

FISCAL DEFICIT AND ECONOMIC GROWTH NEXUS: FURTHER EVIDENCE FROM INDIA THROUGH DISAGGREGATED APPROACH USING ARDL BOUNDDS TEST TO CO-INTEGRATION

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Abstract:

In recent years, growing population will exert additional pressures on budgets and hence democracy has a deficit bias and India is not exception to it. In order to break this, India embarked upon a self-imposed fiscal rule in terms of Fiscal Responsibility and Budget Management (FRBM) Act 2003 and FRBM rule 2004. However, neither analytical frame work nor empirical results provide substantial ground to answer, whether fiscal deficit has positive, neutral or negative impact on investment and growth. In this context, the proposed explorative research makes an attempt to examine how size and quality of fiscal deficit influences economic growth. This study used time series RBI data covering period from 1975-76 to 2014-15. Also, unit root test, co integration and ARDL model adopted here to evaluate short run and long run relationship between variables. The empirical result reveals that the economic growth rate (GDP) positively responsive to net fiscal deficit and it negatively responsive to net revenue deficit in the long run. Thus, the study suggests government to focus their concentration on proper revenue deficit management in order to increase purchasing power with persistently low level of inflation.

Key words: ARDLapproach, Economicgrowth, Empericalreview, Fiscaldeficit, Revenuedeficit, Theoreticalreviews.

1. Introduction:

Various Governments in the world have the aim of attaining economic development which implies an improvement in the quality of all facets of lives of citizens. Thus most governments have the aim of attaining and sustaining economic growth, reducing price levels, lowering unemployment and attaining international competitiveness through controlling balance of payments deficits which would help attain economic development. Broadly, in an attempt to achieve the above objectives, governments have resorted to both fiscal policy and monetary policy. Fiscal policy simply has to do with government revenue and expenditure while monetary policy has to do with the demand and supply of money in an economy. However, it is worth noting that, there could be trade-offs in Government's attempt to achieve the above stated objectives.

India basically a demand constraint economy and hence, the central and state government have been taking several policy measures to reduce poverty, unemployment and inequalities. The poor performance of public sector units, difficulties in financing of public sector deficits, and implications for macroeconomic stability and growth have prompted a reconsideration of the role of fiscal policy in the growth process (JBIC, 2001). **However**, in the late 1980s and early 1990s, the Indian economy was bedevilled with huge fiscal deficits and monetization which affected the external sector. The situation was very bad to the extent that it made government unable to pay for 2 weeks of imports and hence leading to an economic crisis in 1991. This led to the emergence of economic reforms including fiscal consolidation. In the early 1990s, these reforms performed very well; however fiscal consolidation stalled after 1997-98 and hence a resurgence of rising deficit. This made the Government to introduce the Fiscal Responsibility and Budget Management (FRBM) Act 2003 to check the degenerating fiscal deficit. The FRBM rules were notified in July 2004. The aim of the Act was to ensure long run macroeconomic stability, inter-generational equity in fiscal management, better coordination between monetary and fiscal policy, and transparency with regards to Government's fiscal activities. One of the targets of the act was that, by 2008-09, fiscal deficit would be lowered to 3% of GDP with a target of 0.3% of GDP annually by the Central government. Further it was targeted to reduce revenue deficit by 0.5% of GDP annually with full elimination to be attained by 2008-09. The onus was on government to follow these targets and in case the targets are not attained, the finance minister had to explain and offer solutions (Rustagi, 2016). Thus from the FRBM act, it is compulsory for the Central government to take steps toward, eliminating revenue deficit, reducing fiscal deficit and generating revenue surplus in the upcoming years. Therefore per the act, both current and future Governments must work towards fiscal consolidation. Government can only deviate from the path of fiscal consolidation in the case of national security, natural calamity and other exceptional situations which may be specified by the Central Government (Rustagi, 2016). The act further makes monetary policy autonomous of fiscal policy by barring government from borrowing form the Reserve Bank of India (RBI). The Act after 2006 also prohibited the RBI from purchasing primary issues of the Central Government securities and hence curbing monetization of government deficit. Also per the act, government is required to lay before parliament in each financial year, 3 policy statements which are: Macroeconomic Framework Policy Statement, Medium Term Fiscal Policy Statement and Fiscal Policy Strategy Statement. Amendments were made to the FRBM act 2003 via the Finance Act 2012, where the [Medium Term Expenditure Framework Statement \(MTEF\)](#) in addition to the previous 3 policy documents, shall be laid before both Houses of Parliament by the Central Government (Rustagi, 2016).

