

CHAPTER 9

CONCLUSION AND POLICY RECOMMENDATIONS

The budget deficit and current-account deficit have been a major debate for decades in BRICS countries, as stated in chapter 1, being a cornerstone of macroeconomic policies influenced by the apparent capacity of government to control economic activities and prices. The unprecedented increase in BD and the increase in CAD led to the recognition of this condition as the issue of "twin deficits" in most nations, particularly the United States (US) in the mid-1980s. The worry is centered on the degree to which fiscal change can add to settling current account imbalances, particularly when it is persistent. Monetary and fiscal policy has been subject to persistent debate in (Brazil, Russia, India, China and South-Africa) BRICS countries for a very long time. The economic sustainability of the countries depends on fiscal and monetary balance. Various economies have indicated that the prolongation of macroeconomic instability can be described by budget and current account deficit. During the 2008-09 global economic crises, decline in government revenue and countercyclical spending reduces budget surplus and widens the deficits. The thesis also considers that whether the private savings behave in the Ricardian way. The inference here is that market spending trends would be focused on the Modigliani and Ando (1957) life cycle model, which implies that existing consumption relies on the predicted lifetime earnings instead of the current income as suggested by the Keynesian model, or if the results are compatible with the theory of a twin deficit.

A comparison among the BRICS countries is done in section 9.1. Conclusion of the thesis is written in section 9.2, which also includes contribution to the literature. In section 9.3

policy recommendations are written and in final section 9.4 future research directions are discussed.

9.1 Comparative status of twin deficit hypothesis among BRICS countries

Prior to interpreting of the table 9.1, it is important to bring comparison among the BRICS countries based on the results. Here we provide the just of the thesis and the results are classified as:

Table 9.1: Summary of results for twin deficits hypothesis in the BRICS countries

Countries	Keynesian Proposition	Ricardian Hypothesis	Causality	Policy Variables
Brazil	Acceptance of Keynesian proposition	Rejection of Ricardian equivalence	Unidirectional causality	Interest rate, inflation and exchange rate
Russia	Acceptance of Keynesian proposition	Rejection of Ricardian equivalence	Bidirectional Causality	Interest rate, exchange rate, tax, and inflation
India	Acceptance of Keynesian proposition	Rejection of Ricardian equivalence	Bidirectional Causality	Interest rate, exchange rate and tax
China	Acceptance of Keynesian proposition	Rejection of Ricardian equivalence	Bidirectional Causality	Interest rate, money supply, and exchange rate
South Africa	Acceptance of Keynesian proposition	Rejection of Ricardian equivalence	Bidirectional Causality	Exchange rate, interest rate, money supply and inflation (Absorption Theorem)

The BRICS countries display a significant association between BD and CAD, which has a much greater external impact. The table indicates that the BD and CAD has a significant long-run and short-run association with the macroeconomic variables. The results favor the Keynesian theorem and oppose the Ricardian theory for the BRICS nations. With the support of the Consumption Function, we estimated Ricardian hypothesis based on the consumption function the results didn't accept the Ricardian theorem for BRICS countries.

The Granger causality finds two-way causality between the BD and CAD in Russia, India, China and South Africa and a unidirectional causality from CAD to BD for Brazil. The results are the same as explained by the Mundell-Fleming model, which reveals that an extension of the budget deficit would raise interest rate stress, cause capital movements and the exchange rate increase. Appreciation lowers exports and boosts imports, which contributes to a current account deficit.

Finally based on the results of ARDL, granger causality and impulse response function interest rate, exchange rate, inflation and tax can be the policy variable. The results find that the transmission mechanism is running from interest rate and exchange which puts pressure on money supply and inflation and hence CAD. The results are consistent with Mundell Fleming model, it is viable that a given budget deficit may have distinct effects on interest rate; widening of budget deficit gives rise to interest rate, which brings capital inflow and appreciates exchange rate and causes current account deficit. However, in South Africa there exist an imperfect market/underdeveloped market structure where change might be asymmetrical and unknown. The second channel is when there is a change in tax the real private consumption has a negative coefficient which means when

there is an increase in tax rate the peoples reduce their consumption due to less disposable income. The results are consistent to the Seater (1993), observation that the country which are carrying higher debt, will lead the country towards joblessness, trade deficit, inflation, higher interest rate and unsatisfactory feature of economic performance.

