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# Impact of Fiscal Deficit on Macroeconomic Variables in India

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**ABSTRACT**

*The study empirically verifies the impact of fiscal deficit (FD) on macroeconomic variables like growth of Gross Domestic Product, inflation and private capital formation. The annual time series data for the period 1970 to 2018 have been taken. Long run relationship between variables has been verified by using the Johansen Co-integration techniques and autoregressive distributed lag (ARDL) bound test. Based on the existence of co-integrating relationship, VECM and VAR model have been used. From the empirical analysis it is observed that there is long-run equilibrium relationship between FD, inflation and growth of GDP. However, long-run co-efficients of fiscal deficit to GDP ratio are not statistically significant. In the short run, FD adversely affects growth of GDP, positively influences inflation rate and it does not crowd out private investment. Consolidation of government finances through efficient revenue mobilisation and limiting non-developmental spending will help keep FD under target and check the adverse effects of FD on the macroeconomic indicators.*

***Keywords:*** *Fiscal deficit; Capital formation; GDP; Inflation; Crowding out; Fiscal consolidation.*

## 1.0 Introduction

Deficits at fiscal front and debt of public sector are prime concern to each government in the world (Willem, Persson, & Minford, 1985). Deficits of the government have very significant macroeconomic implications on the economy.

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There are three main terminologies of deficit, i.e. fiscal deficit, revenue deficit and primary deficit which are widely used for analysis of fiscal situations of the governments. Budgetary deficit indicates overall budgetary position of the country but it does not indicate the net liability of the Government. Similarly revenue deficit, only accounts on revenue side of the budget. Therefore among these deficit concepts, fiscal deficit is more widely used and given importance for analysis in order to indicate fiscal position of the government in an economy. Fiscal deficit shows the clear picture of governments liabilities because it excludes non-debt capital receipts. If fiscal deficit exist mainly because of more capital productive investment which will have durable income generating capacity then, the fiscal deficit will have positive impact on the economy. On the other hand, if increased non-developmental spending accounts for increased fiscal deficit which do not generate healthy return for the economy in long run then the fiscal deficit will have adverse implications on the economy

Fiscal deficit may have implications on macroeconomic factors of the economy. The study analyses the implications of fiscal deficit on internal macroeconomic indicators in India. For understanding the internal economic implications, the study focus on empirical verification of long run and short run impact of fiscal deficit on macroeconomic variables, such as inflation, economic growth and capital formation.

In this context the main aim of this paper is to examine the effect of fiscal deficit on macroeconomic variables such as economic growth, inflation and private capital formation. The rest of the study planed as: section 2 pertains to the review of related literature; Data, variables and methodologies of the study are provided in section 3; the empirical findings and analysis are given in section 4 and section 5 concludes the study.

## 2.0 Review of Empirical Literature

The literature pertaining to the study of fiscal deficit and its impact on macroeconomic variables are reviewed in this section.

Erdos (1973) has examined the long run nexus of the investment ratio and the growth rate of productivity depends on the technological development i.e. modernization of rate. If the modernization rate is high then, the new area's to be included for exploitation which is not unexploited so far. Whereas, if the modernization rate is low then, the technical progress will release only a small amount of labor and also a low investment to engage them in production. In high modernization rate the huge investment is needed and the investment will not be related to the level of growth rate. He also opined that if the ratio of the investment will appear with the growth rate, then

the correlation of growth rate and the investment badly be interrupted by the non-productive investment.

Weidenbaum (1990) has discussed the relationship of government investment and economic growth in United States. He has explained the effects of tax and government regulation and investment nexus in the country. Furthermore, he has added the shift of investment on human resources can be viewed as a planned effort to improve the quality input. The discussion has also pointed out about the concern of environmental pollution and limit of the market mechanism which does not tell about where to stop. He has concluded with the note that important choices have to be made among different alternatives.

