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An Assessment Of Growth Deficit Nexus In India

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Abstract

Exceeding of govt. expenditure over its revenue collections, what economists call as fiscal deficit is most controversial economic instrument but at the same time is also most rampant in major economies of the world these days. The current study tries to figure out the impact of fiscal deficit on the most important economic variable namely economic growth in Indian context for the post reform period (1990-2019). The ARDL approach was used for analyzing the relationship keeping in view the unit root results. The study found the evidence in favor of Ricardian Equivalence by concluding that there does not exist any relationship between fiscal deficit and economic growth in India during the study period. However other control variables including exchange rate, gross capital formation, FDI and openness were found to have significantly positive impact on economic growth in the long run.

Key words GDP Growth, Fiscal Deficit, ARDL, Ricardian Equivalence.

1. Introduction

Economic growth refers to increase in the quantity of goods and services an economy can produce during an accounting year. All the economies of the world are so much sensitive about their economic growth for the reason what is done with the fruits of growth. Every economy is trying its best to increase economic growth year after year. The fact about current world economic scenario which is mind catching is that, developing economies are achieving higher rates of growth than developed ones, economists call it process of convergence. The problem with the economic growth is that it is not sustaining but

fluctuating. So, these economies are interested in investigating about the factors that are behind such fluctuation. The current study tries to examine the impact of one such important factor namely fiscal deficit on the economic growth of India for the period of 1990-91 to 2019-20, in the framework of well-established economic arguments like such as Keynesian argument, neo-classical argument and Ricardian relevance, as There is no enmity among economists about the impact of fiscal deficit on economic growth. The study contains five parts; first part is about brief introduction with theoretical literature. The second part contains empirical literature review. The third part contains data and methodology. The fourth part contains empirical analysis and estimation of results and the final section contains conclusion remarks.

1.1 Discussion on Pros and Cons: Aggregate Issues

Talking about India's history it has not been so pleasing. India had to face the miserable period of poverty and stunted economic prevalence up to early fifties. So expectedly, India was very much below the line in terms of infrastructure and other developmental indicators. Facing such deficit on one side and not so strong base for revenue generation on the other side, it was very worrisome situation for the economy as a whole. After the attainment of independence, efforts were being made to improve the condition of the economy by investing in infrastructure as well as in basic key sectors as such agriculture, industries, health and so on. Although these efforts did pay in the form of a bit higher levels of growth, but not up to the level of expectation. Being a developing economy, India since independence is consistently relying on deficit financing. The focus of the current study is period since 1991 till 2019. During this period fiscal deficit started rising from 5.39% in 1991 to 3.4% in 2019. The average gross fiscal deficit during the period was 4.84%. External debt as a percentage of GDP was 38.7% in 1992 which declined sharply to 21% in 2002 and thereafter remained almost unchanged. At the end March 2019 it stood at 19.7%. Despite the decrease in external debt- GDP ratio, the per capita debt levels of India are continuously increasing and hence there is still a high level of external debt. Per capita external debt was 101.2$ in 2002, in 2008 it was 763$ and in 2018 it stood at 1,367$. So to bring the deficit down to the acceptable levels was the need of the hour, in order to decrease debt levels both external as well as internal. During the same period growth rate started with a meager growth of 1.8% in 1991 and was recorded to be 6.8% in 2019. The average growth rate during the same period was recorded to be as 6.62%.the fiscal deficit was pretty high till 2003, but with the incorporation of FRBM act 2003 it was brought down to the prescribed limit of 3.5% or less. The FRBM act was enacted in the constitution because the external debt of the country was mounting. India was paying high share of country's national income in the form of interest payments. The growth rate which started at a low level of 1.8% in 1991 grew appreciably in the following period due to reforms that were taken. Since then, the growth rate remained pretty high and India remained one of the fastest growing economies in the world and holds the first rank in the world currently in terms of growth performance. Although during the same period the global financial crises occurred, but India somehow sustained the pace of its growth mainly due to the efforts taken by the government, be these in the form of expansionary

fiscal policy or be they due to the RBI's efforts in the form of appropriate monetary policy. During the study period the growth kept fluctuating but remained at reasonably good level.