Following the Amendments in 2012, appropriate measures have been taken by the Union Government to reduce revenue deficit and fiscal deficit in order to oust the effective revenue deficit by March 31st, 2015 and hence generate adequate effective revenue surplus as well as attain revenue deficit of not more than 2 % of GDP by March 31st, 2015. However, Vide the [Finance Act 2015](#), elimination of effective revenue deficit has now been extended to March 2018. The fiscal deficit target of 3% has now extended to the end of 2017-18. Keeping in view the above backdrops, in this study attempt have been made concentrating to find out how fiscal deficit affect economic growth given that economic growth is a prerequisite for economic development in India. Also, the study aims to examine whether India can sustain moderate level of fiscal deficit up to around 3-5 percent of GDP?

2. Fiscal Deficit and Economic Growth: a Theoretical Perspective

More recently, one of the highly debated topics still remains unsettled among economists which are how fiscal deficit affect economic growth. The proponents of the Keynesian School thought to believe that rising fiscal deficits as a result of investments (especially in infrastructure) in the public sector emanating from an appropriate policy design can incentive the private sector to invest more and hence leading to overall economic growth. Thus there would be rather “crowding in” of the private sector. On the other hand, Classical and Neo Classical economists believed that high fiscal deficits due to rising investments in the public sector may “crowd out” the private sector due to rising interest rate especially if the deficits are financed through public borrowing. It could also work via price level movements depending on the means of financing the investment and the utilization capacity level in the economy. Generally, public expenditure increases aggregate consumption in the economy which results in a fall in aggregate savings. Hence, higher interest rates due to falling aggregate savings, which in effect reduces private investment and total economic activity in a closed economy. However, in the context of an open economy, real currency appreciation and higher capital inflows resulting from higher public investment lead to lower net exports and hence a fall in economic activity. In the above argument, the implicit assumption is that the economy is already close to full capacity level (Kumar & Soumya, 2010).

Another view touted as the Neo-Ricardian argument is that the impact on the economy as a result of rising public investment is neutral. Thus economic agents behaving rationally in the economy work to adjust their expenditure to be in line with movements in public expenditure. Therefore, there is no effect on the economy and total savings is also unaffected.

It is argued that lower fiscal deficits lead to higher as well as sustainable growth and higher fiscal deficits apparently lead to reducing aggregate savings and may result in high interest rates, inflation and balance of payments pressures (IMF, 2015) which leads to policy uncertainty and hence affecting growth via the misallocation of resources caused by price distortions and the volatility of returns on investment (Fischer, 1993; Fatas & Mihov, 2013 as cited in IMF, 2015). Also, the large fiscal deficits may lead to huge accumulation of public debt, increase rate of interest and crowding out private investment, increasing uncertainty over future taxation and making feeble resilience to shocks by a country tends to reduce growth (Krugman, 1988 as cited in IMF, 2015). In contrast to this, many development economists argue that if the fiscal deficit is dominantly in the form of capital expenditure, it contributes to future growth through demand and supply linkages, and in fact can create so much demand in the economy that private investment may crowd-in to supplement autonomous investment (Govt, 2000b as cited in CBGA, 2007). Deficit per se is not bad as the Indian economy is a demand-constrained economy which characterised by existence of underemployment of resources and production at much less than its optimal level (CBGA, 2007).

3. Empirical Review on Fiscal Deficit and Economic Growth

Easterly (2004) point estimate on fiscal deficit and economic growth reveals that a 5 percentage point improvement in the government's budget balance leads to a 0.69 percentage point increase in the growth rate. Raju and Mukherjee (2010) found no long run relationship between the net exports, fiscal deficit and crowding out of formation of private capital in India. Sanhita and Sethi (2011) OLS reveals that FRBM Act does not have a significant effect on the Gross Fiscal Deficit (GFD) to GDP ratio where as GDP (at factor cost) growth rate has a significant negative effect on the GFD to GDP ratio. Bhoir and Dayre (2015) pointed out that the fiscal deficit does not have any significant impact on economic growth in India. Roth and Sir (2016) in Odisha-India, found a long run association between economic growth (Positive Impact on Growth) and fiscal deficit while the VECM model showed unidirectional causality that runs from fiscal deficit to economic growth in both the short run and long run. Mohanty (n.d) analysed relationship between fiscal deficit and economic growth and the results showed that there is negative and significant impact of fiscal deficit on economic growth in the long run. Further the study revealed that the impact of post reform fiscal deficit on economic growth is greater than that of pre-reform's fiscal deficit. Mishra (2015) qualitative shift in expenditure from revenue to capital expenditure would result in higher growth with bit of inflation effect of deficit could be moderated by increasing supply side through a production function. Navaratnam and Mayandy (2016) examined the impact of fiscal deficit on economic growth in India, Bangladesh, Nepal, Sri Lanka and Pakistan. The findings showed that aside Nepal where there was a positive impact, fiscal deficit had a negative impact on economic growth in all the other remaining countries. However, this study used a more current data (data up to 2015) than all these studies above which means covering more post FRBM period and would better inform the impact of current fiscal reforms on growth. In addition this study is further novel because, Rath and Sar (2016) worked was on only Odisha and not the whole of India, Mohanty (n.d) used Johansen cointegration technique and this study used the ARDL approach

which is suitable even when the other of integration of the variables are mixed rather than the inherent assumption in the Johansen technique that all variables must be I(1) and also Navaratnam and Mayandy (2016) did not study wholly or only on India but used a panel of countries that included India. Aside the above, the paucity of research on the subject matter further reinforced the need for our study.