Chaudhary and Ahmad (1995) have analyzed the nature of money supply and determinants of inflation in Pakistan. They have employed Ordinary least square method of estimation to find the relation between the variables. Their findings suggest that the budget deficit by domestic sources will raise the money supply and the inflation. There is a positive long run relationship between the budget deficits and inflation revealed from the study. They have suggested that the central government should cut the budget deficit by reducing the public sector activities and reduce the size of bureaucracy.

Ahmed and Miller (2000) has verified the implications of disaggregated government spending on investment considering a cross section data of 39 countries for the periods of 1975 to 1984.Using the fixed- and random-effect estimation techniques, he has observed that traditional and non-traditional crowding out supports how states' spending affects domestic investment. Furthermore, openness has significant and positive effect on investment in case of developing countries. Communication and transportation spending significantly crowds in investment to gross domestic product for developing countries but in case of developed countries it has insignificant effect on investment. Spending on welfare and social security crowds out investment.

Catao and Terrones (2005) have studied the implication of fiscal deficit on inflation using broader data of 107 countries from 1960 to 2001. They have kept the non-linear relation from inflation to fiscal deficit along with the inflation tax base. To get better insight they have divided their data into two groups as level of financial development and performance of inflation. They have employed panel ARDL model for the estimation. For high inflation countries, which are mainly developing countries fiscal deficit strongly associated with the inflation. The relation of fiscal deficit for low inflation developed economies is insignificant.

Adam and Bevan (2005) have found the threshold for the fiscal deficit at level 1.5 percent of GDP from a cross country analysis. Through scatter plot a non-linear

relation is observed between the fiscal deficit and growth. They have also found that high deficits influence badly to the high debt stocks.

Chen (2006) has studied the association of consumption expenditure, public investment and economic growth. He has used one-sector endogenous growth model and found that the stronger growth affects by their indirect impacts of optimal public spending composition. Further, the impact arises from the increase of marginal utility of private consumption in to the public consumption. Hence, it is observed that the public investment affects economic growth. His empirical result shows that there is growth effects. The growth effects of public spending have implication only for the East Asian economies. The growth rate and public investment are higher in these countries.

Ghani and Din (2006) have examined the growth effects of public investment in case of Pakistan. Using the vector autoregressive model they have found that the public investment is not significant in stimulating growth of the country. Only the private investment is having significant coefficient.

Balakrishnan and Parameswaran (2007) have assessed the economic growth in India. They have studied the economic growth since 1950s and traced out various important economic policy changes. They have tested whether the economic policies have succeeded in the growth shift of the country. For this they have used time series data for 10 OECD countries and adopted multiple structural breaks to find out various segment of growth. Their estimation has showed that there are two regimes of growth. The sectoral contributions also are measured in growth regimes. Their findings have suggested that all main sectors contributed in the acceleration in the growth. Mostly the primary and tertiary sectors have contributed to the growth and the tertiary sector has positive break after 1980. The growth of primary sector occurs in mid-1960s. The growth of primary sector accelerates the growth of tertiary and which enters into the growth of secondary sector. But the secondary sector has not entered in the growth of either primary or tertiary.

Mazumdar (2008) demonstrates the case of the post liberalization period as the inherent source of instability in industrial and manufacturing sector growth. Instability in growth is the result of unbalanced investment growth that flows from a service intensive growth pattern and manufacturing intensive growth pattern. It results in internal and external markets demand expansion and also on the reliance on private corporate process of investment. Due to this situation, the maintenance of demand expansion and capacity creation in the manufacturing sector would not be possible. Therefore the investment is likely to suffer from a high degree of instability, which is by its impact on demand, makes industrial growth too highly unstable. Hence, the Indian economy is seen as incapable of utilizing the accumulated capital in post 1991 in economic liberalization.

Some important factors of adverse effects of fiscal deficit on growth and investment are increasing non-developmental spending, and lack of mobilising revenue resources to the potential both by the centre and the states. Panda (2009), Panda and Nirmala (2013), Panda (2015) and Panda (2017) have observed adverse impacts of federal transfers on tax efforts and expenditure economy of states in India.