In case of India investment is not much interest sensitive. It kept on decreasing as a percentage of GDP despite of noticeable decrease in the rate of interest in the country. Furthermore, in a demand constrained economy like India, fiscal deficit is expected to be encouraged in order to boost the demand in the economy for enhancing economic growth. Also, one can add that in a country where rate of interest is monitored, fiscal deficit is unlikely to crowd out private investment by bringing up the rate of interest. That's why some economists like Prof. Prabhat Patnayak argue that fiscal deficit should not be brought down much. But then there is the other side of the story as well, in India 95% of demand comes from the consumption side. This leaves less space for the policy makers to pay heed towards investment side and take other effects or fiscal deficit into consideration. Government of India took a step in this way with the implementation of FBRM In 2004, according to which fiscal deficit should be brought down to the level of 3.5% of GDP. Some Indian economists are of the opinion that this step was taken to please the global finance capital (Prof. Prabhat Patnayak). India relies much on the foreign capital flows be they in the form of FDI of FII and such investors dislike expansionary fiscal policies. Recently IMF chief economist Gita Gopinath in an interview recommended India to keep fiscal deficit in check even though the revenue projections are optimistic. Keeping in view these dynamics the study will try to examine the relationship, short run as well as long run between fiscal deficit and economic growth.

2. **Theoretical review of literature:**

There are three schools of thought regarding the relation between economic growth and fiscal deficit. All the three have provided their diverse beliefs in their own ways regarding what factors bear the nexus between growth and fiscal deficit and the framework through which this nexus does work. These views are briefly discussed as below.

Keynes and his followers were of the opinion that fiscal deficit effects economic growth positively; they believe that increase in govt. expenditure especially on infrastructure crowds in private investment rather than crowding it out. They were of the belief that govt. expenditure leads to manifold increase in income, output and employment through the process of multiplier. They ruled out any possibility of crowding out effect occurrence. Opposite to what Keynesians believe in, neo-classicals thought that there is a negative relationship between economic growth and fiscal deficit. They argued that whenever govt. spending increases more than its receipts in a closed economy, it has to borrow the excess required funds. If it borrows these excess funds domestically, it leads to rise in interest rates and hence crowds out private investment, which forms the forceful component of economic growth. However, in case of open economy if govt. does deficit spending and borrow the required amount from outside country, it will have no impact on domestic rate of interest. But borrowing from outside will lead to currency

appreciation which will halt the exports and hence will affect the economic growth negatively. So neo-classicals believe that the relation between economic growth and fiscal deficit is negative in all situations, may it be the closed economy or may it be the open economy. In between the two extreme sides of thoughts, Ricardian's believe that fiscal deficit has neutral effects on economic growth of an economy. To them whenever govt. does deficit spending public realizes that today's deficit spending of govt. is just the postponement of taxation. They argued that people are aware of the fact that for today's fiscal deficit they will have to bear heavy load of taxation in the future. So, they accordingly restrict their current consumption and increase their current savings which on the one side offsets the governments dissaving and on the other side offsets increase in govt. expenditure, so according to them the net effect of fiscal deficit tends to be zero.

In the light of above established theoretical literature, the current study tries to figure out the effect of fiscal deficit upon the economic growth of India. For the purpose of the study ARDL Auto Regressive Distributed Lag Model was employed along with Augmented Dickey Fuller Test (ADF).

