



Original Article

A Study on Fiscal Deficit and Its Effect on Economic Growth in India

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Abstract

The fiscal imbalance refers to the difference between government's revenue and expenditure. It is an important aspect of any economy. The paper shows the relationship between fiscal deficit and GDP growth in India from 1970-71 to 2022-23. As per the descriptive statistics, there was reasonably large variability in both gross fiscal deficit and GDP. The average budgetary shortfall, which has a large standard deviation confirming its significant variations over time, is estimated from annual data of the Reserve Bank of India. Both the data for Fiscal Deficit and the GDP showed a positive skewness indicating periods of rapid jumps in recent years. A linear regression model was used to see how variations in fiscal deficit influence economic growth. The results of the model show a significant positive relationship as it shows that the model explains 87 percent of GDP growth. The result of the regression indicates that an increase in the fiscal deficit, which usually results from greater government spending, leads to higher GDP growth. As per the study, while fiscal deficits may induce economic growth in the short run, it may entail risks associated with fiscal instability and unsustainable national debt. As per the study, a balanced fiscal policy is essential to sustainable economic development and the negative effects of a prolonged fiscal deficit.

Keywords: fiscal deficit, economic development, tax revenue, gross domestic product, fiscal policy, public debt, economic growth.

Introduction

Imbalance in fiscal deficit and its causes and effects on the economy of a country is most important topic for researchers. Governments revenues and expenditure difference excluding borrowing is fiscal deficit. Tax and non-tax revenue are the two types of revenue of government. Expenditures in a country may include consumption of the public sector, salaries of government employees, depreciation of fixed national capital, various types of transfer to public. Hence, difference in expenditure and revenue creates fiscal imbalance that may be the positive fiscal imbalance or negative fiscal imbalance, this is known as deficit or surplus. If fiscal imbalance is positive, it is noted that the revenue exceeds the costs which needs to benefit the economic growth. Whereas a negative fiscal imbalances causes problem for the economy. It is when the expenditure of the government is more than its revenue. With loans from abroad and domestic expenditure of government is increased. Fiscal deficit is a situation where the government does not have enough income to prepay its loans taken for expenditure. Fiscal deficit refers to the gap between the government's total expenditure and its total revenue in a given financial year according to (Rakesh, 2000). Fiscal deficit and growths relationship is the most debated topic, many studies have been conducted regarding effect of fiscal deficit with other major macroeconomic variables.

Literature review:

There are many studies researched on the impact of the fiscal deficit on the GDP of India.

(Navaratnam and Mayandy (2016) examined the effect of fiscal deficit on economic growth in five South Asian countries (including Bangladesh, India, Nepal, Pakistan and Sri Lanka) with annual data over the period 1980-2014. The study result confirmed that the fiscal deficit has a negative impact on economic growth in Bangladesh, India, Pakistan and Sri Lanka, however, the evidence in Nepal was a positive impact in this period.

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(Lulijeta and Balaj 2019) conducted a study on the assessment of fiscal deficit on economic growth in transition countries of south east Europe. Its aim to identify the empirical association between fiscal deficit and economic growth, with the sample size and annual data collected from the World Bank and international monetary fund, 15 years of period from 2005 to 2019, resulted in the positive impact of the fiscal deficit on economic growth in the countries.

(Lance, Christian, Laura & Nelson Barbosa 2012) examined the effect of changes in the deficit and its two components, spending and revenues on economic growth through the interaction between real primary deficit, real effective interest rate and real GDP growth. Using VAR and ADF from a period of study 2008-09 to 2011-12, they found strong positive impact of higher primary deficit on economic growth even when possible increases in the interest rate are taken into account.

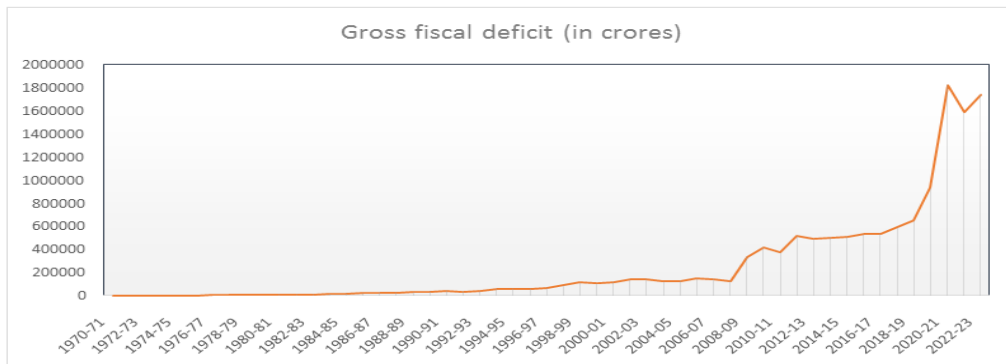
(Goher, Ather, & Wali (2011) investigated the impact of fiscal deficit on the investment and GDP growth of Pakistan using Dickey Fuller (DF), Augmented Dickey-Fuller (ADF) unit root tests and two stages least square method. They concluded that fiscal deficit has strong adverse impact on economic growth of the country.

