



Research Article

IMPACT OF FISCAL DEFICIT ON INDIAN ECONOMY

B. TEENA LAKSHMI^{*1}, P. NASURUDEEN², L. UMAMAHESHWARI² AND K. AYYOOB³

¹Department of Agricultural and Rural Management, Centre for Agricultural and Rural Development Studies, Tamil Nadu Agricultural University, Coimbatore, 641003, India

²Department of Agricultural Economics and Extension, PAN College of Agriculture, Karaikal, Nedungadu Post, Puducherry, 609603, India

³Kerala Agricultural University, Thrissur, 680656, Kerala, India

*Corresponding Author: Email - baskaranteena9@gmail.com

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Abstract: The study on impact of fiscal deficit on economic growth in India with an objective of estimating the relationship between economic growth variables. The period of study is from 1980-81 to 2016-17, the data collected from various secondary sources on gross domestic product, per capita gross national product, fiscal deficit etc. The collected data was analysed using percentage regression analysis, Johansen Cointegration test and Vector Error Correction model. This study has adopted two functions to analyse the impact of fiscal deficit on economic growth. Johansen Cointegration test and Vector Error Correction Model (VECM) were employed to check cointegration relationships among the variables. The results of the error correction model indicated the absence of any short run relationship between the variables for models. This study is support with Keynesian view that there is a positive relationship with fiscal deficit and economic growth.

Keywords: Economic growth, Fiscal deficit, Johansen cointegration test, Regression analysis, Vector error correction model

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Introduction

In India, gross fiscal deficit is defined as the excess of the sum of revenue expenditure, capital outlay and net lending over revenue receipts and non-debt capital receipts including the proceeds from disinvestment. The net fiscal deficit is known as the gross fiscal deficit deducted by net lending by government [1]. The issue emerges when the shortfall level turns out to be excessively high and constant. The impact of high deficits is related to the way they are financed and how it is utilized. The fiscal deficits may be financed by domestic and foreign borrowing or by printing money. Government expenditure on goods and services and resources are mobilized by it through taxes, etc., are significant variables that decide total interest in the economy. A comprehensive measure of the government's deficit is the fiscal deficit which gives a more aggregated view of the government's funding condition since it gives the difference between all receipts and expenditures other than loans taken to meet such expenditures. Among the standard analytical perspectives, the neo-classical view considers fiscal deficit unfavorable to investment and financial development, while in the Keynesian view, it comprises a key policy perception. Scholars convinced by Ricardian equivalence state that fiscal deficit don't generally matter with the exception of smoothening the acclimation to consumption or income shocks. The neo-classical and Ricardian economists focused on the long run effect whereas Keynesian views on short run. Fiscal deficit influence economic growth unfavorably and the negative effect of the budget deficit on the economic growth, is a direct result of governments were inadequate of the resources to meet their expenses in the long run [2]. Mohanty (2012) studied the negative and significant relationship between fiscal deficits and economic growth in both long run and short run during 1970 to 2012 and resulted that there was long run relationship between them [3]. The study revealed that the negative impact of post-reform fiscal deficit on economic growth is more than the impact of pre-reform's fiscal deficit. Similarly, Amurtha et. al (2017) examined the long run relationship between fiscal deficit and economic growth of the Indian economy using VECM [4].

Materials and Methods

The study was based on secondary data from 1980-81 to 2016-17 of various variables. The time series data was collected from websites of Reserve Bank of India, Ministry of Statistics and Planning commission, Socio economic statistical data and facts about India, open government data and World Bank. The objective of the study is to estimate the relationship between fiscal deficit and economic growth in economy and to know the effect of fiscal deficit on economic growth variables. The tools used for analysis of data are

- 1) Regression analysis
- 2) Augmented Dickey fuller test
- 3) Johansen Cointegration test
- 4) Vector Error Correction Model

Two models are used for analysis,

$$FD = (PCGNP, RD, INF, AE, TB) \quad (1)$$

$$GDP = (FD, RD, INF, AE, TB) \quad (2)$$

Where,

FD- Gross Fiscal Deficit (Rs. Billion)

GDP- Real Gross Domestic Product (Rs. Billion)

PCGNP- Per capita Gross National Product (Rs.)