2.1 Empirical Literature review

As the theoretical review suggests that there is ambiguity of thoughts regarding the effect of fiscal deficit on economic growth, the empirical literature is somewhat in line with this. There are number of studies carried out by researchers regarding the relationship between the two, one such research was carried by Goher Fatima et.al. (2011) the findings of the study concluded that there exists a negative relationship between economic growth and fiscal deficit, Dr. Momanyi G et.al. (2013) carried research to see the relationship between fiscal deficit and economic growth of Kenya. The results of the study said that there exists a positive relation between fiscal deficit and economic growth of Kenya, the study concluded that 1% change in fiscal deficit leads to positive 6.6% changes in economic growth of Kenya. The study showed the following relation among model variables and economic growth (IN) inflation (-), (K) capital (+), (BD) budget deficit (+), (PI) private investment (+) (FI) foreign exchange (-) and (POP) labor force (-). Another such study was carried by Le Thanh Tung (2017), the study was carried on the economy of Vietnam for the period of 2003-2016. The study concluded that there exists a short run as well as long run relationship between economic growth and fiscal deficit and the relation is negative, the study concluded that fiscal deficit hurt investment flows both private domestic as well as FDI with -0.716, & -0.594 percentage points respectively. The study also concluded that fiscal deficit effects exports negatively with (-0.103792) percentage points. Ranjan Kumar Mohanty carried one such study on Indian economy for the period of 1970-71 to 2011-12, using Jhansen cointegration test, Granger causality test and Vector Error Correction Model, the study found that there exists a negative long run relationship between economic growth and fiscal deficit. The study found that 1% increase in fiscal deficit decreases GDP by 0.216537%. The study also concluded that the relation between two is stronger in post reform period than pre reform period.

Anantha Ramu et al., (2016). Carried one such study to see the impact of fiscal deficit on the economic growth of India for the period of 1980-81 to 2012-13, the findings of the study concluded that there exists a negative and significant relation between the two 1% increase in fiscal deficit leads to 0.27% decrease in economic growth. The study also found that if deficit money is spent on capital formation, it promotes growth, supporting the golden rule of public finance. The study also found that 1% increase private investment leads to 0.42% increase in GDP. Exchange rate has negative but insignificant relation with economic growth. T. Amrutha et.at. (2017) using cointegration analysis to examine the long run and short run relationship between fiscal deficit end economic growth for the period of 1980-81 to 2013-14, the results of the study found that there exists a long run negative relation between the two, the study found that 1% increase in fiscal deficit decreases GDP by 0.618609% points. The results of vector error correction model showed that there does not exist any short run relation between GDP and fiscal deficit. Khurshid Ali (2018) carried one such study on Indian economy. The study concluded that there exists a significant and negative relation between economic growth and fiscal deficit in case Indian economy for the study period. Another study on the relationship between fiscal deficit and GDP was carried out by Ravin Thirakumaran Navaratnam (2016) on south Asian economies, the study found that there exists a negative relation for south Asian countries. (Bangladesh, India, Pakistan and Srilanka) except Nepal which confirmed the positive relation.

Keeping in view the controversial empirical background, we attempted to examine the long run as well as short run relationship between fiscal deficit and economic growth in India. India being a developing nation with huge population needs a sustainable and high rate of economic growth to be able to provide its citizens a prosperous, healthy and respectable life. Although India is achieving a high rate of growth which is a quite a positive sign but this growth needs to be sustainable. One closely related variable which bear the nexus on economic growth of an economy is level of government expenditure which we do call fiscal deficit. Indian scenario is somewhat different from what traditional economies. The economy is now growing basically on the strength of consumption, accounting for 95% of GDP growth in 2016–17. So, it may show different response of fiscal deficit. Previously some researchers have attempted to analyze this nexus, but in the recent period as such post 2014 this nexus is yet to be analyzed. So, in this regard, the present study attempts to analyze the issue of growth deficit nexus in the post reform period.

3. Data and Methodology

The data for the study was taken from the database on Indian economy (DBIE) and RBI data base. The data was taken on the GDP per capita growth and Fiscal deficit as a percentage of GDP, trade percentage of GDP (Openness), FDI as percentage of GDP, Gross capital formation and exchange rate. For the purpose of the study the time period has been taken from 1990-2019. The methodology applied in the study is Augmented Dickey

Fuller Test (ADF) for the purpose of testing the presence of unit root in the data. For the purpose of analysis, the Autoregressive Distributed Lag Model (ARDL) is used.

3.1 Model Specification

Due to some flaws in the conventional co-integration techniques, in terms of methodology, the study adopts the recently developed Autoregressive Distributed Lag (ARDL) framework by Pesaran and Shin (1995, 1999), Pesaran et al. (1996) and Pesaran (1997). To establish the relationship between two variables economic growth and fiscal deficit (including control variables) like FDI, Openness, gross fixed capital formation and exchange rate in the multivariate model.