4. Methodology of the Study

4.1 Data Source: This study solely relied on time series secondary data on India from 1973 to 2015 obtained from the Reserve Bank of India and Ministry of Finance (Government of India).

4.2 Empirical Estimation Technics:

Auto Regressive Distributed Lag (ARDL) and Error Correction Model (ECM)

First differencing the variables may not be the viable option considering the fact that changes in the growth rates of the variables may not be linear. Further, some variables are stationary at 5 or 10 percent level of significance as per the ADF test. Therefore, the study used the Auto Regressive Distributed Lag (ARDL) approach and *its accompanying bounds test of co integration*. Aside the above, the ARDL is suitable for smaller samples as is the case of this study as well as being able to handle situations where all variables are I(0) or I(1) or are mixed. Therefore, the disaggregate approach using ARDL model applied here to **examine how fiscal deficit affect GDP growth rate in India.**

(15)

Where, *GDP* is the growth rate of Gross Domestic Product, *BD* stands for various budget deficit indicators as a Percent of GDP and the dummy and are as already defined. Budget Deficit takes the form of Gross Fiscal Deficit, Net Fiscal Deficit, Gross Primary Deficit, Net Primary Deficit and Revenue Deficit in each equation individually to test the impact of various measures of budget deficit on GDP.

Here we run two different ARDL models as follows:

1. With Gross Fiscal Deficit (GFD), Gross Primary Deficit (GPD), and Revenue Deficit (RD) including the Dummy variable and
2. With Net Fiscal Deficit (NFD), Net Primary Deficit (NPD) and Revenue Deficit (RD) as well as the dummy variable.

5. Emperical Estimation Result:

5.1 Unit root test

Table 1: Results of Augmented Dickey-Fuller (ADF) and Philips Perron (PP) Tests for Unit Root

Variable	Log Levels	First Difference
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	ADF Test	PP Test	ADF Test	PP Test
	t-statistic	Adj.t-statistic	t-Statistic	Adj.t-statistic
LNGDP(for	-3.764768 ^a	-3.586063 ^a	-3.750764 ^a	-3.878278 ^a
LNGFD	-1.313663	-1.295860	-5.035313 ^a	-6.988318 ^a
LNGPD	-2.566074	-2.554542	-5.804843 ^a	-7.044819 ^a
LNNFD	-1.039650	-1.039650	-6.266140 ^a	-6.267815 ^a
LNNPD	-1.778512	-1.862911	-6.255354 ^a	-6.257156 ^a
LNRD (for obj. 5)	-0.422609	0.603703	-6.468752 ^a	-10.13154 ^a

Source: Author's computation from RBI and MOF data. Note: a, b, c denotes significance at 1%, 5% and 10% level, respectively.

This study adopted the Augmented Dickey-Fuller (ADF) and Philips Perron (PP) tests for unit root.

The result reveals that all most all the variables attained stationarity after the first difference with the exception ofGFD, NPDand LNGDP as used in that were stationary at both the levels and after the first differences.

5.2 Co integration

Mostly the variables considered in the study are not stationary in the level form. First differencing the variables makes them stationary; therefore most of the variables are integrated of the order one, I (1). If a liner combination of I (1) variables results in I (0) residuals, the variables are said to be co integrated. Therefore, there is a possibility of long run relationship among the variables considered in the study (for details, see: table2 and 3).

5.3 Regression Result:

This section tackled the results of the impact of various fiscal budget deficit indicators on GDP.