INF- Inflation

AE- Aggregated expenditure (Rs. Billion)

TB- Trade balance (Rs. Billion)

RD- Revenue Deficit (Rs. Billion)

Results

Impact of growth variables

From the [Table-1], it can be concluded that fiscal deficit is explained by growth variables about 92%. There is significant impact of per capita GNP (PCGNP) is at 5% where revenue deficit (RD) and aggregate expenditure (AE) at 1% on fiscal deficit.

It means that on fiscal deficit is contributed by per capita gross national product, revenue deficit, and aggregate expenditure significantly. If per capita gross national product, revenue deficit and aggregated expenditure increases by one unit then fiscal deficit will be increased by Rs. 5.6 billion, Rs. 106.1 billion, Rs. 3.3 billion respectively.

Table-1 Regression analysis of impact of economic growth variables on fiscal deficit

	Coefficients	Standard Error	t Stat	P-value
Intercept	-930.999	434.367	-2.143	0.040
PCGNP	0.0560	0.0210	2.596	0.014**
RD	1.061	0.320	3.316	0.002***
INF	941.474	2125.559	0.443	0.661
AE	0.033	0.006	5.235	0.000***
TB	-0.029	0.078	-0.371	0.713

$R^2 = 0.92$, $N=37$

**** denotes significance at 1%, *** denotes significance at 5%, ** denotes significance at 10%

Table-2 Regression analysis of impact of economic growth variables on gross domestic product

	Coefficients	Standard Error	t Stat	P-value
Intercept	16313.843	2096.799	7.780	0.000
FD	4.726	1.701	2.779	0.009
RD	4.541	3.812	1.191	0.243
INF	-36333.059	21370	-1.700	0.099
TB	-3.875	0.461	-8.400	0.000
AE	0.050	0.090	0.560	0.580

$R^2 = 0.959$, $N=37$

From [Table-2] gross domestic product is explained by growth variables about 96%. There is significant impact on fiscal deficit (FD) and trade balance at 1% whereas inflation at 10%. There is positive impact of fiscal deficit (FD) i.e., if one unit of these variables increase then gross domestic product by Rs 472.6 billion and there is negative impact of inflation and trade balance respectively.

Testing of unit root

To examine the order of integration among the variables, Augmented Dickey Fuller test has been tested with the null hypothesis of unit root presence (i.e., non-stationary time series) against the alternative hypothesis, presence of stationary. If the p value is less than 0.05 then rejects the Null hypothesis and concludes that the series is stationary and vice-versa. It is clear that the null hypothesis of no unit roots for all variables are rejected at their first differences because the ADF statistic values are less than the critical values at one per cent levels of significances [Table-3]. Thus these variables have unit root in their level form but at first difference the variables became stationary.

Table-3 Results of Augmented Dickey Fuller Test

Variables	ADF test	Lag order	p-value
FD	1.982	1	0.031
GDP	3.609	1	2.20e-16
PCGNP	3.873	1	3.11e-13
RD	-3.476	1	0.001
CPI	-3.026	1	0.0001
AE	-0.027	1	0.001
TB	-5.137	1	0.01

Johansen cointegration test

Cointegration is the statistical implication of the presence of a long-run relationship between the variables. A necessary but not sufficient condition for the Johansen cointegration test is that each of the variables be integrated of the same order. The Johansen cointegration test uses two statistical tests namely: the trace test and the maximum eigenvalue test.