Murty and Soumya (2007) have provided an aggregative, structural, macroeconomic model for India. They have taken annual data for 1978-79 to 2005-06 for estimation. They found that there is a significant structural shifts in production from agriculture to infrastructure and services in India. They have included 75 endogenous and 39 exogenous variables including 10 dummy variables in the model. In the model they have tried to relate the economic growth with poverty reduction. The method of three-stage least square is used for the estimation for the period 1980-81 to 2002-03.

They have observed crowding in impact between the public and private investment in manufacturing, services and agriculture sectors. The infrastructure sector reveals crowding out impact between private and public sector investment. Public sector investment in infrastructure and all other sectors are complementary. The forecasting of the estimation depicts that due to the increase in public sector investment, the resource gap of the public sector, gross fiscal deficit, and therefore, the reserve bank of India's credit to the government, after deducting the borrowing from commercial banks will increase. They have concluded with the forecast that India's real GDP will decline by 0.6 percent and increase poverty level by 0.1 percent due to the global economic crisis.

Ekanayake (2012) examines the hypothesis of link between the fiscal deficits and inflation and the linkages on the unavailability of wage expenditure of the public sector. He has taken the time series data from 1959 to 2008 for Sri Lanka and employed autoregressive distributive lag model (ARDL) for the analysis.. The results suggest that besides monetary factor, wage expenditure of public sector is important determinant for inflation in case of Sri Lanka. Mohanty (2012) has observed adverse effect of fiscal deficit on GDP growth for India using data set for 1970-71 to 2011-12.

Warner (2014) has verified whether big infrastructure and public capital investment are successful for accelerating economic growth in poor countries. He has found that the public investment and growth on an average for the low income countries were having a weak positive relationship whereas; some countries were also having high growth. He has also discussed the Keynesian demand effects which suggest that the public spending raises the output in the short run. Keynesian view has opposed the long run productivity impact on growth which may take several years. His case studies reveal that the public investment financed by the borrowing and it is being troubled by the poor analytics while choosing the investment projects, the problem of incentives and it is

affected by the interest group while determining investment choices. He has suggested that the current public investment will be expected to more successful if the governments do not behave as in the past and instead analyze the serious issues and protect their decision process against that vague investment decisions.

Hoang (2014) has investigated the association of money supply, budget deficit and inflation. He has employed structural vector autoregressive (SVAR) model with the monthly time series data of Vietnam. He has observed that there is optimistic impact on inflation, but money growth does not affect GDP growth. Second finding that revealed from the study is that budget deficit does not have significant effect. Budget deficit growth is independent from shocks to interest rate.

Jena and Nayak (2014) have observed that food and fertiliser subsidies have positively influenced rising fiscal deficit in India in the post reform era. Abirami and Panda (2015) have observed crowding out impact of fiscal deficit on private investment. Nayak and Panda ( 2017) have observed that there is no evidence of crowding out impact of fiscal deficit on private investment in india while FD has adverse effects on GDP.
Varkey and Panda (2018) have verified the inter-sectoral growth linkages among the various key sectors at state level in India. The study finds that the industrial sector contributes to the growth of agricultural productivity. Varkey and Panda (2020) have observed that there is linkage of economic growth among states. Joy and Panda (2019a) have examined the implication of external debt on the macroeconomic variables using recent data up to 2017. The study finds that the external debt has positive impact on the inflation and negative impact on non-developmental expenditure. Similarly, Joy and Panda (2019b) have found adverse influence of debt service payment on domestic saving and capital formation.

There are sparse studies in the literature to address the impact of fiscal deficit on macroeconomic variables especially, growth, inflation and capital formation and current account deficit in case of India. In this context the main research questions are: (i) whether the fiscal deficit has positive impact on growth? And (ii) does the fiscal deficit increase inflation and crowd out gross domestic capital formation?