The five main contact channels are indicated by the transmission mechanism. The Keynesian absorption hypothesis seems to exist between the variables based on ARDL and the effects of causality, the first and most direct relationship, and then proven by the function of impulse response. They claim that a rise in the fiscal deficit would trigger a higher degree of domestic absorption, which would lead to higher imports and hence a current-account deficit. The second channel is based on the Bachman (1992) theory of the domestic currency appreciation raising the purchasing power of imports of commodities, growing the valuation of real estate and financial assets, increasing demand and reducing domestic reserves, reducing the productivity of the world economy and causing current account deficits. This implies that by adjusting the overall cost of non-tradable, the exchange rate will likewise influence the twin deficit hypothesis. For example, massive government spending on non-tradable real estate can trigger appreciation, which increases demand for tradable goods and creates a deficit in the current account. The third theoretical explanation is the potential of the capital supply. The effects of the granger causality and impulse response functions as modelled on Korsus describe bidirectional or unidirectional causality from money supply to budget deficit and current account deficits (2009). He states that raising the budget shortfall would improve the provision of funding if the deficiencies were financed through seigniorage strategies.

The fourth set of writing on BD and inflation introduced by Sargent and Wallace (1981) suggests that seigniorage is a crucial factor for funding the debt; the deficit will have to be implemented by the central bank. Monetization, though, contributes to a rise in money supply and inflation rates. Then Sargent and Wallace (1981) conclude that the causal path runs from BD to inflation, accompanied by money supply to inflation. The findings of Granger causality find the same results for China and Russia, as proposed by Sargent and Wallace, where causality shifts from the budget deficit to inflation and is consistent with the results of Anoruo and Ramchander (1998), Miller and Russek (1989) and Mukhtar et al. (2007), where unidirectional causality occurs as in Brazil and South Africa, shifting from inflation to the budget deficit. The reason for such relationship in Brazil is reliable because hyperinflation was the main concern for the Brazil economy for a long period of time and in India, we find bidirectional causality. The reverse causation can be linked with monetization, tax cuts which boost the consumption and causes inflation and crowding out effect.

Finally, the explanation given by Miller (1983) shows that budget deficit is fundamentally inflationary regardless of the monetization of deficits because there are various channels through which budget deficit causes inflation. He maintains that regardless of whether the Central Bank doesn't change its deficits by raising the money supply/print, the deficits are inflationary by fundamentally. This is because non-monetary deficits raise debt costs and higher interest rates congestion private spending and lower the inflation rate. The results of the analysis are compatible with this Miller hypothesis. We find a causal link between the availability of funds in all countries and the fiscal deficit and current account deficit. The findings are similar to those from Miller and

Russek (1989), Leachman and Francis (2002) and Salvatore (2006). However, it is necessary to remember that in all nations, such as Russia, India and South Africa, inflation is often bidirectional, with budget deficit causality, where we see bidirectional causality from monetary supplies to budget deficits. However, we find unidirectional causality in Brazil and China, varying from money supplies to the budget deficit or budget deficit to money supplies, and the budget deficit often has a unidirectional causality from growth or inflation to the budget deficit. It is worth stressing the connectivity between the factors, since any financial disruption/shock influences inflation and creates a budget deficit, and vice versa.

9.2 Summary and Conclusion of the Study

Chapter 2 continues with the evolution of the twin-deficit theory in the late 1980s. A fiscal reduction, not complemented by monetary policies, was added to the expansionary fiscal step of the Reagan administration. The unilateral approach raises US interest rate and the subsequent capital inflows and raised the dollar's value. The dollar appreciation contributed to the breakdown of America's intensity of global markets and a strengthening of the balance sheet. Under these terms, the current account deficit tends to represent the fiscal scenario, which contributes to the twin deficit theory being popularized.

Section 2.3 states that the presuming an unaltered gap between private savings and investments over some time decreases the BD will be equal to the changes in the CAD. The twin deficit hypothesis is obtained based on the national income method as given below:

$$Y = C + I + G + X - M$$

If the current account surplus is equal to budget surplus plus private savings and domestic investments. If the government reduces the taxes (T) and do not change the spending (G), meaning generating a deficit. However, the impact of budget deficit falls on current account balance (X – M) or investment saving gap (I – S) needs to be investigated.

The twin deficit hypothesis is based on Keynesian preposition. Bernheim (1989) write down that based on the Keynesian perceptive of budget deficit, a large portion of population are short-sighted or have liquidity limitations, and have high proclivity to consume based on their current disposable income. In view of this, a reduction in tax will have instant and significant effect on demand. The Keynesian only give short-run impact, while the neoclassical gives long-run impact of deficits on consumption and capital accumulation. The neoclassical argues that the consumer's consumption is based on the life cycle hypothesis as formulated by Modigliani and Ando in (1957). However, the Milton Friedman in 1957 permanent income hypothesis asserts that increase in permanent income increases private consumption. Further, the increase in income due to tax reduction, spending's gives rise to savings not spending (Barro, 1989:39). The increase in the fiscal deficit will give rise to household consumption by shifting the tax burden to a future generation.

