neoclassical model has three central features, which play an important role in determining the impact of budget deficits on macro economy\(^\text{15}\).

a) The consumption of each individual is determined as the solution to inter-temporal optimization problem, where both borrowing and lending are permitted at the market rate of interest.

b) Individuals have finite life spans. Each consumer belongs to a specific cohort or generation and the life spans of successive generation overlaps.

c) Market clearing is generally assumed in all periods.

According to Neoclassical model individuals planning their consumption over their entire life cycle. Neoclassical economists assume full employment of resources is attained. In this situation by shifting taxes to future generations, budget deficits increase current consumption. Moreover by assuming full employment of resources the increased consumption implies a decrease in saving. Further because of the decrease in saving interest rate must rise to bring equilibrium in the capital markets. Higher interest rates, in turn, result in a decline in private investment and economic growth to slow down.

Yellen (1989) argued that in standard Neoclassical macroeconomic models, the method selected by the government to finance its spending program affects the levels of consumption, investment and net export. Such models assume that aggregate consumption is higher and national (private plus public) saving lower, if a given government-spending programme is financed by issuing bonds rather than through current taxation. If resources are fully employed, so that output forms of spending is fixed, higher current consumption implies an equal and offsetting reduction in other forms of spending. Thus investment and/or net export must be fully “crowding out”.

According to Baxter and King (1993), the neoclassical model imply that there is a negative effect of government spending on GDP is depends on how increase in government spending impact consumption and private investment. Neoclassical economists believe that increase in government spending and tax cut “crowd out” private sector investment by increasing interest rates, the mechanism can be describe as follows: If government borrowing creates a greater demand for money and funds than it supplied, it leads to higher interest rates or higher user cost of capital, creating higher prices for private firms to borrow money. As interest rates increase, firm face a lower rate of return and thus reduce investment. So public sector gets more, it “crowd out” private sector investment. As the private sector firm take on fewer investment, they also produce less and reduce output and thus GDP falls. Since Neoclassical model assumes that economy is at full employment or capacity suggest that increase in deficit will also create long term inflationary effects. Thus, Neocalssical economists would expect to find a negative relationship between government spending and consumption, private investment and GDP.

Bernheim. B. Douglas (1989) summarizes the main empirical implication of Neoclassical view of budget deficit:

If consumers are rational, farsighted and have accesses to perfect capital market, then permanent deficits significantly depress capital accumulation and temporary deficits have either a negligible or perverse effect on the most economic variables (including consumption, savings and interest rates).

If many consumers are either liquidity constrained or myopic, the impact of permanent deficits remains qualitatively unchanged. However temporary deficits should depress savings and raise interest rates in the short run. Thus, the Neoclassical paradigm does not tie down the effects of temporary deficits, and evidence that bears on the effects of temporary deficits is not useful for testing this paradigm. It’s clear that the
fundamental lesson of the Neoclassical framework concern the effect of permanent
deficits.

**The Keynesian View**

John Maynard Keynes in 1936 provided the thrust for the proportion that
government spending does not crowd out private spending in his landmark book, ‘The
General Theory of Employment, Interest and Money’. It is ironic that certain passages
in that book provide strong support for the opposite contention.

The Keynesian views, in the context of the existence of some unemployed resources,
argue the crowd-in effect by making reference to the expansionary effect of budget
deficit. They argue that an increase in government spending enhances domestic output
and stimulate the economy in the short-run by making households feel wealthier, thus
rising total private and public consumption expenditure. Through the resulting increase in
the aggregate demand, budget deficit has a positive effect on macroeconomic activity,
thereby stimulating saving and capital formation (Chakraborty and Chakraborty, 2006). This is known as the “crowding-in” effect, which has a positive impact on growth.

It is worth noting here that the Keynesian view differs from Neoclassical paradigm in two
fundamental ways.

(a) It allows for the possibility that some economic resources are unemployed.

(b) It presupposes the existence of a large number of myopic, liquidity constrained
individuals. This second assumption guarantees that aggregate consumption is
very sensitive to changes in disposable income.

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Analysis”, MRPA Paper No. 7604, Online at http://mpra.ub.uni-muenchen.de/7604/.

In the simplest and most naïve Keynesian model, multiplier based expansion of output leads to rise in demand for money. If the money supply is fixed (that is, the deficit is bond financed), interest rate must rise, and private investment fall. This in turn reduces output and partially offset the Keynesian multiplier effect.

The significance of the Keynesian multiplier may be examined from the crowding out point of view. In the General Theory, Keynes provides a cogent and clear crowding out argument. It should be noted, however, that he chose to give money a supportive rather than a leading role in his analysis. Keynes however recognized that monetary influence could overcome the multiplier and liquidity preference constructs. Therefore Keynes himself recognized a major limitation of the multiplier constructs¹⁹.

**Keynesian Case (a)**

![Graph showing IS and LM curves with different interest rates and output levels.](image)

r = Nominal Interest Rate  
X = Real Output (Income)

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¹⁹ For detail theoretical limitation of multiplier, see Keynes (1936), The General Theory, pp. 119-120.
The limitation of the multiplier outlined by the Keynes can be summarized within the conventional IS-LM framework. If the LM curve is steeply sloped, as depicted in Fig below, the increase in government spending, reflected by a rightward shift in the IS curve, results in a sharp rise in the nominal long-term interest rate from \( r_0 \) to \( r_1 \) and little change in real output from \( X_0 \) to \( X_1 \). The steep LM curve implies that the retarding effects on investment caused by government spending are substantial. Only the shifting of the LM curve to the right by monetary expansion, for example, will lead to a large increase in real output, say from \( X_1 \) to \( X_2 \).

