

## AN EMPIRICAL STUDY OF INDIA'S FISCAL DEFICIT

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**ALLAM VENKATA SWAMY**

II-Year MBA, Matrusri Institute of Post Graduate Studies, Hyderabad.

**ANNAMAREDDY KALYAN CHAKRAVARTHY**

II-Year MBA, Matrusri Institute of Post Graduate Studies, Hyderabad.

**KOKA VENKATA RAGHAVA ABHIJIT**

II-Year MBA, Aurora's P.G. college, Hyderabad.

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**ABSTRACT:** The study of fiscal deficit is having the vital role in the general economy where the country like India having a fiscal deficit is also considered by the economist as a no crime. Augmented dickey puller test has been applied for the stationarity of the data. Granger causality test had proven SLR, IIP, US dollar VS Indian rupee is causing the fiscal deficit. Regression weight estimation found that fiscal deficit is impacting the CAD and budget planned expenditure. T-test hypothesis analysis accepted the significance impact by imports, foreign reserves, trade balance of payments. Government of India should take constructive steps with regard to monetary policy measures so that they can curb the fiscal deficit to get wider. This analysis is useful for the financial institutions, statutory bodies, research scholars of the economics.

**KEYWORDS:** Budget allocation, Current account deficit, Fiscal deficit, Foreign reserves, GDP, IIP, Imports, Liquidity.

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### INTRODUCTION:

Fiscal deficit is the difference between the government's expenditures and its revenues (excluding the money it's borrowed). A country's fiscal deficit is usually communicated as a percentage of its gross domestic product (GDP). In India, fiscal deficit is defined as the excess of the sum total of revenue expenditure, capital outlay and net lending over revenue receipts and non-debt capital receipts including the proceeds from disinvestment.

The impact of fiscal deficit on economic growth is one of the highly debated issues in all world economies. The target of achieving sustained growth and maintaining macroeconomic stability is the dream among many developed, developing and underdeveloped economies. The economic growth and stability of developing countries in recent times has brought the issues of fiscal deficit into sharp focus. Although continuing high levels of fiscal deficit, even after adoption of fiscal Responsibility and Budget Management Act (FRBM), pose a serious danger to macroeconomic stability in India. The excessive fiscal deficits seem to be the major concern of academicians and policy makers in India. The problem arises when the deficit level becomes too high and continuous. The ill-effects of high deficits are linked to the way they are financed and how it is used.

The fiscal deficits can be financed through domestic and foreign borrowings or by printing money. Excessively using of any particular mode of financing of the fiscal deficit has adverse macroeconomic consequences, via seignior age financing of fiscal deficit can create inflationary pressures in the economy, contract financing of fiscal deficit can lead to rise in interest rates and in turn can crowd out private investment and the external financing of fiscal deficit can spill over to balance of payment

crisis and appreciation of exchange rates and in turn debt spiraling. Sometimes large fiscal deficit can affect the country's economic growth adversely. A higher fiscal deficit implies high government borrowing and high debt servicing which forces the government to cut back in spending on relevant sectors like health, education and infrastructure. This reduces growth in human and physical capital, both of which have a long-term impact on economic growth. Large public borrowing can also lead to crowding out of private investment, inflation and exchange rate fluctuations. However, if productive public investments increase and if public and private investments are complementary, then the negative impact of high public borrowings on private investments and economic growth may be offset. Fiscal deficit used for creating infrastructure and human capital will have a different impact than if it is used for financing ill targeted subsidies and wasteful recurrent expenditure. Therefore the fear about high fiscal deficit is justified if the government incur deficit to finance its current expenditure rather than capital expenditure. In this context, it is important to understand the consequences of rising fiscal deficit on the economic growth of Indian economy. There have been affects about the high fiscal deficit. The literature, in particular the actual part, on the relationship between fiscal deficit and economic growth is rare. Recent empirical studies investigate the impact of budget deficit on growth in advanced and emerging countries by using cross country data and only few of them; attention is devoted to the country specific.

### **OBJECTIVES:**

1. To know the relationship of selected economic factors (PMI, IIP, SLR and INR Vs USD) with Fiscal deficit
2. To know the impact of Fiscal deficit increase on Indian economy
3. To find the selected economic factors (PMI, IIP, SLR and INR Vs USD) effect on Fiscal deficit
4. To measure the impact of Fiscal deficit on CAD & Budget planned expenditure
5. To measure the impact of selected external factors (Trade balance of payments, Imports and Foreign reserves) on Fiscal deficit

**SCOPE:** The analysis has been emphasizing to study about Fiscal deficit and its effect on Indian economy. For this analysis we have considered 10 years values of the variables i.e., from 2004 –05 to 2013-14.