Table 2: The Impact of Gross Fiscal Deficit on Economic Growth

Variable	Coefficient	Standard Error	P-Value
ADJ. LNGDP L1.	-.0398259	.0302614	0.203
Long Run			

LNGFD	.0719433	.0594311	0.240
LNGPD	-.0149252	.0127062	0.254
LNRD	-.0093973	.050849	0.855
Dummy L1.	.0367571	.0566491	0.524
Short Run			
LNGDP LD.	.4503183	.1627292	0.012
LNGFD D1.	.0167166	.0070456	0.028
LNGFD LD.	.0062744	.003314	0.073
LNGFD L2D.	.0100202	.0028935	0.002
LNGPD D1.	-.0005944	.0006257	0.353
LNRD D1.	-.009855	.0038587	0.019
LNRD LD.	-.0028182	.0017471	0.122
LNRD L2D.	-.0044568	.001266	0.002
Dummy D1.	.0014639	.0016406	0.383
Constant	0.383	.0438411	0.091

Source: Author's computation for bid data, Sample: 1983 - 2015, Number of obs = 33

Breusch-Godfrey LM Test for Autocorrelation:

Ho: no serial correlation, $\chi^2 = 2.252$ Prob > $\chi^2 = 0.1335$

Breusch-Pagan / Cook-Weisberg test for heteroskedasticity:

Ho: Constant variance, $\chi^2 (1) = 2.36$, Prob > $\chi^2 = 0.1242$

Bounds test: Since the F-statistic of 3.323 was less than all the upper bound values, we could not reject the null hypothesis of no cointegration.

Even though there was no co-integration we proceeded with our results because Kripfganz (2016) contends that even in the absence of cointegration, the estimates are still consistent. Further, Kripfganz (2016) states that, "there is of course always the (small) chance that the bounds test incorrectly did not reject the null hypothesis even though it is not true. The ARDL / EC estimates are also robust to the latter situation."

Further, the Breusch-Godfrey LM Test and the Breusch-Pagan / Cook-Weisberg test results revealed no autocorrelation and no heteroskedasticity respectively, and hence showed the robustness of our results.

On the impact of gross fiscal deficit on economic growth, it was found that the error correction term had the expected negative coefficient but was rather insignificant.

Further in the long run, none of the explanatory variables was significant. Thus gross fiscal deficit, gross primary deficit and revenue deficit did not have any significant impact on economic growth in the long run. The insignificance of the budget deficit indicators is similar to the findings of Nayab (2015) in Pakistan, Van and Sudhipongpracha (2015) in Vietnam but contrary to the finding of Mohanty (n.d) who found that fiscal deficit exerted a negative significant impact on economic growth in India as well as Navaratnam and Mayandy (2016) in India, Pakistan, Sri Lanka and Bangladesh. Thus in the long run, economic growth was not responsive to the changes in gross fiscal deficit, gross primary deficit and revenue deficit in India.

In the short run, aside the post FRBM variable (dummy), the first difference of gross primary deficit, and the first lagged difference value of revenue deficit that were not significant and hence did not have any significant impact on economic growth, all other remaining variables were significant.

Specifically the first lagged difference of LNGDP (economic growth) had a coefficient of .4503183 that was significant at 5% since its p-value of 0.012 was below 0.05. Thus a 1% rise in the first lagged difference value of LNGDP led to a 0.45% increase in economic growth. Thus economic growth in India was responsive to its previous year's value.

Further, the first difference of gross fiscal deficit, the first and second lagged difference values of gross fiscal deficit had respective coefficients of .0167166, .0062744 and .0100202 that were significant at 5%, 10% and 1% given their p-values of 0.028, 0.073 and 0.002 respectively. Therefore a 1% rise in the first difference of gross fiscal deficit, first and second lagged difference values of gross fiscal deficit will lead to 0.02%, 0.01% and 0.01% rise in economic growth respectively. Thus economic growth was not responsive to the changes in gross fiscal deficit in the long run; it was responsive to its changes in the short run.

In addition, the first difference value of revenue deficit and the second lagged difference value of revenue deficit had respective coefficients of -.009855 and -.0044568 that were significant at 5% and 1% given their p-values of 0.019 and 0.002 respectively. Therefore a 1% rise in the first difference of revenue deficit and the second lagged difference values of revenue deficit led to 0.01% and 0.004% fall in economic growth respectively. Thus economic growth was not responsive to the changes in revenue deficit in the long run, it was responsive to its changes in the short run.

Table 3: The Impact of Net Fiscal Deficit on Economic Growth

Variable	Coefficient	Standard Error	P-Value
ADJ. LNGDP L1.	-.3778128	.1431732	0.017
Long Run			
LNNFD	.145113	.004913	0.000
LNNPD	-.0534484	.0058057	0.000
LNRD	-.0143404	.0044234	0.005
Dummy L1.	-.0004593	.0055216	0.935
Short Run			
LNGDP LD.	.785179	.1902565	0.001
LNNFD D1.	.0088769	.0085029	0.311
LNNFD LD.	-.0366148	.0130208	0.012