By pointing out this limitation of the multiplier Keynes provided a strong theoretical basis for the crowding out hypothesis. This also shifted the discussion in the literature to an empirical investigation and controversy over the slopes of the IS and LM curves, and the degree to which government is a substitute for private spending.

Keynes also recognized a second way, based on business psychology, by which government spending could crowd out private spending. Keynes, throughout his General Theory, was much concerned with expectations and confidence. He did not overlook the possibility even in those times of relatively small budget deficits that government spending could adversely affect the confidence of the private sector in its economic future. In his words:

"With the confused psychology which often prevails, the government programme may, through its effect on confidence, increase liquidity-preference or diminish the marginal efficiency of capital, which, again, may retard other investment unless measures are taken to offset it."

An increase in liquidity preference, induced by an increase in government spending from \( G_0 \) to \( G_1 \), will lead to an increase in the demand for finance. This will lead to an increase in the interest rate and a decline in the price of bond. This will in turn result in

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20 Keynes (1936), The General Theory, pp.120
individuals changing their portfolios so as to hold more money than they previously had. This is depicted as a leftward shift in the LM curve.

**Keynesian Case (b)**

A diminished marginal efficiency of investment is reflected by a backward shift in the IS curve. If the shifts in the IS and LM curve results in zero net change in aggregate demand at the given price level $P_0$, crowding out will occurred. However, the actual
change in aggregate demand may be positive, negative or negligible, depending on the relative shifts in the curve.

However, as Keynesian economists suggest any crowding-out effects are moderated by an increase in demand for goods in the private sector along with multiplier or “accelerator effect”. As the demand for goods increases, firms will want to produce more and will actually increase output causing a “crowding in” effect. In the traditional IS-LM analysis the increase in demand for private goods caused by a cut in taxes or increase in government spending stimulate IS curve, generating an increase in aggregate demand, eventually increasing output. Thus, an increase in government spending or a decrease in taxes should find a corresponding increase in consumption, GDP and interest rates. The impact on GDP is likely to be bigger if the economy is “crowding in” effect causing a much larger increase in GDP. Thus Keynesian model would predict a positive relationship between increases in government spending and investment and output, as long as the multiplier effect outweighs the impact of higher increase rates.

Therefore, many traditional Keynesians argue that deficits need not crowd out private investment. Eisner suggest that increased aggregate demand changes the profitability of private investment and leads to a higher level of investment at any given rate of interest. Thus deficits may actually stimulate aggregate saving and investment despite the fact that the raise the interest rate. In Eisner’s view, increased consumption is supplied form otherwise unutilized resources.  

Two major objections may be raised to the Keynesian theory of budget deficits:

a) The Keynesian outlook on budget deficits presupposes that the government can and will “fine tune” fiscal policy. If we grant that deficits stimulate aggregate demand, it follows that there are circumstances in which this stimulation may be

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detrimental. Even the most steadfast Keynesian is willing to concede that at full employment real deficits crowd out private investment and raise the rate of inflation.

b) Keynesian view primarily describes the effect of temporary deficits. Indeed it is essentially compatible with the Neoclassical paradigm which primarily concerns the effect of permanent deficits. In failing to distinguish between temporary and permanent deficits, Keynesians provide misleading advice to policy makers.\(^{23}\)

**The Ricardian Equivalence View**

An alternative view of the effect of budget deficit on economic growth is called Ricardian Equivalence. The Ricardian equivalence implies that deficit is merely postponement of taxes and it cannot shift the aggregate demand curve in the economy. Therefore fiscal deficit is neither good nor ill in terms of its impact on growth. The Ricardian Equivalence view described above is based on seven main restrictive assumptions:\(^{24}\):

a) Successive generations are linked by altruistically motivated transfer

b) Capital, markets are either perfect, or fail in specific ways

c) Consumers are rational and foresighted

d) The postponement of taxes does not redistribute resources across families with systematically different marginal propensity to consume

e) Taxes are non-distortionary

f) The use of deficit cannot create value (not even through bubbles)

g) The availability of deficit cannot finance as a fiscal instrument does not alter the political process.

\(^{23}\) For detail theoretical objections to the Keynesian paradigm, see Bernheim (1989).

Barro and other supporters of Ricardian Equivalence anticipated a number of the challenging and responded to them in advancing the Ricardian Equivalence conclusions.

Barro (1989) argued that tax cut will not have an impact on the overall economy due to Ricardian Equivalence. According to Barro (1989)\textsuperscript{25}, if government does not finance expenditure by tax, budget deficit would occur. If budget deficit are financed by debt, households would know that government has to increase taxes in the near future to compensate principle and interest payments. This will result in rise in individual saving because rational households in the economy try to adjust their expenditure in relation to movements in public expenditure. This extra saving will increase the national saving and therefore offset any increase in interest rate, leaving the investment unchanged. Thus the interest rates and private investment are left unchanged. Rangarajan and Srivastava, (2005) thus noted that, in Ricardian Equivalence perspective fiscal deficit will not have much impact on aggregate demand if household spending decisions are based on present value of their incomes that takes into account the present value of their future tax liability. If this is the case, one might expect to not find any relationship between tax changes, and consumption, investment and output.

Chrystal and Daniel (1988), summarizes Ricardian Equivalence perspective at the macroeconomic level as follows, deficit will not associated with increase in real interest rates, output, prices or the trade deficit. Consequently, the Ricardian view yields a radically different notion of the national debt (i.e. accumulated deficits). For those who believe in the benefits of deficit financing, the national debt should be viewed as a blessing, not a curse. For those who believe in Ricardian equivalence, deficit spending merely results in a redistribution of income and the national debt represents the cumulative amount of this net transfer.