### **Empirical Study:**

- Fiscal deficit
- Budget planned expenditure
- Liquidity
- Imports
- GDP
- Foreign reserves
- IIP
- SLR
- PMI
- INR Vs USD
- CAD
- Trade balance of payments

**NEED OF THE STUDY:** Indian economy is one of the leading economy in the world. In spite of the large economy our country is facing few economic problems and one of the problem is Fiscal deficit.

Since the independence our economy is facing Fiscal deficit. In the developing country like India most of the budget allocation will be diverted to socio-economic weaker section which is resulting the Fiscal deficit to get wider. There were so many loop holes in our economy which is facing the Fiscal deficit to get wider year on year. There is a need to focus on the economic factors which can influence Fiscal deficit to come down side and to fuel the growth to move upside. Since 2 years Indian Fiscal deficit is coming downside even though the GDP growth rate is moving upside. The focus of this analysis is to identify the factors which were significantly effecting the Fiscal deficit and improve the economic activity as a whole.

## **LITERATURE REVIEW:**

**Anita Ghatak ,Subrata Ghatak:** In this paper we analyze the validity of the Ricardian equivalence (RE) theorem for a Less Developed Countries like India, for the period 1950–1986. The RE theorem states that when a government tries to stimulate demand by increasing debt-financed government spending, then demand remains unchanged, Under certain conditions, the effect of government consumption on aggregate demand is orthogonal to the mode of increasing fiscal deficits because rational economic agents consider today's deficit increasing as tomorrow's tax benefits. The use of multi cointegration analysis and estimation of the rational expectations model both invalidate the RE theorem in India. There are significant decreasing on private consumption, but such effects on private investments are not significant because they are expected to be already included in the effect of interest rates.

**Luiz R. de Mello Jr:** Fiscal decentralization consists primarily of transferring revenue sources and expenditure functions to lower executives of government. To moving the government closer to the people, fiscal decentralization is expected to increase the public sector efficiency, as well as accountability and clarity in service delivery and policy-making. Decentralization also experiences greater complexity in intergovernmental fiscal relations, and failures of coordination in fiscal relations are likely to have decrease the fiscal positions, nationally and sub-nationally. A sample of 30 countries suggests that coordination failures in intergovernmental fiscal relations are likely to result in a deficit bias in decentralized policy-making, particularly in the case of developing countries, which may not meet important requirements for successful decentralization.

**Willem H. Buiter, Urjit R. Patel:** This paper studies about the solvency of the Indian public sector and the eventual monetization and inflation that would be implied by stabilization of the debt-GNP ratio in the absence of changes in the primary deficit. The non stationarity of the discounted public debt suggests that indefinite continuation of the pattern of behavior reflected in the historical time-series process is inconsistent for maintaining the solvency. This message is supported by the recent behavior of the debt-GNP ratio and of the ratio to GNP of the sum of the primary budget surplus and seigniorage. Our estimates of the base money demand function suggests that even maximal use of the inflation tax would not be sufficient to restore solvency. Measures to reduce the primary deficit are therefore unavoidable.

**Emmanuel Anoruo, Sanjay Ramchander:** The persistent and coinciding fiscal and external trade deficits have been in the economic spotlight largely because of its important policy implications concerning the long-term viability of economic progress. Most studies on the subject have focused attention on the relationship between the two deficits in developed countries such as the United States. The present study, in contrast, uses multi-variate time series analysis to extend the “twin deficits” debate to five developing Southeast Asian economies such as India, Indonesia, Korea, Malaysia and the Philippines. The discussion is especially relevant given the backdrop of the current economic crisis that is engulfing many Asian economies, and the plausibility that there could be wide disparities in the

macroeconomic dynamics governing fiscal and current deficits between developing and developed economies. Specifically, Granger causality test based on a vector auto-regressive (VAR) model is utilized to underpin the direction of causality between the two deficit series. Contrary to most findings in the literature, this study finds trade deficits to cause fiscal deficits and not vice versa. A case for increased government spending in response to the domestic hardships caused by a worsening of trade balance is made. Furthermore, the study identifies several other macroeconomic variables that jointly influence the twin deficits, thus highlighting some degree of commonality in the twin deficit nexus. A number of policy implications are derived.