(Mohammad 2021): this paper studies on India's Fiscal Deficit and its Impact on Gross Domestic Product. It shows the relationship between fiscal deficit and GDP growth in India based on the period of 1995 to 2016. To analyzing the impact OLS estimator of simple regression model has been used. To test relationship between two variables the Pearson's correlation model has been used and Augmented Dickey-Fuller, unit root test are also used. It shows, fiscal deficit does not have effect on the GDP of India and it just put 4.1 percent impact on GDP growth and there is no any significant relationship between the variables.

(Tiwari, 2011), the paper examined the relationship between fiscal deficit and inflation in India. The paper examine the factors that influence for increasing fiscal deficit in India. The study found that inflation does not

Analysis:

Trends of fiscal deficit in India



Source: Hand book of statistics of Reserve bank of India (RBI)

Examining the graph of India's Gross Fiscal Deficit from 1970-71 to 2022-23, a distinctive pattern emerges. Throughout the 1970s and early 1980s, the deficit remained relatively stable and low, indicating a period of

affect fiscal deficit. But the paper recognized that the money supply and government expenditure are the most important factors that putting effect on fiscal deficit in India.

(Musa kb 2021): the paper study Theoretical Review of the Impact of Fiscal Deficits on Economic Growth in Nigeria main aim of the study is to examine the effect of Fiscal deficits on Nigerian economic growth. It employs descriptive method to show the trend of fiscal deficit in Nigeria. The paper concludes that fiscal operation is ineffective for sustainable growth. This paper further suggests that powerful pro-stability stakeholders strong enough to challenge government fiscal recklessness will need to emerge for sustainable and progressive development to be attained at all levels.

(Ali, 2019), the paper studied the impact of fiscal deficit on GDP growth of India from 1999 to 2013. In this paper tools used are, linear regression and Pearson's correlation models to check the impact and the correlation. The paper says that fiscal deficit has a negative relationship with the GDP growth. The linear regression model shows that change in fiscal deficit can causes changes on GDP of the country too.

Objectives:

The objectives are as follow;

To analyze the trends of the Indian fiscal deficit of India, and to analyze the relationship between fiscal deficit and GDP growth of India.

Methodology:

The study is based on secondary data. The data used for analysis are from Hand book of statistics of Reserve bank of India (RBI). The study is limited to data of 53 years from 1970-71 to 2022-23 due to of availability of data for all the variables. In order to measure the influence of fiscal deficit on GDP the following methodologies are used. To analyze the impacts of fiscal deficit on GDP growth of India the OLS estimator has been used.

fiscal restraint. Moving into the 1990s and 2000s, there is a gradual but noticeable upward trend, reflecting evolving economic policies and external pressures. A significant spike is observed around 2008-09, which aligns with the global financial crisis and its impact on India's fiscal stance. Yet,

the most striking development appears post-2019, when the deficit surged dramatically, surpassing 1,600,000 crore during 2020-21. This unprecedented increase is largely attributable to government interventions and expanded spending in response to the COVID-19 pandemic. In the years following, specifically between 2020 and 2023, the deficit has remained elevated, with considerable volatility.

1. Descriptive statistics

<i>Gross fiscal deficit</i>		<i>GDP</i>	
Mean	254842.1	Mean	4882454
Standard Error	57956.51	Standard Error	968742.1
Median	66733	Median	1394816
Mode	#N/A	Mode	#N/A
Standard Deviation	421929.7	Standard Deviation	7052549
Sample Variance	1.78E+11	Sample Variance	4.97E+13
Kurtosis	6.558369	Kurtosis	1.711994
Skewness	2.55029	Skewness	1.643523
Range	1816883	Range	26902829
Sum	13506632	Sum	2.59E+08
Count	53	Count	53
Confidence Level (95.0%)	116298.2	Confidence Level (95.0%)	1943923

Source: author’s findings using excel

The descriptive statistics for India’s Gross Fiscal Deficit reveal pretty dramatic variability. The average deficit lands at roughly 254,842 crores, but the standard deviation 421,929 crores shows that these numbers don’t exactly sit still. The dataset is heavily skewed to the right (with skewness at 2.55), so there are several years where the deficit shot up way past the usual trend. The kurtosis value (6.56) means extreme outliers aren’t just possible they’ve actually happened. The range is wide, reflecting noticeable increases in recent years. Where as in GDP, you see a similar pattern (though maybe not quite as wild). Mean

This sustained high level underscores the fiscal challenges India faces and points to the significant policy measures implemented to navigate complex and unpredictable economic conditions. The recent trajectory particularly highlights the profound fiscal pressures and adaptive responses characterizing India’s current economic landscape.