The Ricardian Equivalence reasoning can be challenged and break down in various ways (Poterba and Summers, 1987). There are five major theoretical objections that could undermine Ricardian Equivalence include the following:

a) Finite horizons:
That is people do not live forever, and hence do not care about taxes that are levied after the death.

b) Imperfect loan markets
Ricardian Equivalence also fails because credit markets are imperfect with the typical person’s real discount rate exceeding that of the government.

c) Uncertainty about the future taxes and incomes
The uncertainty about individual’s future taxes or the complexity in estimating them implies high rate of discount in capitalizing these future liabilities. Therefore, if uncertainty increases desired national saving tends to raise with a budget deficit and vice versa.

d) The timing of taxes
Taxes are not lump sum, since they typically depend on income, spending, wealth, and so on, budget deficit change the timing of income taxes and there by affect people’s incentives to work and produce in different periods. It follows that variations in deficits are non-neutral although the results tend also to be inconsistent with the standard view.

e) Full employment and Keynesian cases
The Ricardian result depends on “full employment” and surely do not hold in Keynesian models.

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27 For detail theoretical objections to the Ricardian Equivalence approach, see Bernhein (1989).
The differences between alternative school of thought in terms of opinions and analysis are mainly due to various factors such as time dimensions, types of economy and method of analysis as well as the assumptions about individual’s behavioral responses in certain situations. Rangarajan and Srivastava, (2005) in their paper summarize the main differences in these alternative paradigms in table form.

### Fiscal Deficit and the Economy: Salient Features of Alternative Paradigms

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2.2 Empirical Studies on Fiscal Imbalance and Economic Growth

As discussed earlier, an extensive theoretical literature has argued that a country faces a problem of deficit if the government expenditure exceeds its revenues. In other words, the level of public saving is negative. This scenario may give harm to the economic growth of the country. As discussed, there are different alternative paradigms on macroeconomic impact of fiscal deficit. While the selection of an appropriate paradigm provides us with some clue as to the likely effects of deficits, the issue is ultimately an empirical one. Nowadays, there is a vast body of research that examines the impact of deficit on economic growth. The purpose of this section is to review some of empirical studies related to different concepts of government budget deficit in Indian context and impact of fiscal deficit on economic growth in context of both India and other countries.

2.2.1 Measurement of Deficit in India

In order to understand different measures of budget deficit in the Indian context, first it is important to understand the Indian budgetary system and practice. To an extent the success of a country in handling limited resources depends on how efficiently it is managed. Budget is and approach towards economic management because it clearly makes a list of all planed expenses and revenue of the state (Sullivan and Sheffrin, 2004)29.

Concept of Indian Budgetary System

The term “Budget” refers broadly to the financial proposals, which the minister for Finance puts before the Houses of Parliament or the state legislator as the case may be. In the constitution of India, reference is made to the laying of annual financial statement before the Houses of Parliament or the Legislature of the States. This document is a

statement of estimated receipts and expenditure of the government for the coming financial year and is generally known as the “Budget”. It also contains actual for the preceding year and revised estimates for the current year\textsuperscript{30}.

Under the Constitution of India, the budget is divided into two parts, viz. (a) Revenue Budget, and (b) Capital Budget. Revenue budget deals with receipts of the government from taxation and from non-tax sources. Tax revenue comes broadly from taxes on income and expenditure, taxes on property and capital transaction, taxes on commodities and services; and non tax revenue consist of interest receipts, dividends and profits, external grants. On the other hand, expenditure which does not result in creation of assets is treated as revenue expenditure with exception of grants given to the state governments. Capital budget consists of capital receipts and capital expenditure. Capital receipts composed of net recoveries of loan, net market borrowing, and net small saving collections other capital receipts such as provident fund, special deposits, etc. capital expenditure consist of expenditure on capital items, in the form of loans to state and union territories for financing plan projects and other capital expenditure on economic development, on social development and capital expenditure on defiance. Pattnaik et al. (2003) summarizes fiscal balance sheet in table form as follows:

\textbf{Fiscal Balance Sheet}

<table>
<thead>
<tr>
<th>Receipts</th>
<th>Expenditures</th>
</tr>
</thead>
<tbody>
<tr>
<td>Revenue Receipts (RR) = TR + NTR</td>
<td>Revenue Expenditure (RE)</td>
</tr>
<tr>
<td>Tax Receipts (TR)</td>
<td>General Services (GSR) – of which</td>
</tr>
<tr>
<td>Non-Tax Receipts (NTR) – of which</td>
<td>Interest payments (IP)</td>
</tr>
<tr>
<td>Interest Receipts (IR)</td>
<td>Social services (SSR)</td>
</tr>
<tr>
<td>Dividends and Profits (DP)</td>
<td>Economic Services (ESR)</td>
</tr>
<tr>
<td>External Grants (EG)</td>
<td>Grants-in-Aid (GIA)</td>
</tr>
<tr>
<td>Capital Receipts (CR) – of which</td>
<td>Capital Expenditure (CE)</td>
</tr>
</tbody>
</table>

\textsuperscript{30} Manual on Financial and Banking Statistics (2007), Reserve Bank of India
As mentioned above, revenue and expenditure are two most important aspects of government budget. If the revenue is more than the expenditure then it is budget surplus. If the revenue is less than the expenditure then it is a case of budget deficits. There are various concepts of deficit relating to government budget. The type of deficit will depend on the type of receipts taken into account.