The linear mathematical model may be specified as follows

$$GDPt = a_1 + a_2FD_t + a_3FDI_t + a_4Open_t + a_5GCF_t + a_6ExcR_t + \varepsilon_t \quad \text{..... (1)}$$

Where,

GDP = Economic growth rate

FD = Fiscal deficit

FDI = Foreign direct investment

Open= Trade openness

GCF= Gross capital formation

ExcR= Exchange rate

In the above equation (1) GDP refers to GDP per capita in time period t and FD refers to fiscal deficit in time period t , similarly FDI_t refers foreign direct investment in time t, a_1 refers to intercept, a_2.....a_6 refers to the relationship coefficient and ε_t refers to the disturbance term (white noise). So right hand side refers to change in GDP growth and left-hand side refers to the change in the fiscal deficit and other control variables. In nutshell the equation measures size and direction GDPpc change due to a given change in the fiscal deficit and other macroeconomic variables.

3.2 Econometric framework

The econometric framework of the ARDL model, for the estimation of long run relationship of variables, can be expressed as:

$$\Delta GDP_t = a_1 + +a_2 FD_t + a_3 FDI_t + a_4 Open_t + a_5 GFCF_t + a_6 EXR_t + \sum_{i=0}^{n} \gamma \Delta FD_t + \sum_{i=0}^{n} \delta \Delta FDI_t + \sum_{i=0}^{n} \rho Open_t + \sum_{i=0}^{n} \tau \Delta GCF_t + \sum_{i=0}^{n} \tau \Delta EXR_t + \varepsilon_t \quad \dots (2)$$

Where α_1 is drift component and ε_t white noise. Two well known Criteria for the selection of the modal are Schawrtz Bayesian Criteria (SBC) and Akaike's Information Criteria (AIC). We utilize the following equation to estimate the short run coefficients:

For the short run dynamics, the ARDL model with ECM is formulated as:

$$\Delta GDP_t = \alpha_1 + \sum_{i=0}^{n} \gamma \Delta FD_t + \sum_{i=0}^{n} \delta \Delta FDI_t + \sum_{i=0}^{n} \delta \Delta Open_t + \sum_{i=0}^{n} \rho GCF_t + \sum_{i=0}^{n} \tau \Delta ExR_t + \lambda ECM_t + \mu_t \quad \dots (3)$$

λ is the error correction term in the above equation (3) which indicates the speed of adjustment reverse to the long run equilibrium following the short run shocks. To ensure the goodness of fit of model the study also done the diagnostic tests.

3.3 Stationary tests:

This test is meant to check whether the data series is stationary or has a unit root. Before proceeding for the analysis of data, it is mandatory to apply unit root test. If the series has unit root it must be brought to stationary by differencing before going for the analysis. If this is not done the results will be at distance from the reality and hence those results will not be reliable. There are different tests which can serve this purpose as such Durbin-Watson (DW) test, Dickey-Fuller test (1979)(DF), Augmented Dickey-Fuller(1981)(ADF) test, Philip-Perron (1988) (PP). In the current study ADF (Dickey and Fuller, 1979, 1981) is employed for the stationary purposes. ADF has an advantage over its counter partners. It can be used for complex data with large samples.

3.4 Autoregressive Distributed Lag Model (ARDL):

ARDL is a statistical method which is utilized in modelling the variables are desk bound of I(0) OR I(1) or mixture of both. In this sort of situation making use of easy cointegration becomes not possible. Pesaran and Shin (1995) and Pesaran et al (1996) proposed Autoregressive Distributed Lag (ARDL) technique of cointegration or certain procedure for studying the long-term relationship among the variables which can be either stage desk bound or desk bound of first distinction or mixture of both. Here autoregressive refers to gaps within the dependent variable and distributed lags discuss with lags in the impartial variable. In financial analysis Autoregressive disbursed lag model (ARDL) (Pesaran and Shin (1999) and Pesaran et al. (2001) the Granger (1981) and, Engle and