**Mohsen Bahmani-Oskooee, Sayeed Payesteh:** In this paper we investigate the statistical relation between the U.S. budget deficits and the value of the dollar using cointegration and error-correction techniques. When quarterly data are used over the period 1971–1990, we find no evidence of cointegration. However, when we incorporate 1985 intervention in the foreign exchange market into cointegration analysis, we find strong evidence of cointegration between two variables. The error-correction models yield results that support bidirectional causality between the value of the dollar and budget deficits. We would like to thank two anonymous referees for their valuable comments that improved the paper substantially. However, we alone remain responsible for any error.

**James M. Poterba , Lawrence H. Summers:** Even though realistic deficit policies shift sizable tax burdens to future generations, the assumption of an infinite horizon is a good approximation for analyzing a deficit's short-run saving effect on individuals who are neither liquidity constrained nor myopic. Recent U.S. experience casts significant doubt on these assumptions, however, and appears difficult to accept with the Ricardian equivalence proposition that the timing of taxes does not affect national saving. Recent deficits have matched with reduced national saving and a substantial increase in the share of GNP devoted to consumption.

## RESEARCH METHODOLOGY:

### 1. Augmented dickey fuller test (ADF):

Augmented dickey fuller test is a test for unit root in time series sample. It is an augmented version of the dickey fuller test for a larger and more complicated set of time series model.

$$\nabla y_t = \delta y_{t-1} + u_t$$

**2. Granger causality test:** Granger causality test is a statistical hypothesis test for determining whether one time series is useful in forecasting another. A time series X is said to Granger-cause Y if it can be shown, usually through a series of t-tests and F-tests on lagged values of X (and with lagged values of Y also included), that those X values provide statistically significant information about future values of Y.

- **Null hypothesis:** The null hypothesis refers to a general statement or default position that there is no relationship between two measured phenomena. Rejecting or disproving the null hypothesis- and thus concluding that there is a relationship between two phenomena.
- **Alternative hypothesis:** In statistical hypothesis testing, the alternative hypothesis is applicable when probability is  $> 0.5$ . Alternative hypothesis is that the quality is poorer in the second half of the record.

3. **Correlation:**A statistical measure of 2 variables with same relation moving together with each other is called as correlation. Correlation is used in advanced portfolio management.

$$r = \frac{\sum XY - \frac{\sum X \sum Y}{N}}{\sqrt{(\sum X^2 - \frac{(\sum X)^2}{N})(\sum Y^2 - \frac{(\sum Y)^2}{N})}}$$

4. **T-TEST:-**T-tests are kind of like little F-tests, and similar to Z-tests. It's appropriate for smaller samples, and relatively easy to interpret since any calculated t over 2.0 is, by rule of thumb, significant. T-tests can be used for one sample, two samples, one tail, or two-tailed. You use a two-tailed test if there's any possibility of bi-directionality in the relationship between your variables. The formula for the t-test is as follows:

$$t = \frac{\bar{x}_1 - \bar{x}_2}{\sqrt{\frac{s_1^2}{n_1} + \frac{s_2^2}{n_2}}}$$

**LIMITATIONS:**

1. All the data values are taken from 2004-05 to 2013-14.
2. GDP figures are taken in Billion USD.
3. We consider 10 years data i.e., 10 figures so we applied Granger causality test without applying Co integration test.

**DATA ANALYSIS:**

1. To know the relationship of select economic factors (PMI, IIP, SLR and INR Vs USD) with Fiscal Deficit.

**Correlations**

Control Variables			IIP	SLR	PMI	INR Vs USD
FISCALDEFICIT	IIP	Correlation	1.000	.299	-.225	-.065
		Significance (2-tailed)	.	.434	.560	.869
		Df	0	7	7	7
	SLR	Correlation	.299	1.000	-.029	.182
		Significance (2-tailed)	.434	.	.941	.640
		Df	7	0	7	7
	PMI	Correlation	-.225	-.029	1.000	.148
		Significance (2-tailed)	.560	.941	.	.704
		Df	7	7	0	7
	INR Vs USD	Correlation	-.065	.182	.148	1.000
		Significance (2-tailed)	.869	.640	.704	.
		Df	7	7	7	0

**Interpretation:** The above table shows the correlation of Fiscal Deficit with the variables IIP, SLR, PMI and INR Vs USD (Indian National Rupee Vs US Dollar). We applied the partial correlation test for the above variables. According to the above table; we conclude that all the variables are slightly correlated with Fiscal Deficit because the probability values are less than 0.3.