**Definition and Measurement of Deficit**

The concept and measurement of deficit in Indian context has advanced over a period of time. The use of single measure of budget deficit to assess the impact of fiscal policy has been in vogue till late 1980s. The fiscal gap up to mid-1980s were measured in terms of ‘budget deficit’ which referred mainly to the changes in the amount of ad hoc Treasury Bills and other 91-day Treasury Bills outstanding and the changes in the central
government’s deposit balances with the reserve bank and its other cash balances. In fact, until the beginning of the 1990s, there was no unique concept of budget deficit relevant to all purposes and occasions. Depending on the nature of the quest, the relevant budget deficit concept could have been the government revenue deficit, the capital deficit, or overall deficit (Gill, 1991)\textsuperscript{31}.

Chkravarty Committee emphasized the need to have a measure for the full extent of government’s reliance on reserve bank so as to quantify the monetary impact of fiscal operations. Since a sizeable part of the new issues of government securities was taken up by the Reserve Bank in the absence of adequate response from the market and subscription to dated securities had as much effect on the reserve money growth as purchase of Treasury Bills, the committee recommended that the net changes in the Reserve Bank’s holding of dated securities and Treasury Bills after adjusting the government deposits with the RBI, i.e., the net RBI credit to the government, may be taken to measure the extent of monetization of government deficit. The committee also recommended that the fiscal gap be measured in items of fiscal deficit which would measure the net borrowing requirement of the government.

Rangarajan, Basu and Jadhav (1989) for the first time conceptualized multiple deficit indicators. The Economic Survey of the government of India for 1989-90 brought out a measure of the fiscal gap in terms of the difference between government expenditure and net lending on the one hand and current revenue and grants on the other.

The concept of budgetary deficit has become redundant following the discontinuance of ad hoc treasury bills with effect from April 1997, which earlier served as a source for bridging the temporary mismatch between receipts and expenditure of the government. This system has been replaced by ways and means advances. Union Government has entered into an agreement with RBI in March 1997 regarding

discontinuing the practice of issuing the hoc treasury bills to replenish the cash balance with effect from April 1997. RBI makes ways and means advances to Union Government, if so required (CAG report).

The budget for 1999-2000, switched over a new accounting practice from April 1, 1999 whereby loans to states against small savings collections are to be made from the especially created “National Small Savings Funds” (NSSF) under the public account. Hence, these were not included in the centre’s expenditure and were, therefore, not a part of its fiscal deficit.

Pattnaik (2003) developed a time series data since 1950-51 extending Rangarajan et al. (1989). Rangarajan et al. (2003) have recently pointed out that the official figure of fiscal deficit show discrepancies, as the non-cash transactions are not included.

Therefore, there is no single criterion to measure the resource gap in the government finances. The choice of a particular measure is purpose specific. In the context of Indian public Finance, the traditional approach while measuring the resource gap takes into consideration revenue account gap, capital account gap and overall gap. Of late, there has been a frequent mention of the concept of gross fiscal deficit (GFD) by researchers while analyzing the finances of the state governments; one variant of GFD viz., Primary deficit, which is analytically useful to examine the current operations of the Government finances, has been introduced in Indian public finance. The different measures of deficit (resource gap) in Indian context are set out below.

(a) **Revenue deficit** (RD) denotes the differences between revenue receipts and revenue expenditure. Current revenue expenditure of the central government is composed of plan and non-plan expenditure of the government, and is met out of current revenue receipts, which include net tax revenue and non-tax revenue.  

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32 Net tax revenue and not gross tax revenue because part of the proceeds of the tax revenue is transferred to the states
Revenue Account Gap = Revenue Deficit (RD) = Revenue Receipts (RR) – Revenue Expenditure (RE)

(b) **Capital Deficit** denotes the differences between capital receipts and capital disbursements.

   Capital Account Gap = Capital Account Deficit (CDA) = Capital Receipts (CR) – Capital Disbursements (CD)

(c) **Conventional Deficit or Budgetary Deficit** (overall deficit) is the difference between all receipts and expenditure. Budgetary deficit defines as the excess all budgeted expenditures over the all budgeted receipts. This measure takes into account, both revenue plus capital receipts and both revenue plus capital expenditure.

   Overall Gap = RD + CAD = (RR – RE) + (CR – CD) = [(RR+CR) – (RE+CD)]

(d) **Gross Fiscal Deficit** (GFD) is the difference between aggregate disbursements net of debt repayments and recovery of loans and revenue receipts and non-debt capital receipts. Thus this concept of deficit does not take into account all types of receipts. It does not take into account borrowing. Fiscal deficit, which is equal to the difference between the total expenditure and sum of the revenue and capital, receipts (only recoveries of loan and other receipts and except borrowing and liabilities).