## 3.0 Data, Variables and Methodology of the Study

The data for analysis are obtained from Hand book of statistics of Reserve bank of India (RBI), International Monetary Fund (IMF), Federal Reserve Economic Data and World Bank (WB). Our study is limited to annual data of 48 years from 1970 to 2018 due to constraint of availability of data for all the variables. In current account and fiscal deficit data we have taken deficit as positive '+' sign and surplus as negative '-' sign.

The fiscal deficit has been observed to be positive throughout for India. In order to avoid repetition, detail discussion pertaining to this is provided in the next section.

Growth of real gross domestic product reflects the increased size of economy in terms of increase in production and employment. Changes in pattern of spending, revenue structures and resultant changes in deficits have influence on economic growth. If the large share of fiscal deficit is built up for investment in infrastructural development such as roads, highways, irrigation and rural development, it will positively influence the production, economic growth and create employment opportunities. Besides, increased spending will increase aggregate demand and accelerate economic growth. However, if the large share of fiscal deficit is due to unproductive spending such as defence expenditure, interest payments, maintenance of law and order expenditure and expenditure on public administration, then fiscal deficit may have adverse influence and it will pull down the pace of economic growth. Besides, after certain limit of fiscal deficit, due to heavy pressure of interest burden and outflow of capital to repay public debt, it will limit on economic developments. So there is a need to analyze the association of fiscal deficit and economic growth.

In a monetarist economy the monetary base is related to the price level and the diligent fiscal deficit is financed by revenue generation of monetary authority. This is done by currency creation which ultimately, produces inflation (Sargent & Wallace, 1981). Long lasting budget deficit can generate inflation depending upon the source of financing the deficit (Hoang, 2014). The fiscal view says that mediocre revenue generation, political motive and substandard financial management ends with the inflation tax (Alesina & Drazen, 1991). Theoretically, the risk of inflation from high fiscal deficits comes from the spark of consumption demand rather than the income generating assets by suitable investments, which would help in the repayment of future debt servicing. The ability to generate revenue combined with the long lasting high economic growth add only one percent to the inflation. The major contributors are association of higher tax, refusal of the tax exemption and increase of public expenditure. These can reduce the growth rate and lower the pace of recovery from the higher inflation tax leads to the growth in money and ultimately, put pressure on future inflation (Khundrakpam & Pattanaik, 2010).

The neo-classical school of thought views that the budget deficit encourages the lifetime consumption of an individual by shifting the tax burden for the future generations. The rise in consumption implies reduction in saving rate. This pushes the interest rate to rise to bring back the capital market in balance. Therefore, the relentless budget deficits crowd out private capital accumulation. In Keynesian view the budget deficit triggers both consumption and national income. Deficits have positive impact on

capital formation. According to the Ricardian view the consumption of the individual is decided by their ancestor's dynastic resources which are voluntarily transfers to successive generations. Therefore, deficit is just shift of taxes and the dynastic resources will be unaffected (Bernheim, 1989).

In order to measure the influence of fiscal deficit on different macroeconomic indicators the following methodologies are used. Augmented Dickey Fuller (ADF) is used to test stationarity of variables used. After unit root test, depending on stationary properties of variables, we have used Vector autoregressive model (VAR), Vector error correction (VEC) and Autoregressive Distributive lag (ARDL) for different models to find out the relationship between the variables and for finding the impacts of fiscal deficit on internal macroeconomic indicators and external vulnerability. In case of cointegrating relationships between variables, simple ordinary least square techniques have been employed for estimation. The details of results of unit root tests and subsequent application of specific models are discussed in the next section that is analysis of empirical results and discussions.

## 4.0 Analysis of Empirical Results and Discussions

In this section, the empirical results pertaining to the implication of fiscal deficit (FD) on macroeconomic variables like inflation, growth of Gross Domestic Product, and Gross Domestic Capital Formation have been analysed. First unit root test is employed to test the stationarity of variables and then accordingly appropriate model is selected. Augmented Dickey Fuller (ADF) test is employed for unit root and results are reported in Table 1.