LNNFD L2D.	-.0082798	.0092129	0.381
LNNFD L3D.	-.003322	.006488	0.615
LNNPD D1.	-.0047031	.0028639	0.119
LNNPD LD.	.0140574	.0050259	0.012
LNNPD L2D.	.0051476	.0039065	0.205
LNNPD L3D.	.0024171	.0030758	0.443
LNRD D1.	-.0002549	.0022499	0.911
LNRD LD.	.0060727	.002081	0.010
Dummy D1.	-.0001735	.0021155	0.936
Constant	.6215836	.23034	0.015

Source: Author's computation from Sample: 1982 - 2015, Number of observations=34

Breusch-Godfrey LM Test for Autocorrelation:

Ho: no serial correlation, $\chi^2 = 2.339$ Prob > $\chi^2 = 0.1261$

Breusch-Pagan / Cook-Weisberg test for heteroskedasticity:

Ho: Constant variance, $\chi^2 (1) = 0.19$, Prob > $\chi^2 = 0.6626$

Bounds test: Since the F-statistic of 2.086 was less than all the upper bound values, we could not reject the null hypothesis of no cointegration.

Even though there was no co-integration, we proceeded with our results because Kripfganz (2016) contends that, even in the absence of cointegration, the estimates are still consistent. Further, Kripfganz (2016) states that, "there is of course always the (small) chance that the bounds test incorrectly did not reject the null hypothesis even though it is not true. The ARDL / EC estimates are also robust to the latter situation."

Having established the existence of no autocorrelation and no heteroskedasticity using the Breusch-Godfrey LM Test and the Breusch-Pagan / Cook-Weisberg test respectively, they showed the robustness of our results.

Hence with regards to the impact of net fiscal deficit on economic growth, the error correction term (ADJ or EC) had an expected negative coefficient of -.3778128 that was significant at 5% since its p-value of 0.017 was less than 0.05. The EC tells us how economic growth quickly adjusts to changes in the independent variables. Therefore the results showed that economic growth slowly adjusted to changes in these explanatory variables with a speed of only 0.38%.

Concerning the long run relationship, it was found that only the post FRBM variable (dummy) was statistically insignificant and hence did not have any impact on economic growth.

However, net fiscal deficit, net primary deficit and revenue deficit had respective coefficients of .145113, -.0534484 and -.0143404 that were all significant at 1% given their respective p-values of 0.000, 0.000 and 0.005. Therefore in the long run, a 1% increase in net fiscal deficit will lead to a 0.15% increase in

economic growth. Conversely, when net primary deficit and revenue deficit increase by 1%, they were found to decrease economic growth by approximately 0.05% and 0.01% respectively. These are similar to the findings of Mohanty (n.d), Navaratnam and Mayandy (2016) in the case of in India, Pakistan, Sri Lanka and Bangladesh; and Zuze (2016) who found a negative relationship between budget deficit and economic growth in Zimbabwe. Thus among the net fiscal deficit indicators, economic growth was responsive to net fiscal deficit.

In the short run, the post FRBM variable (dummy), the first difference value of net fiscal deficit and its second and third lagged difference values, the first difference value of net primary deficit and its second and third lagged difference values and the first difference value of revenue deficit were not statistically significant and hence did not have any significant impact on economic growth.

However, as in the case of the gross fiscal deficit on economic growth model, the first lagged difference of LNGDP (economic growth) had a coefficient of .785179 that was significant at 1% since its p-value of 0.001 was below 0.01. Thus a 1% rise in the first lagged difference value of LNGDP led to a 0.79% increase in economic growth. Thus economic growth in India was responsive to its previous year's value.

Also the first lagged difference of net fiscal deficit and net primary deficit had respective coefficients of -.0366148 and .0140574 that were both significant at 5% since they had the same p-value of 0.012. Thus a 1% increase in the first lagged difference values of net fiscal deficit and net primary deficit decreased and increased economic growth by 0.04% and 0.01% respectively in the short run. Thus in the short run, economic growth in India was slightly more responsive to net fiscal deficit than net primary deficit.

Last but not the least, the first lagged difference of revenue deficit had a positive coefficient of .0060727 that was significant at 5%. Thus a 1% increase in the first lagged difference value of revenue deficit was found to increase economic growth by 0.01% in India in the short run.

6. Fiscal Position of Union Government since Independence: a Descriptive Over View

After independence the role of government in boosting economic growth through deficit financing is widened in order to stimulate and accelerate growth with equity and stability. However, in the early stage of independence, income and savings were low and hence, fiscal policy instrument was significant in creating the capital base in the form of infrastructure to stimulate growth. This led India to embark upon a planning process since 1950 and therefore, planning commission assigned a large role to the public sector and taxation was made the main source of public finances (Singh, 2013). As goals of fiscal policy move towards equity and social justice, India introduced various social welfare schemes to alleviate poverty and unemployment. These flagship programs of Union Government widened gap between expenditure and revenue. The efforts of government to mobilise substantial amount of resources through additional taxation and hike in the administered prices again widened the resource gap and the resultant growing borrowing requirements and automatic monetisation of deficit led to an accumulation of public debt, crowding out private investment, inflation and balance of payment crisis in 1990 (R.K.Pattnaik, Deepa S.Raj and Jai Chander, 2009; Mondle and Rao, 1992). This adverse fiscal situation compelled India to institute fiscal sector reform as major part of new economic reform.