   Gross Fiscal Deficit (GFD)

   
   = RE + [CD-(discharge of Internal Debt (DID) + Repayments of Loan to Centre (RLC) + Recoveries of Loans & Advances (RLA)] – RR

   = RE + [Capital Outlay (CO) + Loans & Advances by States (LAS) + DID+RLC – (DID + RLC + RLC)]
\[ = (RE-RR) + [CO + (LAS-RLA) + (DID-DID) + (RLC-RLC)] \]

\[ = RD + CO + \text{Net Lending (NL)} \]

(e) **Net Fiscal Deficit** (NFD) is the gross fiscal deficit less net lending of the State Governments.

\[ \text{Net Fiscal Deficit (NFD)} = \text{GFD} – (\text{LAS – RLA}) \]

(f) **Gross Primary Deficit** (GPD) is defined as GFD minus interest payments. Therefore, primary deficit, is the difference between fiscal deficit and interest paid (interest is paid on the money which government takes to finance the deficit in budgets).

\[ \text{Primary Deficit (PD)} = \text{GFD} – \text{Interest payments (IP)} \]

(g) **Net Primary Deficit** (NDP) denotes net fiscal deficit (NFD) minus net interest payments.

\[ \text{Net Primary Deficit (NDP)} = \text{NFD} – [(\text{IP} – \text{Interest Receipts (IR)}] \]

(h) **Primary Revenue Balance** denotes revenue deficit minus interest payments.

\[ \text{Primary Revenue Balance (PRB)} = \text{RD} – \text{IP} \]

(i) **Net Primary Revenue Balance** denotes revenue deficit minus net interest payments.

\[ \text{Net Primary Revenue Balance (NPRB)} = \text{RD} – (\text{IP} – \text{IR}) \]

From the above identities it is clear that the budget deficit is the difference between the expenditure of the government and the tax revenues that government received. Similarly fiscal deficit too is termed as the difference between government’s spending and earning, the difference between budget deficit and fiscal deficit is that in fiscal deficit
the earning from borrowing and liabilities is not counted (Galbraith and Darity, 1995). However, fiscal deficit is comprehensive and better measure of deficit as compare to budgetary deficit. We can say so on account of two reasons. First, it is an indicator of real volume of problem of funding resources to meet expenditure needs. It indicates the expected total increase in liabilities during the year. Budgetary deficit indicates only a part of this. Second, fiscal deficit is also an indicator of increase in future liabilities in form of interest payment and loan payments. When government borrows, it has also to pay back this money with interest. In order to pay interest and repay loan government may have to either borrow more or tax people heavily in future years.

### 2.2.2 Empirical Studies Relating to Fiscal Imbalance and Economic Growth

An important strand of macro-fiscal empirical literature which has received a great deal of attention from economists relates to the impact of fiscal deficit on economic growth. The empirical research in this direction can broadly be compartmentalized into three categories. One category of empirical researchers bases their finding on classical and neoclassical theoretical foundation, second base their finding on Keynesian theoretical foundation and third category support Ricardian Equivalence theorem.

Much of empirical work that exists examines the effect of government budget deficit on economic growth. Some researchers agreed with the classical and neoclassical though in which there is negative relationship between budget deficit and economic growth. As Ball and Mankiw (1995) noted, running public fiscal deficits typically reduces national savings and lower national savings, in turn leads to reduce investment and reduced net exports. Investment is curtailed because a drop in national savings restricts the supply of loanable funds, forcing interest rate higher. In the long run, the fall in investment lowers the capital stock, reducing productive capacity and output. The

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crowding out of investment and capital also lowers productivity growth and hence real wages.

In a major attempt, Glannaros and Kolluri (1989) applied the OLS technique on different models, i.e. fisher equation and IS-LM general equilibrium model by using data set of five industrial countries from (1965-1985). They yielded three different results; firstly there is negative relation between interest rate and inflation, secondly there is an indirect significant effect of budget deficit on interest, thirdly the study did not find any clear relation between variables with the help of other exogenous variables. Barro (1991) examined 98 countries during the period 1960-1985 and reported a negative relationship between output growth rate and the share of government consumption expenditures. When the share of public investment was considered, Barro found positive but statistically insignificant relationship between public investment and the growth rate.

Anusic (1993) used data of republic of Croatia from (1991-1992) and explored that budget deficit is a priori harmful for the proper and smooth economic system, he gave the reference of Keynesian economic theory; the increase in budget deficit will cause to increase real interest rate, this increase will cause decrease in real investment. The impact of budget deficit on overall economy and for it smoothness is harmful, but it also depends on the internal condition and way of financing of any country. In a similar way, Cebula (1995) examined the impact on per capita real economic growth in the United States of federal budget deficits with quarterly data over the 1955-1992 periods. The empirical findings indicated that federal budget deficits, over time, reduce the rate of economic growth.

Similar to the above study, Anyanwu (1997), by his calculation of simple correlation between fiscal deficit and other major macroeconomic variables, showed that fiscal deficit has a high negative correlation with GDP, GDP growth rate, per capita GDP, exchange rate, gross capital formation, private consumption and domestic savings. There is a negative but weak correlation with inflation as well as weak positive
correlation with Gross Domestic Investment-GDP ratio. Moreover, Ghali (1998) used multivariate co integration techniques to develop a vector error-correction model to investigate the long-run effects of public investment on private capital formation and economic growth. It is worth noting that this study used a neoclassical production function where the private and public capital stocks are treated as separate inputs. They apply their methodology to the data from Tunisia over the period 1963-93. This study found that in the long run, public investment is found to have a negative impact on growth and private investment. In short run, public investment had a negative impact on private investment and no effect on growth.

In a major attempt, Bahmani (1999) investigated the long-run relationship between U.S Federal real budget deficits and real fixed investment using quarterly data over the 1947-1992 periods. The empirical results indicated that real budget have crowded in real investment, supporting the Keynesians who argue for expansionary effects of budget deficits, by raising the level of domestic economic activity, crowd-in private investment. Shojai (1999) concluded that deficit spending, financed by the central bank, can also lead to inefficiencies in financial markets and cause high inflation in the developing countries. At the same time budget deficits also distort real exchange rate and interest rate, which in turn undermines the international competitiveness of the economy. Gemmel (2001) from low income, medium and high income countries contradicts most of the earlier evidences on the impact of budget deficit on growth. The study revealed significantly negative effect of budget deficit on economic growth.