**Table 1: Unit Root of Variables for Analysis of Impact of Fiscal Deficit on Macroeconomic variables**

| Variable | Levels | | | First differences | | |
|---|---|---|---|---|---|---|
| | Number of lags | ADF T-test | 5% critical value | Number of lags | ADF T-test | 5% critical value |
| GDPGR | 0 | -4.72* | -2.93 | - | - | - |
| GFD | 0 | -2.51 | -2.93 | 1 | -6.81* | -2.93 |
| GCF | 0 | -1.52 | -2.92 | 0 | -8.56* | -2.93 |
| INF | 4 | -4.65* | -3.52 | | | |
| LGFDPC | 0 | -1.45 | -2.92 | 0 | -7.80* | -2.93 |
| NMGDP | 0 | -1.66 | -2.93 | 0 | -8.12* | -2.93 |
| LPVTPC | 1 | -0.29 | -2.93 | 0 | -8.99* | -2.93 |
| LPCI | 0 | -2.54 | -2.93 | 0 | -4.46* | -2.93 |

*Notes:* Indicates significance at 5% level of significance.*

The ADF test reveals that variables like GDP growth (GDPGR) and Inflation (INF) are stationary at level and all other variables are stationary at first difference.

As order of integration of all variables is not same, different models have been developed to understand the effect of FD on key macroeconomic indicators separately. The long run and short run association of FD with other macroeconomic variables have been analysed in following sub-sections.

### 4.1 Impact of fiscal deficit on growth of gross domestic product

In order to analyze the long run and short run association between FD and growth of GDP, following model in its basic form (model-1) is used.

***Model-1***

$GDPGR = \beta_0 + \beta_1 GFD + \beta_2 GCF + \beta_3 INF + \varepsilon_t$

where,

$\beta_0$ = Intercept

$\beta_1, \beta_2, \beta_3$ = Parameters

GDPGR = GDP Growth Rate in percentage

GFD = Gross Fiscal deficit as Percentage of GDP

GCF = Gross Capital Formation as Percentage of GDP

INF = Inflation Rate

$\varepsilon$= Error Term

t= time period

The Model 1 is constructed to find out the relationship between the impact of GFD on GDP growth with other macroeconomic variables such as, gross capital formation and inflation as controls. According to ADF unit root test, GDPGR and inflation are stationary at level but, gross capital formation, and GFD are stationary at first difference. Therefore Auto regressive distributed lagged model (ARDL) bound test is used for analyzing long-run co-integrating relationship.

The Bound test results as reported in Table 2 suggest that there is long run equilibrium relationship between the variables like Growth of GDP, fiscal deficit to GDP ratio, Inflation and GCF. But estimated long run coefficient (Table 3) of fiscal deficit using ARDL approach did not emerge to be significant in influencing the economic growth. In the long run there may be several policy and structural issues which account for changes in fiscal deficit and growth.

These factors are not taken into account in our model. This may be one of the reasons why FD is not significant for Economic growth. However, the Gross capital formation has significant and positive impact on GDP growth. Formation of capital is important for Economic growth.

**Table 2: Autoregressive Distributed Lag Approach Bound Test**

| **Dependent variable is GDPGR** | | | | |
|---|---|---|---|---|
| F-statistic | 95% Lower Bound | 95% Upper Bound | 90% Lower Bound | 90% Upper Bound |
| 6.7106 | 4.4023 | 5.5476 | 3.7021 | 4.7582 |
| Serial Correlation LM Version | | | | |
| t Value | | p-value | | |
| 0.28605 | | 0.593 | | |

*Source: Computed by author using Microfit .*

**Table 3: Estimated Long run Coefficients of GDP Growth using ARDL Approach**

| **Estimated Long Run Coefficients** | | |
|---|---|---|
| Dependent variable is GDPGR | | |
| Regressor | Coefficient | p Value |
| GFD | 0.43264 | 0.361 |
| GCF | 0.32756 | 0.025 |
| INF | 0.62564 | 0.215 |
| Trend | -0.26145 | 0.022 |

*Source: Computed by author using Microfit.*

Table 4 shows the error correction representation. The Error correction mechanism coefficient is negative and significant, which suggests that in the short run error is adjusting to the equilibrium. The coefficient of GFD is found to be negative and significant. This suggests that fiscal deficit has adverse impact on growth of GDP in the short run.