Granger (1987), Johansen and Juselius (1990) cointegration strategies have popularly come to be the strategies for estimating long run relationships between the variables which might be non-desk bound as it is straightforward to use and easy to interpret and involves just a single equation. ARDL cointegration technique does now not require pretests for unit roots unlike other techniques, (Emeka and Aham, 2016). However it's far important to hold unit root tests in order to avoid model crash, in case if any of the variables pop out to be I(2). So ARDL model is used to determine the connection among the variables that are having different order of integration, (Pesaran and Shin, 1999, and Pesaran et al. 2001). While, the issue of variables having specific lags is likewise taken care of out in ARDL method. The difficulty of variables having exceptional ideal lags may be dealt without difficulty while the usage of ARDL, which is not possible to take into account in case of cointegration, which makes ARDL superior to its alternatives, (Duasa, 2007). The ARDL model involves many steps to go through during analysis. Which include bounds test for examining whether the long run relationship exist or not, application of ARDL, testing the stability of model and testing the presence of heteroscedasticity.

4. Empirical Analysis:

Before proceeding for the analysis of the study variables, it is customary to test the presence of unit root in the data. If the data possess the unit root, the analysis will not be reliable. In the situation of presence of unit root in any variables it must be brought into stationary before proceeding for the analysis of data. Apart from that it is unit root results based on which one can choose the appropriate statistical technique to be used in the study. In the current study Augmented Dickey Fuller (ADF) Test was used for the stationary purpose. The results of the same are presented in table-I below.

Table I: Unit root Results using ADF Test at Level I(0) and I(1):

Variable	P value I (0)	P value I (1)	Decision
GDP	0.004	0.000	I(0)
FD	0.028	0.000	I(0)
FDI	0.003	0.000	I(0)
GCF	0.589	0.000*	I(1)
OPEN	0.977	0.000*	I(1)
EXC	0.026	0.000	I(0)

*Represents the particular value found stationary at I(1)

4.1. Unit root Results

The above table-I represents the results of the ADF. The results confirm the existence of unit root in Openness and Gross capital formation at level, leading to the acceptance of null hypothesis for these two variables. However, these were found to be stationary at first difference at 5% level of significance. All other variables GDP per capita, exchange rate and FDI were found stationary at level with 5 % level of significance. After the application of ADF, the variables were brought down for the further statistical analysis

for the estimation of long run and short run coefficients. Keeping in view the different nature of study variables in terms of presence of unit root, the appropriate estimation was identified. The appropriate estimation model was found to be ARDL, hence same was applied in the study.

As the results of ADF concluded that the study variables were combination of I(0) and I(1). These results favored the application of ARDL. As ARDL involves going through the series of steps during its application. The same was done in the present study. The results of Bounds test which is the first step in the way of ARDL are presented in the table-II

Table-II Bounds Test Results

Sig. level	Bond 0 (B0)	Bond I(1)	F-Statistic
10%	2.08	3.00***	
5%	2.39	3.38**	7.1577
1%	3.06	4.15*	

Note: Lag selection has been done while using Akaike Information Criteria (AIC)
*Represents 1 % level of significance ** represents 5% level of significance and *** represents 10% level of selection

The table-II represents the results of ARDL bounds test. The results confirm that there exists a long run relationship between growth and fiscal deficit at 5% level of significance. As the F-Statistic was found to be as 7.1577 and was higher than upper bound values at 1% level of significance as well as 5% level of significance. The results of table-II provide sufficient justification for the estimation of long run relationship coefficients. The results of the long run and short run relationship are presented in the below table-III and table-IV respectively.

4.2 Short Run results:

The short run results of the ARDL model are presented in the below table establishing. The relationship between the fiscal deficit (independent variable) and the economic growth (dependent variable) along with the control variables using ARDL model.

From the below Table III, the independent variable fiscal deficit is insignificant as its P-value is greater than 0.05 having no impact on the economic growth in the short run. And the control variable Gross capital formation is turned out insignificant. However, the other control variables like foreign direct investment, openness, exchange rate are positively significant with the economic growth at the 5% level of significance. It indicates that in the short run 1% change in the FDI, Open, and exchange rate leads to 1.08 per cent,

0.18 percent and 0.13 percent change the economic growth respectively. From the short run results that it is found that there is no relation between the fiscal deficit and the economic growth in India and validates the Ricardian Equivalence.