The fiscal consolidation yields significantly positive results in terms of reduction in fiscal deficit, control in expenditure and remarkable changes in the fiscal system particularly in the financing pattern of the deficits through reduction in size of monetisation. However, the continued structural imbalances in terms of falling tax buoyancy, nature of fiscal correction in terms of reduction in investment expenditure, increased interest burden owing to borrowings at market related rates, impact of fifth pay commission, compulsions of increased defence expenditure and mixed effect of Coalition government and sudden Asian crisis in late 1990s etc were some of the major factors which reversed the situation at the end of the decade (Mishra and Kundrapum, 2010). In addition to it, combined effect of significant reform-induced losses in revenue (namely from reductions in customs and excise duty rates), poor tax performance due to a narrow tax base and low tax buoyancy (Poirson, 2006), and government's inability to contain current public spending both at centre and the state particularly due to implementation of the civil service wage increase recommended by the Fifth Pay Commission (Acharya, 2001) contributed to the deterioration fiscal health of India

The emerging situation has led the Planning Commission to suggest to institute fiscal discipline legislation's at the central and state level and this second generation of reforms should constitute a program of action aimed at preventing another major economic crisis and should stimulate rapid economic growth in the country during the new century. Thus, as similar to the Maastricht Treaty and Stability and Growth Pact (SGP) of the European Union, enacted in 1999, The Indian government enacted rule based fiscal policy named as Fiscal Responsibility and Budget Management (FRBM) Act in 2004 at both the central and state government levels to bring fiscal prudence. This act aimed to bring down the central government fiscal deficit to 3 percent of GDP by 2008-09 with an annual reduction target of 0.3 percent of GDP per year. Further, the FRBM Act targeted a zero revenue deficit and primary surplus by 2008-09. The targets laid down in the Centre's FRBM Act and fiscal responsibility legislation's of the states were achieved by compressing quality of expenditure in 2007-08, a year ahead of schedule (Kumar and Soumya, 2011). More than two-thirds of the fiscal adjustment over this time period was due to revenue gains, with improvements in tax performance underpinned by rapid economic growth, strong corporate profits, and improvements in tax administration as measured by effective tax rates and the rest of the adjustment came mostly from declining interest payments because the outstanding liabilities of the central government declined by 4.4 percent of GDP (Simon and Topalova, 2009). However, if the off-budget bonds on oil and fertiliser are included in those years, the fiscal situation would not look favourable (Simon and Tapalova, 2009, Kumar and Soumya, 2011).

The targets of FRBM are mechanically achieved by cutting down essential expenditure on infrastructure, health and education, while maintaining subsidies and loan waivers schemes (Kumar and Soumya, 2011, Fahad Siddiqui & Kirti Gupta, 2014) particularly after global economic crisis. Hence, the fiscal stimulus (estimated 0.6% of GDP) to revive from global economic shock and further, decrease in tax revenue cause to widen fiscal deficit (Simon and Tapalova, 2009). In addition to fiscal stimulus package, Central Government introduced various expensive schemes, such as an agricultural debt write-off, an expansion of the National Rural Employment Guarantee scheme, and a revision of the income tax brackets 2008/09 budget, in order to gain short term election benefits (Kumar and Soumya, 2011, Simon and Tapalova, 2009) and also Sixth Pay Commission award, which recommended a 20 percent hike in government salaries (Bhattacharya, 2011, report of 13th FC) and absence of expenditure reform cause to increase in the subsidy bill dramatically with the run-up of global commodities prices in the first half of 2008 (Simon and Tapalova, 2009). In the run up to the elections, the Indian government could not adhere to the self-imposed rules on spending cuts, and this again widened the fiscal deficit (Buter and Patel, 2010). Thus, the key macroeconomic issues confronted by Indian policy makers are how to achieve fiscal sustainability through fiscal consolidation process.