**Table 4 : Error Correction Representation using ARDL approach**

| **Dependent variable is dGDPGR** | | | |
|---|---|---|---|
| **Regressor** | **Coefficient** | **p Value** | **R square** |
| dGFD | -1.1523 | 0.026 | 0.50501 |
| dGCF | 0.23674 | 0.147 | |
| dINF | 0.45217 | 0.219 | |
| Ecm (-1) | -0.722 | 0.00 | |

*Source: Computed by author using Microfit*

For one percent increase in GFD to GDP ratio, growth of GDPGR declines by 1.15 percent. This main explanation for the adverse effect of FD on growth of GDP in Indian context mainly explains major part of fiscal deficit is for current expenses and capital component of spending is less. If expenditure is used for creation of infrastructure for social and economic sector, and developmental services, it may help for turning positive growth in long term.

**4.2 Impact of fiscal deficit on inflation**

Model 2 is constructed to gauge the impact of FD on inflation in Indian economy. In this model our main variable of interest is FD to GDP ratio. The other control variables taken as independent variables are narrow money and per capita income. Narrow money is an important control variable which is used to measure change in money supply and its impact on inflation. Similarly, change is percapita has also impact on demand and inflation.

***Model-2***

$INF = \beta_0 + \beta_1 LGFDPC + \beta_2 NMGDP + \beta_3 LPCI + \varepsilon_t$

where,

$\beta_0$ = Intercept

$\beta_1, \beta_2, \beta_3$ = Parameters

INF = Inflation rate

LGFDPC= Log of Gross fiscal deficit Per capita

NMGDP= Narrow Money as Percentage of GDP

LPCI= Log of Per Capita Income

$\varepsilon$= Error Term

t= time period

For this model, as the order of integration of the variables is mixed, we have adopted Auto regressive distributed lag model (ARDL) for estimation. The first of ARDL is Bound test result of ARDL method is shown in Table 5. The results suggest that Inflation is associated with FD, Narrow money, per capita income in the long-run.

Table 6 shows the estimated long run coefficients of ARDL. The coefficients did not emerge to be significant in influencing inflation in the long run. Table 7 shows the error correction representation of ARDL model. ECM coefficient is negative and significant, which suggests that in the short run equilibrium error is adjusting. The coefficient of GFD is positive and significant, it means one percent increase in GFD will increase inflation by 2.68 percent. This is obvious when deficit increases due to excessive current expenditure, it will add to demand and inflation in the economy. So the FD influences inflation in the short run.

**Table 5: ARDL Bound test Coefficients for Inflation**

| Dependent variable is Inflation | | | | |
|---|---|---|---|---|
| F-statistic | 95%Lower Bound | 95%Upper Bound | 90% Lower Bound | 90% Upper Bound |
| 6.2045 | 4.4023 | 5.5476 | 3.7021 | 4.7582 |
| Serial Correlation LM Version | | | | |
| t Value | p Value | | | |
| 7.4526 | 0.006 | | | |

*Source: Computed by author using Microfit from basic data*

**Table 6: Long-run Regression Coefficients of Inflation using ARDL approach**

| **Estimated Long Run Coefficients** | | |
|---|---|---|
| Dependent variable is Inflation | | |
| Regressor | Coefficient | p value |
| LGFDPC | 17.7664 | 0.317 |
| NMGDP | 2.1968 | 0.337 |
| LPCI | -25.2246 | 0.899 |
| Trend | -0.891 | 0.573 |