Table III: Short run Results of ARDL model

Variable	Coefficient	T-stat	Prob
FD	0.321	0.948	0.353*
FDI	1.087	2.730	0.012*
Open	0.188	1.905	0.004*
GCF	0.053	0.182	0.856*
EXC	0.137	2.888	0.008*
C	6.451	1.519	0.103*

Note: Lag selection has been done while using Akaike Information Criteria (AIC)
*Represents 1% level of significance ** represents 5% level of significance and *** represents 10% level of selection

4.3. Error correction term results

In the below of Table IV, which represents the residual value of the long-run equation, the computation of the error correction term is given. The coefficient of the error correction regression is negative and significant at a 5% level, as shown in Table IV below. It expresses the speed of adjustment to equilibrium if any disequilibrium occurs the adjustment parameter. The adjustment parameter value is -0.83. This explains the reversion to long-run equilibrium at an adjustment duration of 83%. if any disequilibrium occurs it will take more than one year to reach that long run equilibrium position. Also, the R squared which is coefficient of determination is 0.71, which confirms that the long-run ARDL error correction model has good explanatory power.

Table IV: ARDL Error correction regression

Dependent variable: CAD

Variable	**Coefficient**	**Prob**
CointEq(-1)*	-0.83	0.000
R-squared	0.713	
Akaike info criterion (AIC)	3.512	

*P-value incompatible with t-Bounds Distribution

For testing the presence of heteroskedasticity, we used Breusch-Pagan-Godfrey test. From the results it is found that the Prob. obs. R^2 was 0.272 which is greater than 0.05, this confirms that there is not any presence of heteroscedasticity in the model and the model is found homoscedasticity in nature. Also, we tested for the presence of serial

correlation using Breusch- Godfrey serial correlation LM test and the result from the below table shows that the observed R- squared p value is greater than 0.05 and hence conclude that the model is free from serial correlation.

4.4 Long run results:

We attempt to test the nature of relationship between the economic growth and fiscal deficit of India and the study tries to establish weather there is a positive relation between the fiscal deficit and the economic growth as per the Keynesian opinion or there is negative relationship between the fiscal deficit and economic growth according to the neo-classical thoughts or the impact of the fiscal deficit on economic growth remains neutral that means there is no relationship the fiscal deficit and the economic growth. In this line the study used ARDL model to see whether the Keynesians though or neo-classical thoughts or the Ricardian belief is validated in the India's economy.

In the below table V, the estimated long run results of the ARDL model are presented. According to these results the coefficient of the fiscal deficit (independent variable) is insignificant with the economic growth as the prob value of fiscal deficit is 0.387 that is greater than the significance level of 5%. However, the control variables like foreign direct investment, openness, Gross capital formation, and exchange rate openness establishes significantly positive relation with economic growth. From the below results table V, it is found that the coefficient of FDI is 1.046 which means if the 1% increase in FDI it will lead 1.04 % increase in the economic growth of the country, like-wise the coefficient of the openness is 0.18 which means if there is 1% change in the trade openness it will lead to 0.18% change in the economic growth of the country in the same direction. The coefficient of the GCF and the exchange rate is 0.65 and 0.13 respectively that means if there is 1% change in the GCF and exchange rate it will lead to the 0.65% and 0.13% change on the economic growth respectively in the same direction.

Table V: Long run ARDL results

Dependent Variable: GDP

Variable	Coefficient	T-stat	Prob
FD	0.309	0.883	0.387*
FDI	1.046	2.444	0.023*
Open	0.181	2.022	0.056*
GCF	0.649	-2.388	0.026*
EXC	0.132	2.846	0.009*
C	6.207	1.703	0.103*

Note: Lag selection has been done while using Akaike Information Criteria (AIC)