GDP is 4,882,454 crores, and the standard deviation is even bigger: 7,052,549 crores. This points to considerable economic growth, but also plenty of fluctuation over time. The distribution is again skewed right (skewness = 1.64), with a kurtosis of 1.71. So, you’ve got more moderate outliers here, and the spread—GDP running from 46,816.86 crores to 26,949,646 crores—underscores just how much the Indian economy has expanded over the period in question. All in all, both fiscal deficit and GDP have seen significant shifts, but the GDP figures especially highlight the scale of India’s economic development.

2. Linear regression model

<i>Regression Statistics</i>						
Multiple R	0.9325585					
R Square	0.8696654					
Adjusted R Square	0.8671098					
Standard Error	2570943.4					
Observations	53					
<i>ANOVA</i>						
	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>	
Regression	1	2.25E+15	2.25E+15	340.30057	3.23E-24	
Residual	51	3.37E+14	6.61E+12			
Total	52	2.59E+15				
<i>Coefficients</i>						
	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>
Intercept	910051.88	413621.79	2.200203	0.0323482	79671.492	1740432.3
Gross fiscal deficit	15.5877	0.8449883	18.447238	3.23E-24	13.891315	17.284085

Source: author’s findings using excel

The regression analysis clearly demonstrates a robust and statistically significant association between the gross fiscal deficit and the dependent variable under consideration. Notably, the model accounts for approximately 87% of the variance in the dependent variable, which indicates a high degree of explanatory power. Both the intercept and the coefficient estimates are statistically significant, supported by a notably low p-value and an elevated F-statistic—both of which reinforce the model's reliability and suggest the results are not attributable to random chance. Furthermore, the positive sign of the coefficient indicates that increases in the fiscal deficit are closely linked to increases in the dependent variable. The 95% confidence intervals further bolster the credibility of these findings, providing reassurance regarding their precision and consistency. Overall, this regression model offers a compelling and reliable foundation for analyzing and understanding the influence of fiscal deficits on the specified dependent variable.

Findings:

The study examined the association between India's fiscal deficit and GDP growth from 1970-71 to 2022-23. Analysis of the data revealed considerable fluctuations in both the fiscal deficit and GDP, particularly during major economic disruptions such as the 2008 global financial crisis and the COVID-19 pandemic. Average GDP was substantial—close to ₹5 million crores—but was accompanied by significant volatility, reflected in a high standard deviation. The fiscal deficit displayed similar variability, with both measures exhibiting positive skewness, especially in recent years.

Regression analysis demonstrated a strong positive relationship between the fiscal deficit and GDP growth, accounting for approximately 87% of the observed variation in GDP growth. Specifically, the analysis found that a one-unit increase in the fiscal deficit correlated with a 15.59-unit increase in GDP. This positive coefficient suggests that higher government spending, even when it results in a fiscal deficit, is associated with increased economic growth. The statistical significance of this result was supported by a remarkably low p-value (3.23E-24) and a high F-statistic (340.30), indicating the robustness and reliability of the findings. Overall, the results imply that deficit-financed government expenditure has played a notable role in supporting India's economic expansion over the study period.

Conclusion:

Gross domestic product (GDP) growth is widely regarded as a primary gauge of economic progress. In this study, the researchers set out to explore how fiscal deficits essentially, the government spending more than it collects have influenced India's economic growth over a span of 53 years, from 1970 to 2023. The data reveal notable fluctuations in fiscal deficits, especially during significant episodes such as the 2008 global financial crisis and the COVID-19 pandemic, followed by periods of fiscal consolidation in the years after 2014.

The findings establish a significant and positive relationship between fiscal deficits and GDP growth in India. Results from the regression analysis indicate that fiscal deficit accounts for approximately 87% of the variation in GDP growth, underscoring the crucial role of government spending in stimulating economic activity in the short run. Government expenditures financed by fiscal deficits investments in infrastructure, welfare, and other critical sectors appear to have provided a substantial boost to the economy during key periods. Nevertheless, the study also draws attention to the potential risks associated with sustained or excessive fiscal deficits. Persistent fiscal imbalances can lead to challenges such as inflation, increased national debt, and long-term fiscal instability. Therefore, the researchers stress the importance of maintaining a balanced fiscal policy one that supports economic growth in the short term while safeguarding long-term fiscal sustainability. Prudent management of fiscal deficits is deemed essential to mitigate the risks associated with unchecked government borrowing and spending.

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Conflicts of interest

The authors declare that there are no conflicts of interest regarding the publication of this paper.

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