*Source: Computed by author using Microfit from basic data*

**Table 7: Error Correction Representation using ARDL for Inflation**

| **Error Correction Representation** | | | |
|---|---|---|---|
| Dependent variable is INF | | | |
| Regressor | Coefficient | p value | R square |
| dLGFDPC | 2.6832 | 0.045 | 0.42644 |
| dNMGDP | -0.099796 | 0.437 | |
| dLPCI | -3.8096 | 0.903 | |
| Ecm(-1) | -0.151 | 0.0261 | |

*Source: Computed by author using Microfit from basic data*.

### 4.3 Impact of private investment

The Model 3 is constructed to gauge the impact of fiscal deficit on private investment in Indian economy. In this model our major variables are fiscal deficit and private investment and per capita income is control variables.

***Model-3***

$LPVTPC = \beta_0 + \beta_1 GFD + \beta_2 LPCI + \varepsilon_t$

where,

$\beta_0$ = Intercept

$\beta_1$, $\beta_2$, = Parameters

LPVTPC = Log of Private Per capita Investment

LGFD= log of Gross fiscal Deficit as Percentage of GDP

LPCI= Log of Per Capita Income

ε= Error Term

t = time period

The variables for Model 3 are stationary at first difference. So the next step is to check cointegration among the variables. To check cointegration we have adopted the Johansen cointegration technique. The result for cointegration is presented in the Table 8. Both the trace value and max- eigen value suggest that there is no cointegration among variables. Therefore we have used VAR model.

**Table 8 : Johansen Co-integration test for Private Per capita Investment, Gross Fiscal Deficit and Per capital Income**

| Eigen value | Trace value | | | Max-Eigen value | | |
|---|---|---|---|---|---|---|
| | $H_0$ | Trace | 5% critical value | $H_0$ | Max-Eigen | 5% critical value |
| 0.277893 | None | 26.38262 | 29.79707 | None | 14.9768 | 21.13162 |
| 0.174453 | At most 1 | 11.40583 | 15.49471 | At most 1 | 8.818619 | 14.2646 |
| 0.054691 | At most 2 | 2.587208 | 3.841466 | At most 2 | 2.587208 | 3.841466 |

*Source: Computed by author from basic data using E-Views .*

Table 9 shows the Vector autoregressive (VAR) model results for the model 3. This result shows there is no significant relation between variables. Therefore GFD does not crowd out private investment. Sometimes both public expenditure and private investment increase side by side. FD does not necessarily crowds out private investment.

**Table 9 : VAR Causality for Crowding Out**

| Dependent Variable LPVTPC | | |
|---|---|---|
| $\Delta GFD_{t-1}$ | $\Delta PCI_{t-1}$ | $R^2$ |
| -0.006721 (0.007578) | 3.616208(1.412669) | 0.995722 |

*Source: Computed by author using E-Views from basic data .*

## 5.0 Conclusion

The main aim of this paper is to examine the impact of fiscal deficit on various macroeconomic variables in India. FD is one of the important indicators of measuring fiscal situation of the economy and changes in it have several implications on other macroeconomic variables. From the empirical analysis it is observed that there is long run equilibrium relationship between FD, Inflation and Growth of GDP. But, long-run co-efficients of fiscal deficit to GDP ratio are not statistically significant. However, in the short run , FD plays an important role in influencing Growth of GDP and inflation. While FD adversely affects growth of GDP in the short run, it has positive impact on inflation rate. In the study FD did not emerge to be significant in influencing private investment in short run.

So it is important to consolidate government finances, and reduce both fiscal and revenue deficits. Mobilizing more tax revenues, and reducing non-developmental spending without reducing the scope of developmental and infrastructure spending will help keep FD under target. So that adverse effects of FD on the macroeconomic indicators will be checked. The limitation of the study lies in not decomposing and analysing the stability of Fiscal deficit and structural factors , which may be addressed in future studies.

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