2. To know the impact of Fiscal Deficit impact on Indian economy.

Dependent Variable		FISCALDEF
Independent Variables	1	ICIT
Weight	Source	GDP
	Power Value	FISCALDEF
		ICIT
		2.000

Multiple R	.572
R Square	.328
Adjusted R Square	.232
Std. Error of the Estimate	.856
Log-likelihood Function Value	-70.709

	Unstandardized Coefficients		Standardized Coefficients		T	Sig.
	B	Std. Error	Beta	Std. Error		
(Constant)	-302.049	170.317			-1.773	.119
GDP	.330	.179	.572	.310	1.847	.107

**Interpretation:** The above table the impact of Fiscal Deficit on the GDP. Here Rank correlation test is applied to the variables. According to the result we conclude that fiscal Deficit is influencing the GDP because the Significance values are less than 0.5.

3. To find the select economic factors (IIP, SLR, PMI and INR Vs USD) effect on Fiscal Deficit.

**Pairwise Granger Causality Tests**

Null Hypothesis:	Obs	F-Statistic	Prob.
FD does not Granger Cause IIP	6	33.6459	0.1210
IIP does not Granger Cause FD		0.25504	0.8138

**Interpretation:** The above table specifies the Granger Cause between Fiscal Deficit and IIP. So here we applied Granger Causality test for both Fiscal Deficit and IIP for the 10 years of tenure .According to Granger Causality test, the Fiscal Deficit does not Granger Cause of IIP because the probability between these variables is 0.1210 which is less than 0.5. But IIP is the Granger Cause of Fiscal Deficit because the probability between these variables is 0.8138 which is greater than 0.5, hence we can say that IIP is the Granger Cause of Fiscal Deficit.

**Pairwise Granger Causality Tests**

Null Hypothesis:	Obs	F-Statistic	Prob.
FD does not Granger Cause SLR	7	0.70084	0.5879
SLR does not Granger Cause FD		0.60222	0.6241

**Interpretation:** The above table specifies the Granger Cause between Fiscal Deficit and SLR. So here we applied Granger Causality test for both Fiscal Deficit and SLR for the 10 years of tenure .According to Granger Causality test, the Fiscal Deficit and SLR both are Granger cause of each other because the probability between these variables are 0.5879 and 0.6241 which are greater than 0.5, hence we can say that Fiscal Deficit and SLR both are Granger Cause of each other.

**Pairwise Granger Causality Tests**

Null Hypothesis:	Obs	F-Statistic	Prob.
FD does not Granger Cause PMI	6	3.98577	0.3339
PMI does not Granger Cause FD		102032.	0.0022

**Interpretation:** The above table specifies the Granger Cause between Fiscal Deficit and PMI. So here we applied Granger Causality test for both Fiscal Deficit and PMI for the 10 years of tenure .According to Granger Causality test, the Fiscal Deficit and PMI both are not Granger cause of each other because the probability between these variables are 0.3339 and 0.0022 which are less than 0.5, hence we can say that Fiscal Deficit and PMI both are not Granger Cause of each other.

**Pairwise Granger Causality Tests**

Null Hypothesis:	Obs	F-Statistic	Prob.
FD does not Granger Cause INR Vs USD	6	31.8370	0.1243
INR Vs USD does not Granger Cause DFD		0.08506	0.9245

**Interpretation:** The above table specifies the Granger Cause between Fiscal Deficit and INR Vs USD. So here we applied Granger Causality test for both Fiscal Deficit and INR Vs USD for the 10 years of tenure .According to Granger Causality test, the Fiscal Deficit does not Granger Cause of INR Vs USD because the probability between these variables is 0.1243 which is less than 0.5. But INR Vs USD is the Granger Cause of Fiscal Deficit because the probability between these variables is 0.9245 which is greater than 0.5, hence we can say that INR Vs USD is the Granger Cause of Fiscal Deficit.