Table-4 Johansen Cointegration Test

Hypothesized No. of CE(s)	Eigenvalue		Trace statistics	
	Test statistics	Critical Value (5%)	Test statistics	Critical Value (5%)
None *	109.95	46.45	310.58	131.70
At most 1 *	73.69	40.30	200.64	102.14
At most 2 *	69.70	34.40	126.94	76.07
At most 3 *	23.40	28.14	57.24	53.21
At most 4 *	16.01	22.00	33.85	34.91
At most 5 *	14.44	15.67	17.84	19.96
At most 6 *	3.39	9.24	3.39	9.24

From the [Table-4] both the maximum eigen value and trace statistics statistics rejected the null hypothesis of no cointegration at the 0.05 level ($109.95 > 46.45$ and $310.58 > 131.70$). However, the null hypothesis of four cointegration among the variables is not rejected at the 0.05 level ($16.01 < 22.00$ and $33.85 < 34.91$) by both the maximum eigen value and trace statistics respectively. Similar results are observed from subsequent cointegration.

Vector Error Correction Model

Non-equilibrium in a certain period can be corrected in subsequent periods. A negative and significant error correction term means that there will be re-equilibrium of variances in the long-run. This implies the absence of any short run relationship among the variables.

Table-5 Error correction of Dependent Variable FD

Variables	Coefficient	Std. Error	Prob.
ECM _{t-1}	0.708	0.430	0.100
GNP	-0.130	0.101	0.195
RD	2.039	0.775	0.009
CPI	-499.77	1058.249	0.637
AE	0.521	0.160	0.001
TB	-0.123	0.117	0.290
Constant	9.890	97.84	0.261

Table-6 Error correction of Dependent Variable GDP

Variables	Coefficient	Std. Error	Prob.
ECM _{t-1}	0.131	0.329	0.690
FD	0.394	1.184	0.973
RD	0.383	1.404	0.785
CPI	1759.958	2061.99	0.393
TB	0.399	0.358	0.265
AE	0.133	0.224	0.553
Constant	146.136	202.072	0.470

From [Table-5] and [Table-6] all the variables are statistically insignificant. Apart from that, the coefficient of the error correction term is insignificant. However, the result of this error correction model is reliable since it satisfies all diagnostic tests. Statistically, the model itself is highly significant based on the probability of the F-statistic [Table-2] and [Table-3]. It can be concluded that the coefficient of the error correction term has positive sign, but it is insignificant. This implies the absence of short run relationship among the variables. The same results were noticed in the work of Mohanty, 2012.

Summary and Conclusion

Johansen Cointegration test and Vector Error Correction Model (VECM) were employed to check cointegration relationships among the variables. Results indicated that there is absence of short-run relationship and there exists six cointegration equations between variables. The results of the error correction model indicated the presence of any short run relationship between the variables for models. The core idea is that there must be consistency between fiscal deficit and other macroeconomic targets. Based on the findings this study suggests following policy inputs. a) A prime issue for Indian economy is to reduce fiscal deficits. Reduction can be achieved either by raising revenues or by decreasing expenditures. b) Understanding the direction of causality between fiscal deficit and economic growth is critically important in formulating effective policies. The core idea is that there must be consistency between fiscal deficit and other macroeconomic targets. When budgets persistently are overspent, it is important to keep in view the way in which the resulting deficits are financed i.e. whether through internal or external borrowing or by monetizing) in order to keep inflation under control. c) There should be appropriate policy mix to ensure that fiscal deficit measures are not mitigated by conflating macroeconomic policies.

Application of research: The study in fiscal deficit plays an important role to influences the growth of economy. Our results provide evidence for the policy makers to reduce the fiscal deficit rate in India and to maintain sustainable growth in the future.

Research Category: Macro-economics

Abbreviations: VECM: Vector Error Correction Model, ADF: Augmented Dickey Fuller Test, FD: Fiscal deficit, GDP: Gross Domestic Product, PCGNP: Per- capita Gross National Product, RD: Revenue Deficit, INF: Inflation, AE: Aggregated Expenditure, TB: Trade balance.

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Institute: PAN College of Agriculture, Karaikal, Nedungadu Post, Puducherry, 609603, India

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