7. Fiscal Performance of Union Government: A Ratio Analysis

The fiscal deficit can be viewed in two segments; period ranging from 1951 to 1970 and after 1970. From 1951 to 1970 the National Congress party was ruling both at centre and state. However, in the changing political scenario, the non-congress parties formed government in various states and coalition government formed even in centre particularly after 1970s. This situation compelled union and state government to implement flagship programs like irrigation, employment guarantee program, various subsidies to agriculturists, and social welfare schemes in order to gain short term election benefits which led to worsen fiscal situation and macro economic stability in late 1980s. Hence, fiscal consolidation reforms introduced as an integral part of new economic reform and result of it was not substantial particularly late 1990s. Thus, legalised fiscal policy rules enacted at national and subnational levels of government. However, the FRBM Act was very effective before global economic crisis and after global economic crisis the situation worsens leading to express concern towards fiscal performance of union government. Thus, this section examines fiscal deficit as percentage of GDP by using time series data covering the period from 1970-71 to 2014-15. Here, the study period again divided into two phases: the 1st phase is ranging from 1970-71 to 2001-02 (pre-FRBM period) and 2nd phase is ranging from 2002-03 to 2014-15 (Post FRBM period).

7.1 Fiscal Performance of Union Government during Pre-FRBM Era

This sub section analyse ratio of Gross Fiscal Deficit to GDP, Ratio of Gross Primary Deficit to GDP and ratio of Gross Revenue Deficit to GDP covering period from 1970-71 to2002-03. Further, in order to evaluate fiscal position of Unionn Government before and after fiscal consolidation reform,the study period divided in two stages . The first stage is ranging from 1971 to 1989-90. And second stage is ranging from 1990-91 to 2002-03; again divided in two phases:

The first phase is ranging from 1990-91 to 1996-97. (Period of Fiscal Improvement)

The second phase is ranging from 1997-2001-02 (Period of Fiscal Diteriation)

Table: 4. Fiscal Deficit as Percentage of GDP during Pre-FRBM act

Year	Gross Fiscal Deficit	Gross Primary Deficit	Gross Revenue Deficit
1970-71	2.96	1.69	-0.34
1971-72	3.39	2.07	0.2
1972-73	3.88	2.5	0.03
1973-74	2.53	1.24	-0.35
1974-75	2.85	1.61	-0.95
1975-76	3.49	2.08	-1.02
1976-77	4.07	2.48	-0.32
1977-78	3.48	1.92	-0.41
1978-79	4.98	3.25	-0.25
1979-80	5.08	3.26	0.55
1980-81	5.55	3.81	1.36
1981-82	4.93	3.11	0.22
1982-83	5.4	3.4	0.67

1983-84	5.69	3.6	1.11
1984-85	6.79	4.46	1.65
1985-86	7.55	4.96	2.03
1986-87	8.13	5.28	2.4
1987-88	7.34	4.29	2.48
1988-89	7.08	3.81	2.41
1989-90	7.1	3.56	2.37
1970-71 to 1989-90	5.11	3.11	0.69
1990-91	7.61	3.95	3.17
1991-92	5.39	1.44	2.41
1992-93	5.19	1.17	2.4
1993-94	6.76	2.64	3.67
1994-95	5.52	1.3	2.97
1995-96	4.91	0.83	2.42
1996-97	4.7	0.51	2.3
1997-98	5.66	1.48	2.95
1998-99	6.29	1.97	3.71
1999-00	5.18	0.72	3.34
2000-01	5.46	0.9	3.91
2001-02	5.98	1.42	4.25
1990-91 to 2001-02	5.72	1.52	3.13
1970-71 to	5.41	2.31	1.91

2001-02			
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Source: Authors' Calculation from RBI Data

The gross fiscal deficit as percentage of GDP in 1970-71 was 2.96 and it rose to 7.1% in 1989-90 and further declined to 4.7% in 1995-96. However, the rate of fiscal deficit shown rising trend from 1997-98 and it shot up to 5.98% in 2001-02. Revealing that the fiscal consolidation process became ineffective during late 1990s due to formation of coalition government, Asian crisis, introduction of fifth pay commission, adoption of new economic reforms etc. (Mishra and Kundrakpam, 2010). It is clearly, the fiscal deficit associated revenue deficit which increased from 0.34% in 1970-71 to 3.17% in 1991-92 and thereafter, it shown decreasing trend up to 1996-97. The primary deficit was 1.69% in 1970-71 and it rose to 3.95% in 1991-92 and thereafter, it decreased in the first half of 1990s and the primary deficit started rising in subsequent years.

7.2 Fiscal Performance of Union Government during FRBM period

After enactment of FRBM act in 2003-4, the fiscal performance of union government improved till 2007-08. However, the introduction of various stimulus packages to revive economy from global shock again causes to worry on problem of fiscal deficit (Kumar and Sowmya, 2011). Hence the targets of FRBM postponed to 2014-15 in its amendments made in 2009. In this context, this subsection analysed, the percentage of Gross fiscal Deficit to GDP, Percentage of Gross Revenue Deficit to GDP and Percentage of Primary Deficit to GDP covering time series data from 2002-03 to 2014-15 (Post FRBM period).