4. To measure the impact of Fiscal Deficit on CAD (Current Account Deficit) & Budget planned expenditure.

**Model Description**

Dependent Variable	FISCALDEF ICIT	
Independent Variables	1	CAD
	2	BUDGETplanned
Weight	Source	FISCALDEF ICIT
	Power Value	2.000

**Model Summary**

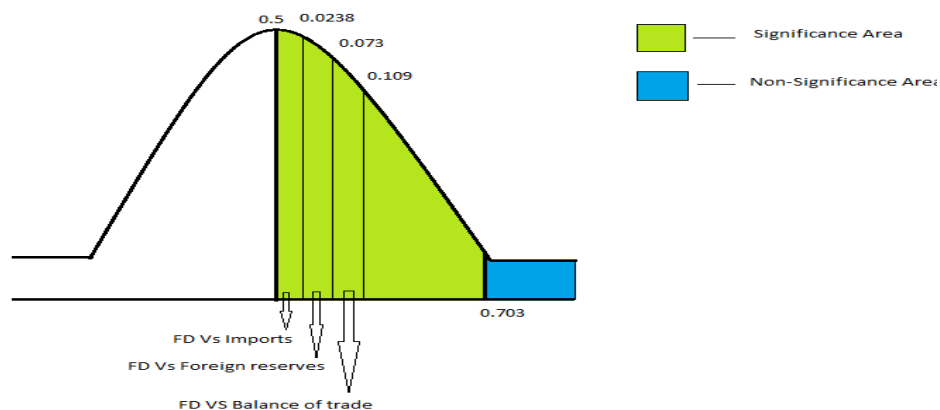
Multiple R	.630
R Square	.397
Adjusted R Square	.196
Std. Error of the Estimate	.876
Log-likelihood Function Value	-70.412

**Coefficients**

	Unstandardized Coefficients		Standardized Coefficients		t	Sig.
	B	Std. Error	Beta	Std. Error		
(Constant)	-1020.726	639.446			-1.596	.162
CAD	-.001	.001	-.803	.791	-1.015	.349
BUDGETplanned	1.031	.639	1.278	.791	1.615	.158

**Interpretation:** The above table shows the impact of Fiscal Deficit on Current Account Deficit and Planned Budget. Rank correlation method is applied for the variables. According to the result we conclude that fiscal Deficit is influencing the Current Account Deficit and Planned Budget because the Significance values are less than 0.5.

5. To measure the impact of select external factors (Imports, Foreign Reserves and Trade Balance of Payments) on Fiscal Deficit.





**Interpretation:** The above figure depicts that the impact of selected external factors such as Imports, Foreign Reserves and Trade Balance of Payments on Fiscal Deficit. T-test is applied to the variables. The result of T-test showing that the values are found to be in significance area so we accept the null hypothesis. Hence we conclude that the selected economic factors are impacting the Fiscal Deficit.

### **FINDINGS:**

1. The selected economic factors (PMI, IIP, SLR and INR Vs USD) are slightly correlated with Fiscal Deficit.
2. Fiscal Deficit influencing the Indian GDP (economy).
3. The selected economic factors i.e., IIP, SLR, and INR Vs USD are affecting the Fiscal Deficit. But PMI does not affecting the Fiscal Deficit.
4. Fiscal Deficit is influencing CAD (Current Account Deficit) & Budget planned expenditure.
5. The selected external factors (Imports, Foreign Reserves and Trade Balance of Payments) are impacting the Fiscal Deficit.

### **CONCLUSION:**

We conclude the analysis of fiscal deficit of India. This study has covered 10 years i.e. from 2004 to 2014. RBI monetary policy rate SLR is having significant impact on fiscal deficit of India. The select economics variables which were considered for the analysis were found to be correlated to the fiscal deficit. Indian GDP growth is following since 2010. For this decreasing trend of growth is contributed by the fiscal deficit which is getting wider every year. Planned budget expenditure is growing year on year which is also getting affected by the fiscal deficit. Hence there is a further scope to do research to improve the Indian economy by controlling the fiscal deficit. There is a need to identifying the constructive steps which can influence the fiscal deficit to get narrow.

### **BIBLIOGRAPHY:**

1. <http://www.tradingeconomics.com/india/gdp> (GDP)
2. <http://www.indiabudget.nic.in/previousub.asp> (Budget planned amount)
3. <http://commerce.nic.in/eidb/default.asp> (Imports)
4. [http://www.rbi.org.in/scripts/chro\\_bankrate.aspx](http://www.rbi.org.in/scripts/chro_bankrate.aspx) (SLR)
5. <http://dbie.rbi.org.in/OpenDocument/opendoc/openDocument.jsp> (IIP)
6. <http://dbie.rbi.org.in/OpenDocument/opendoc/openDocument.jsp> (Foreign reserves)
7. <http://www.rbi.org.in/scripts/statistics.aspx> (CAD)

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