Nyong and Odubekan (2002) in their study using ordinary least square estimation procedure showed that monetary financing of deficits leads to an increase in the money supply which affects inflation. The increase in inflation generates instability in the macro economy and hence poor economic growth due to the negative signal it sends to the investor and savers. Brauninger (2002) concluded a study on the interaction of budget deficit, public debt and endogenous growth. The finding is that if the deficit ratio fixed by the government stays below a critical level, then there are two steady states where capital
and public debt grow at the same constant rate and an increase in the deficit ratio reduces growths. Therefore, if the deficit ratio exceeds the critical level, then there is no steady state. Capital growth declines continuously and capital is driven down to zero in finite time.

The empirical work of Adam and Bevan (2004) examined the relationship between fiscal deficits and growth (GDP) for a panel of 45 developing countries. Based on the consistent treatment of budget constraints, it found evidence of a threshold effect at a level of the deficit around 1.5 per cent of GDP. The threshold involves not only a change of slope but also a change of sign in the relation regardless of the budget category excluded from the model, indicating that an economy is not on its steady state growth path, there is a range over which deficit-financing may be growth-enhancing. Perotti’s (2004) study of five OECD countries revealed that the effect of fiscal policy on GDP tends to be small and the effect of government spending shocks and tax cuts on GDP and its components have become substantially weaker over time.

In another study, De Castro (2004) investigated the effect of fiscal policy in Spain and found that shocks to government expenditure boosts GDP, private consumption and investment, with multipliers close to one in the short term and negative in the medium and long term. Gulcan and Bilman (2005) used co-integration method and causality test and applied ADF, PP and RPSS unit root test to investigate the stationary of the individual time series. They considered data of Turkey for the period 1960 to 2003 and found there is a strong impact of budget deficit on the real exchange rate. The study showed that the role of the budget deficit to maintain the real exchange rate is very crucial. They suggested that government must focus to stable the budget because the trade balance is significantly affected by real exchange rates.

According to Ozatay (2005), budget deficits lead to instability in the economy through the expectations about how deficits will be financed. If the private sector is assumed to expect that government will monetize the deficit and therefore lead to
inflation, these expectations will lead to inflation even though the authorities do not monetize the deficit. The real sector will suffer from the crowding out of budget deficits, leading to reduced output growth. This will put prices up, resulting in inflation. In contrast, Tan (2006) examined both the long run and short run relationship between fiscal deficit, inflation and economic growth in Malaysian economy during 1966-2003. They found the absence of long run relationship among these variables and also found that fiscal deficits appeared to have neither long run nor short run links with incomes.

The study conducted by Olowononi (2006) showed that fiscal deficits had negative impacts on most macro economic variables. The results showed that fiscal deficits had increasingly caused inflation in Nigeria. The fiscal deficits were negatively related to unemployment, meaning that the results confirmed the prescription of economic theory that rising fiscal deficits leads to reduce unemployment. It was also discovered that there is negative relationship between fiscal deficits and gross capital formation and private investment in Nigeria. Huynh (2007) conducted his study while collecting data from the developing Asian Countries for the period of 1990 to 2006. He concluded that there is negative impact of the budget deficit on the GDP growth of the country while simply analyzing the trend in Vietnam.

Brender and Drazen (2008) found that high budget deficit recorded by a country will give negative signals to the citizen that the government authorities did not perform well in managing the funds of a country. As a result, there is a probability of re-election process to be conducted in order to replace the authorities. Indirectly, the authorities who did not perform well may not be able to bring the country to the upper level. Hence, it will not contribute to high economic growth due to lack of confidence among citizens, investors and other neighboring countries. Nurudeen and Usman (2009) used the co-integration and error correction method to analyze the relationship between government expenditure and economic growth in Nigeria. The results showed that government total capital expenditure and total recurrent expenditures have negative effect on economic growth.
In his study (Keho, 2010), used time-series data to investigate the casual relationship between budget deficit and economic growth in the member countries of the West African and Monetary union. He made use of Granger causality test and the empirical evidence showed mixed results. In three cases, he did not find any causality between budget deficit and growth. In the remaining four countries, deficits have adverse effect on economic growth.

Avila (2011) analyzed the relationship between fiscal deficit, macroeconomic uncertainty and growth of Argentina for the period 1915-2006, and concluded that the deficit hampered on per-capita income growth in Argentina through the volatility in relative prices. Similar to above study, Fatima et al. (2011) aimed at verifying the impact of government fiscal deficit on investment and economic growth using time series of thirty years stretching between 1980 and 2009 and believed that fiscal profligacy has seriously undermined the growth objectives thereby adversely impacting physical and social infrastructure in the country.

On the other hand, some researchers agreed with the Keynesian thought in which there is positive relationship between budget deficit and economic growth. Ram (1986) studied the linkages between government expenditure and economic growth for a group of 115 countries during the period 1950-1980. He used both cross-section and time series data in his analysis and confirmed a positive influence of government expenditure and economic growth. Similarly, Eisner and Pieper (1987) reported a positive impact of cyclical and inflation-adjusted budget deficits on economic growth in the United States and other Organization for Economic Cooperation and Development (OECD) countries.

In a major attempt, Erkin (1988) examined the relationship between government deficit financing and economic growth, by proposing a new framework for New Zealand. The empirical results showed that higher government spending does not hurt consumption, but instead raises private investment which in turn accelerates economic growth. Hsieh and Lai (1994) on seven industrialized countries suggest that the
relationship between government spending and growth can vary significantly across time as well as across the major industrialized countries that presumably belong to the same growth club. For the most of the countries under study, public spending is found to contribute, at best, a small proportion to the growth of an economy.