Section 2.4 discusses the balance of payment curve represents the current account balance model in the Mundell-Fleming (MF) model. The balance of payment (BOP) model is equal current account balance (CAB) + capital account (CA) which is represented as: $BOP = CAB + CA = 0$. The balance of payment (BOP) curve in Mundell-

Fleming (MF) model is the combination of real income and interest rate at which BOP is equal to zero. The Mundell-Fleming Model is a short-run open economy model, where bonds and domestic market is treated as substitute for money, and labour being a part of the (MF) model based on the belief that demand brings change in output. The M-F model presumes that beginning from the current account balance, fiscal policy will increase output and which increases demand for imports. This will, therefore, lead to current account deficit, with the increase in interest rate and appreciation of exchange rate causes inflow of funds in the domestic market which cause current account deficit. The critiques of the Mundell-Fleming model focus on the short run and the representation of current account are static. It also neglects the effect of investments on current account balance and productive capital.

The criticism received by a Keynesian proposition from the Neo-classical perception about the budget deficit for disregarding the "crowding out effect" was discussed in section 2.5. The expansionary government fiscal policy can lead to an increase in the interest rate and shrinks the business activities. Robert Barro presented another analysis of government fiscal policy. The change in budget deficit may affect private savings based on rational expectations. An increase in budget deficit implies that I am going to have more taxes in the future, so I will start saving for the repayment of higher taxes. The Ricardian theorem claims that a budget deficit funded by tax cuts and bond deals will in future be viewed as tax liabilities to benefit from and withdraw debt obligations. This debt is not part of overall assets as individuals see a rise in the present value of their taxes that only counterbalances deficit spending. The economic agents who want to maximize

their next generation welfare would increase savings instead of consumption in anticipation of future tax Barro (1989).

Chapter three of the thesis discusses methodology and model specification for the estimation of twin deficit hypothesis and Ricardian hypothesis. The study applies unit root (ADF and PP) to check stationarity and non-stationarity of the variables. We also employed Zivot and Andrews (1992) one break test in two countries because in those two countries we find a series of structural break (China and Russia). The ARDL strategy offers both short-run and long-run relationships in a single equation with a different integration order. The long-run estimate of the results is based on the autoregressive distribution lag approach to boundary testing. However, for India, we applied Johansens method and VECM methodology because all the variables became I(1) after differencing. After ARDL model, Granger (1969, p. 430) causality test was employed which includes the estimation of the regression equations as pursues: if y_t contains past information that aides in the forecast of x_t , meaning y_t causes x_t . Based, on the Granger causality outcomes, it is basic to observe that there are confinements in Granger causality tests, particularly for policymaking purposes. Finally, we apply generalize response functions (GIR) which investigates the time impacts of a one-time shock to every factor.

The thesis includes separate chapters (four to eight) for each country (Brazil, Russia, India, China and South Africa) which include the introduction, econometric model/methodology, findings and conclusion.

We first study the time series features of the variables using the ADF and PP test to check the stationarity among the variables for intercept and trend. The Improved Dickey-Fuller and Phillip-Perron test findings also identified several variables where stationary

thresholds and others were stationary until first separation for Brazil, Russia, China and South Africa. However, after the first variations, for India the entire sequence became stationary.

After checking the properties of the data, we began our model estimation. We first estimate the Bernheim (1987) consumption function to test Ricardian equivalence hypothesis for (Brazil, Russia, India, China and South-Africa). The results of the model are given below.

For Brazil, the tax coefficient (T) is negative and statistically positive, meaning that tax rises would have a negative effect on actual private spending, meaning that citizens are conscious of potential taxes implied in debt. The coefficient of BD is negative but statistically insignificant meaning there is no positive impact of budget deficit on private consumption. The ECM value (-.12) is negative, indicating long-term co-integration and rejection of Ricardian equivalence among the variables. The results are consistent with Kim and Ghatak and Ghatak (1996), Aschauer (1985) and Seater and Mariano (1985).

The tax revenue coefficient (TAX) is positive and statistically relevant for Russia, which means that decreases in the tax rate would lead to a rise in real private consumption. The coefficient of G and INT is positive and statistically significant meaning there is significant relationship among the variables. These results provide some evidences of Ricardian Equivalence prevailing in Russia. But, the coefficient of BD (-.30) is negative but insignificant, which means with the increase in budget deficit private consumption will decrease. The ECM value (-.32) is negative and important (.000), which indicates long-term co-integration between variables and acceptance of the Keynesian approach to absorption.

The findings for India show significant association between private consumption (PC), government spending and the budget deficit (BD). However, as suggested by the Keynesian model, we do not find short-run relationships between variables. The ECM value (-0.30) is small, which tests that the change speed is slow to achieve equilibrium. As suggested by Ricardian, this shift in the framework of government tax would not have any effect on real interest rates, savings or real interest rates. The results reveal the tax have no impact on private consumption both in short-run and long-run and accepts Ricardian hypothesis.