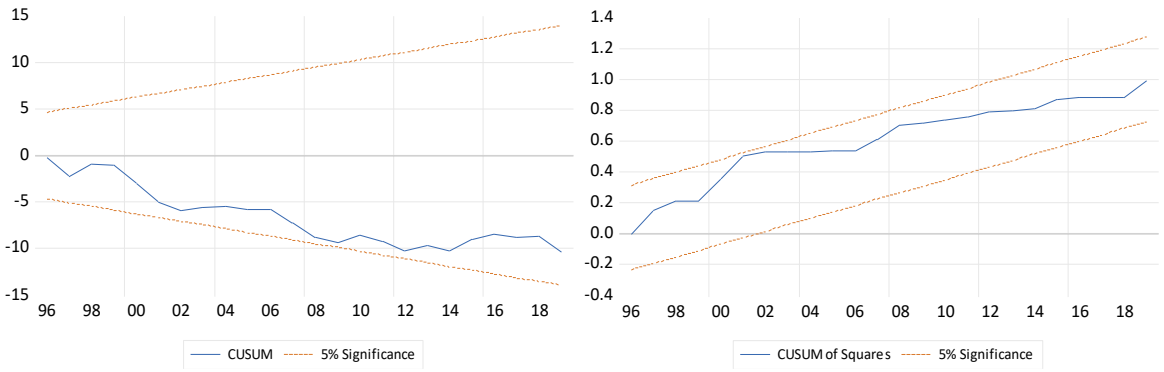
*Represents 1 % level of significance ** represents 5% level of significance and *** represents 10% level of selection

So, from the long run results of the ARDL model the study found that there doesn't exist any relationship between fiscal deficit and economic growth thereby providing the evidence in favor of Ricardian Equivalence. The study also found that openness, currency

depreciation, capital formation and FDI have positive impact on economic growth in the long run, increase in any of them leads to increase in the economic growth of India in the study period. The results of the study in terms of direction of relationship are in line with the studies of Ahmadi (2021) studies in India's context Rehman, (2012) studies in Malaysian context and Nelson and Singh (1994) study is based in India's context and our study is contradictory with Ramu and Gayithri (2016), Martin R and Fardmenesh, (1990) cross section analysis Amruthapet et al(2017) these studies were in favour in neo-classical perspective that there is inverse relationship between fiscal deficit and economic growth and Studies like Taylor et al (2012) in US economy and Mohanthy (2020) in India's economy found there is positive relation between fiscal deficit and economic growth. The results of this study follow the Ricardian Equivalence approach, that there is neutral or no relation between fiscal deficit and economic growth of the country during the study period.

For the purpose of testing whether the model was stable or does possess any structural break, Cumulative sum of squared residuals (CUSUM) and CUSUM of Squares tests were used. The results of the CUSUM and CUSUM of Squares tests are presented as.

4.5 Representation of CUSUM and CUSUM of Squares Test results



The results of CUSUM and CUSUM squares tests are presented above. There is a rule of thumb for CUSUM test to conclude whether the model is stable or not. For the model to be stable the above blue line should be within the borders of the two red lines. These red lines represent the 5% level of significance. The results of the current model confirm that the model is stable at 5% level of significance in both the tests and hence does not possess any structural shift in the model.

5. Conclusion

This study tried to figure out the effect of fiscal deficit on the economic growth of India during the period of 1990-2019. The findings of the study concluded that there doesn't exist any relationship between fiscal deficit and economic growth thereby providing the evidence in favor of Ricardian Equivalence. The study also found that openness, currency depreciation, capital formation and FDI have positive impact on economic growth in the long run, increase in any of them leads to increase in the economic growth of India in the

study period. The results of the study in terms of direction of relationship are in line with the studies of Ahmadi (2021) studies in India's context Ahmad, (2013) studies in Pakistan's setting Rehman, (2012) studies in Malaysian context and Nelson and Singh (1994) study is based in India's setting. The results of this study follow the Ricardian Equivalence approach, that there is neutral or zero relation between fiscal deficit and economic growth of the country. Fiscal deficit has no role in bringing the economy to its equilibrium. There are other factors that are affecting the GDP of India.

Based on the results of the study it was concluded that fiscal deficit in case of India does not hamper the economic growth of the country. The results of the study are in support of Ricardian Equivalence perspective that deficit spending does not creates any hurdles in the way of economic growth. There is a good scope for further study in this field. Further deep analysis can be done in this area as such analyzing the effect on the sectoral growth of the economy and also one can analyze the effect of revenue deficit and capital deficit on the economic growth separately.

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