According to Al-Khedar (1996) interest rates increases in short run due to budget deficit, but in long-run there is not impact explored. He studied taking VAR model by selecting data of G-7 countries for the period 1964-1993. He also explored that the deficit negatively affects the trade balance. However the budget deficit has a positive and significant impact on economic growth of the country.

Ghali (1997) investigated the relationship between government spending and economic growth in Saudi Arabia using annual data over the period 1960-1996. The conclusion of this study found no consistent evidences that changes in government spending have an impact on per capita real output growth. Ghali and Al-Shamsi (1997) utilized Co-integration and Granger causality to investigate the effect of fiscal policy on economic growth for small of oil producing economy of the United Arab Emirates over the period 1973-1995. The study provides evidences that government investment has positive effect on economic growth, whereas the effect of government consumption is insignificant.

According to Kelly (1997) public investment and social expenditure may promote economic expansion by reducing social conflicts and hence, creating a climate conducive for investment in human and physical capital. He also contends that social expenditures enhance growth by fostering welfare and productivity improvements. Kelly, continue to argue that the complementary of public and private action is likely to be important in developing nations where such factors as severe income disparity, asset concentration, disparate nature of production in the agriculture and industrial sectors and fragmented financial markets which characterize most developing countries, may warrant substantial public investment programmes. In such instances, public investment is likely to be a
central determinant of successful private sector activity and economic growth e.g. (infrastructure capital, social expenditures)

In another study, Bose et al. (2003) examined the growth effects of government expenditure for a panel of thirty developing countries over the decades of the 1970s and 1980s and found that the share of government capital expenditure in GDP is positively and significantly correlated with economic growth, but current expenditure is insignificant. Further, Loizides and Vamvoukas (2005) employed the ‘trivariate’ causality test to examine the relationship between government spending and economic growth, using data set on Greece, United Kingdom and Ireland. The authors found that government expenditure granger causes economic growth for in all the countries they studied. The finding was true for Ireland and the United Kingdom both in the long and short-run. The results also indicted that economic growth granger causes public expenditure for Greece and United Kingdom, when inflation is included.

Gupta et al. (2005) assessed the effect of fiscal consolidation and expenditure composition on economic growth in a sample of 39 low-income countries during the 1990s. The paper found that strong budgetary positions are generally associated with higher economic growth in both the short and long terms. Bose, Haque and Osborn (2007), examined the relationship between budget deficit and economic growth for 30 developing countries from 1970 to 1990. By using panel data analyses, they found that the budget deficit helps the economy to grow provided that the deficits were due to productive expenditures such as education, health and capital expenditures.

Aisen and Hauner (2008) found with the help of data from (1970-2006) of sixty advanced and state including emerging states, by using reduced form equation. Results of baseline showed that the coefficient is highly significant, as 1% increase in deficit increase the interest rate by 44 points. The result of overall countries showed that budget deficit have negative effect on interest rate during (1985-1994), but effect positive after 1995. Overall conclusion divided into three portions firstly budget deficit have positive
effect on interest rate, secondly this effect varied from country to country, and thirdly effect depend on interaction terms.

In addition, Vamvoukas et al (2008) explored, with the help of Keynesian preposition and Ricardian equivalence, the effect of budget deficit on interest rate and inflation, while using data of Greek economy from (1984-2001) by applying co-integration analysis, granger causality and impulse function (IRF). Empirical finding of this the study support Keynesian model of a significant and positive relationship between budget deficits and interest rates. Taylor et al. (2012) examined the interaction between the ‘primary’ fiscal deficit, economic growth and debt for the period 1961-20 of USA. They found a strong positive effect on growth of a higher primary deficit, even when possible increases in the interest rate are taken into account.

In opposite to the above two views some researcher found that there is neutral relationship between budget deficit and economic growth. Guess and Koford (1984) used the Granger causality test to find the causal relationship between budget deficits and inflation, GNP and private investment using annual data for seventeen OECD countries for the period 1949-1981. They concluded that budget deficits do not cause changes in these variables.

Nelson and Singh (1994) used data on a cross section of 70 developing countries during two time periods, 1970-1979 and 1980-1989, to investigate the effect of budget deficits on GDP growth rates. This study concludes that the budget deficit had little or no significant effect on the economic growth of these nations in the 1970s and 1980s. Lozano (2008) collected quarterly data of last 25 years (1983-2007) and using vector error correction (VEC) model explored a mixed relationship of inflation and money growths with fiscal deficits.

Dalyop (2010) examined the effectiveness of fiscal deficits on the growth rate of the Real Gross Domestic Product and found that fiscal deficit in Nigerian economy is Ricardian. Fiscal deficits therefore had little effect on the level of economic activity.
Rahman (2012) investigated the relationship between budget deficit and economic growth from Malaysia’s perspective by using quarterly data from 2000 to 2011. It was found that there is no long-run relationship between budget deficit and economic growth of Malaysia, consistent with the Ricardian equivalence hypothesis.

It can be concluded from the empirical studies presented in this section that there are some similarities and differences between these studies dealing with the impact of budget deficit on economic growth. The similarities are that some of them used the same estimation technique. For example Barro (1991); Nelaon and singh (1994); Kelly (1997); among others estimated their economic model by using the OLS method.