Table: 5 Deficit as Percentage of GDP under FRBM Regime

Year	Gross Fiscal Deficit	Net Fiscal Deficit	Gross Revenue Deficit	Net Revenue Deficit	Gross Primary Deficit	Net Primary Deficit
2002-03	5.72	5.28	4.25	-0.39	1.08	2.12
2003-04	4.34	4.07	3.46	-0.91	-0.03	1.06
2004-05	3.88	3.89	2.42	-1.50	-0.04	0.98
2005-06	3.96	3.95	2.50	-1.09	0.37	0.95

2006-07	3.32	3.52	1.87	-1.63	-0.18	0.55
2007-08	2.54	2.42	1.05	-2.38	-0.88	-0.59
2002-03 to 2007-08	3.96	3.86	2.59	-1.32	0.05	0.85
2008-09	5.99	5.84	4.50	1.09	2.57	2.80
2009-10	6.46	6.35	5.23	1.94	3.17	3.40
2010-11	4.79	4.63	3.24	0.23	1.79	1.88
2011-12	5.84	5.82	4.46	1.37	2.75	2.96
2012-13	4.91	4.85	3.65	0.51	1.77	1.92
2013-14(RE)	4.43	4.37	3.15	-0.15	1.13	1.27
2014-15(BE)	4.09	4.00	2.89	-0.39	0.81	0.90
2008-09 Onwards	5.22	5.12	3.87	0.66	2.00	2.16
Post-FRBM (2002-03 onwards)	4.59	4.49	3.18	-0.33	1.03	1.50

Source: Author's Calculation from RBI Data

As shown in the above table, the study period divided into two phases: period ranging from 2002-03 to 2007-08 (period of improvement in fiscal performance) and period covering after global economic crisis from 2008-09 (period of deterioration). The gross fiscal deficit was 5.72% of GDP in 2002-03 and it decreased to 2.54% in 2007-08 and after global economic crisis (2008 onwards), the Central government gave allowances for strengthen rural economy and therefore, introduction of various incentives schemes like farm loan waiver scheme, expansion of rural social security schemes through NREGP and increase in food, fertiliser and oil subsidies (Kumar and Sowmya, 2011) cause to increase fiscal deficit on average once again to 4.59%. The increase in fiscal deficit always associated with revenue deficit. The ratio of revenue deficit to GDP in 2002-03 was 4.25% of GDP and it decreased to 1.05% in 2007-08 and 2008 onwards, the aggregate revenue deficit has accounted 3.87% revealing that the fiscal stimulus package cause to increase revenue deficit. The gross primary deficit was 1.08% of GDP and it decreased to -0.88% and after 2008, on average, it increased to 2.00%. From 2011-12 Budgets onwards a figure for the "Effective Revenue Deficit" began to be reported, computed by netting out the component of Grants for capital formation from revenue expenditure, so that this "Effective" revenue deficit figure is somewhat lower than the unadjusted deficit measure (Economic Survey 2011-12).

7.3 . . A Comparative Analysis of Fiscal Performance of Union Government

The various studies dealt with fiscal situation of Union and State government revealing that the discretionary fiscal policy was effective only in the short run. Hence, this sub section makes an attempt to evaluate effectiveness of self imposed rule based fiscal consolidation by making comparative analysis of deficit indicators such as GFD, GPD and GRD as percentage of GDP before FRBM act covering period from 1970-71 to 2001-02 and after FRBM act data covering period from 2002-03 to 2014-15.

Table: 6 Fiscal Deficit as Percentage of GDP during Pre and Post FRBM

Deficit Indicators	Pre-FRBM (1970-71 to 2001-02)	Post-FRBM (2002-03 onwards)	1970-71 to 2014-15)
Gross Fiscal Deficit	5.46	4.59	5.02
Gross Revenue Deficit	0.9	3.18	1.63
Gross Primary Deficit	3.91	1.03	2.547

Source: Author's Calculation from RBI Data.

The gross fiscal deficit recorded 5.46% during pre FRBM period and it declined to 4.59% after FRBM act. This observation reveals that the central government failed to achieve fiscal target even after several amendment made FRBM act. The gross primary deficit before FRBM act was recorded 3.23% and it decreased to 1.03% after FRBM act. The revenue deficit has recorded 0.9%, which is lower as compare to post FRBM period.

8. Conclusion:

From the empirical estimation result, it is clearly evidenced that the GDP is positively responsive to net fiscal deficit and statistically significant in the long run. The coefficients is positive, though inelastic, indicates that the deficit spending boosts GDP growth in the long run. However, GDP negatively responsive to net revenue deficit and hence, policy maker's should borne in mind, proper revenue deficit management will help to increase purchasing power in country with persistently low level of inflation.

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