Furthermore, many other studies resulted in a similar conclusion in both developed and developing countries and support to the existence negative impact of budget deficit on economic growth. (For example, Barro (1991); Ghali (1998); Keho, (2010); among others). In contrast other studies suggest different conclusion. Studies such as Erkin (1988); Gupta et al. (2005); Taylor et al. (2012), among others, found support a positive relationship between budget deficit and economic growth. Thus, overall results from the empirical literature with respect to the impact of the impact of budget deficit on economic growth are ambiguous, but the bulk of the empirical literature finds a significantly negative effect of budget deficit on growth while some empirical literature are found positive and neutral relationship although less robust.

In the Indian context, Mohanty (1997) evaluates various fiscal policy options from the point of view of macro-economic stability and growth in the Indian economy. The study explored that the current programme of bringing down the fiscal deficit ratio to 4 per cent of GDP is expected to lower inflation and interest rate in the economy and strengthen the sustainability of fiscal balance in the long run. In the context of growth, the paper conclude that, fiscal adjustment needs to be tailored to reverse the declining trend in infrastructure investment and basic social services and to improve the productivity of resource use in public sector. These long-term reform measures assume as
much critical importance in prompting growth in the economy as in reducing the fiscal deficit ratio to a sustainable value.

Mallick’s (1999) study is an attempt to examine the long run and short run relationship between output growth, private investment and public investment with induction of several other relevant macro variables into the co integration and vector correction model for the period 1950-51 to 1995-96. The study finds that in the long run private investment is positively related to bank credit for private sector, public investment, real interest rate, and human capital; and in the short run it is negatively related to interest rate. Moreover, The Report of the Economic Advisory Council (EAC, 2001) stress that high fiscal deficits, by rising real interest rates, crowd out private investment, especially in the context of the government borrowing being predominantly used to finance revenue deficit.

Singh and Sahni (1984), using the Granger-Sims methodology, initially examined the causal link between government expenditure and national income in bivariate formwork. Their empirical results, suggest that the causal process between public expenditure and national income in India is neither Wagnerian nor Keynesian. Ahluwalia (2002) observed that India’s fiscal and debt indicators are comparable to or worse than that of Argentina, Brazil and Turkey, countries which have actually experienced a serious recent macroeconomic crisis. They nevertheless, concluded that India is not vulnerable to a repeat of its 1991 fiscal and balance of payments crisis because of the built up of foreign exchange reserve, capital controls, flexible exchange rate system and widespread public ownership of banks.

Pinto and Zahir (2004) argue for further fiscal adjustment to eliminate the threat to sustained growth steaming from the crowding out of public and private investment, and constraint imposed on the domestic financial system by the financing needs of the government budget. Feldstein (2004) observed that if India did not have its current
central government deficit of some 6 per cent of GDP the gross rate of capital formation could raise from 24 per cent of GDP to 30 per cent.

Srivyal and Venkata (2004) examined the interaction of budget deficit of India with other macroeconomic variables such as nominal effective exchange rate, GDP, consumer price index and money supply (M₃) giving special emphasis on the budget-exchange rate relationship using co-integration approach and variance error correction model (VECM) for the period 1970-2002. The results reveal that the variables under study are co-integrated and there is a bi-directional causality between budget deficit and nominal effective exchange rates. However, they have not observed any significant relationship between budget deficit and GDP, money supply and consumer price index. It is also observed in the paper that the GDP granger causes budget deficit where as budget deficit does not.

In their study, Rangarajan and Srivastava (2005) examined the long-term profile of the fiscal deficit and debt relative to GDP in India, with a view to analyzing debt-deficit sustainability issues, along with relevant considerations to determine a suitable medium and short term fiscal policy stance. Authors argued that large structural primary deficits and interest payments relative to GDP have had an adverse effect on growth in recent years.

According to Murty and Soumya (2007) deficit financing provides stimulus to economic growth by financing investment, employment and output in the economy. When government resorts to deficit financing for development, large sums are invested in basic heavy industries with long gestation period and economic and social over heads. This leads to immediate rise in monetary incomes while production of consumption goods cannot be increased immediately with the results that prices go up. However, it helps rapid formation of economic growth and development.

Rajan and Sharma (2008) examined the effect of government development spending on economic growth during the period 1950-2007. They discovered a
significant positive impact of government expenditure on economic growth. They reported the existence of co-integration among the variables. Kumar and Soumya (2010) tried to quantify the relationship between GDP growth and fiscal deficits taken as percentage of GDP estimated a simple regression equation. The result yielded a negative correlation, though a weak one, between GDP growth and fiscal deficit as percentage of GDP. However, the long-run relationship between fiscal deficit and GDP, using the logarithm of both to avoid non-stationary problem, was surprisingly a positive one.

Mohanty (2012) examined both the short run and long run relationship between fiscal deficit and economic growth in India by covering the time period from 1970-71 to 2011-12. Johansen co integration test, granger causality test and vector error correction model (VECM) technique was used to examine the objective of the study. The author found a negative and significant relationship between fiscal deficit and economic growth in the long run but discard the short run relationship. Further author conclude that one percent increase in fiscal deficit is likely to significantly decrease gross domestic product by 0.22 percent. The study also revealed that the negative impact of post-reform fiscal deficit on economic growth is more than the impact of pre-reforms fiscal deficit.

From the above review of literature of empirical studies, it can be concluded that most of the existing study in India have examined the interrelationship between interest rate, debt, money supply, private investment and public investment in relation to the change in budget deficit/fiscal deficit. Studies in the Indian context examining the impact of fiscal deficit on economic growth are highly limited. However, a few studies have attempted to examine the relationship between fiscal deficit and economic growth. The present study is another attempt to fill these gaps that tries to arrive at appropriate fiscal policy implications.