The findings reject the RE theorem for China on different grounds. Private usage (c) is integrated with revenue (Y), government spending (G), and taxes (T). Secondly, tax variables have a substantial correlation with (C). The findings of the situation (1.a) refute the hypothesis of RE under which we drop wealth (W) on the grounds that per capita income (Y) and wealth (Y) are the issue of multicollinearity (W). However, the findings suggest that the tax has a detrimental influence on per capita income. The crowding hypothesis that the results suggest an insignificant connection with private use is evaluated under condition (11).

However, the variable (r) is negative and the rise (r) would have a negative effect on private investment. The findings are consistent with (Khalid (1996), Siddiki (2010) and Himarios (1995)), the after-effects of the RE hypothesis are accurate.

The findings indicate that there is a substantial relationship between the budget deficit (BD) and private consumption in South Africa (PC). The variable tax is significant and coefficient is negative, meaning that with the increase in tax, private consumption will decrease (Tagkalakis, 2008). The overall findings indicate that fiscal policy has a greater

long-term effect on the real economy, even though households have cash constraints and are in line with the Keynesian model.

In the next stage we determine the long-term and short-term coefficient association between the factors, employing the ARDL bound test methodology and the cointegration process used by Johansen, after estimating the Ricardian equivalence hypothesis.

The empirical results for Brazil find long-term link between the variables. The results suggest that a 1% increase in the CAD will lift the CAD (-0.068). Such findings are compatible with the Keynesian absorption analysis and the twin deficiency hypothesis method by Mundell Fleming (TDH). However, the Ricardian equivalence theory opposes the fact that since no association between the two; the co-integration between variables may be attributed to the monetary transmission and its interconnectivity among the variables.

The short-term structural relationship findings revealed that the budget deficit has a short-term association with other factors. Both factors are important with the exception of the first two lags of the CAD and the first lag in the rate of interest. The value of ECM is (-0.62) significant and implies divergence from the budget deficit equilibrium is corrected by 66%.

For Russia, the results find significant long-run association among the variables. The coefficient of CAD -5.4715 is negative and significant; that is, with the rise in CAD, the budget deficit will have a negative effect because Russia is an oil and gas exporting country, there is a marginal contribution of oil and gas to the current account balance, and when oil prices decrease, it will have a significant impact on the current account balance, which will further affect the CAD. The $F= 10.3198$ statistics also indicate that the long-

run association among the variables. The adjustment speed is given by the error correction term (ECM); the negative value with P-value significance will converge rapidly towards equilibrium. The ECM value at 1 percent level is -0.88812 negative and important, indicating that the model would hit the balance at a speed of 88%.

The findings indicate that the budget deficit should not be used as a replacement for monetary policy to preserve an internal balance because when a cyclic variation in the domestic market is due global economy and ruble crises. The above results are based on the fact when BD and CAD are negatively associated. The reason for unsustainable fiscal balance is not due to the oil and gas reserves but the low revenue from these sectors which hampers the growth in Russia. Variables such as the actual effective exchange rate, tax and interest rate have a negative and important relationship with the BD, which means that a 1 percent rise in interest rate, tax, money supply and exchange rate would trigger a short-term increase in the BD of -0.14430 , -3.9083 , -0.84645 and -0.22913 . Inflation has a positive and critical relationship with the short-term BD. The findings accepts the Keynesian preposition and invalidate the Ricardian preposition that no connection exists between the BD and CAD.

The results for India suggest that both factors are co-integrated at 5% level in the long term. The results find long-run association among the variables based on Max and Trace statistics. The speed to equilibrium is slow; the whole system can return to equilibrium at a speed of 0.53. The spending habit is becoming the core cause of BD. The spending on welfare schemes such as (Rural Employment Guarantee Scheme) does not create productive incentives for farmers. But looking to other counties like China they managed

to absorb their labour forces into an economic miracle by migration from inland farmers to productive coastal cities.

The outcome for China depends on the $F = 9,439$ statistics which is greater than the upper bound 3.99. The results suggest that the variables have a long-term association and that the invalid speculation of no cointegration is invalid. The findings of the bound test show that there is a direct correlation between the BD, CAD and other independent variables in the model. The findings also indicate an important short-term association between the five percent for all variables. This indicates that the CAD is being influenced greatly by a marginal change in the fiscal deficit, with the additional impacts on the current account deficit of most macroeconomic variables.

The negative (-0.95348) ECM coefficient and the high speed of adjustment brought equilibrium to the economy, with the exogenous shocks and endogenous shocks restoring it after a long period. The results reveal that a higher interest rate significantly affects the BD and CAD in both the short-run and long-run. Chinese banks are increasing interest rates on home loans that had previously been very low; however, it has turned to be an economic bubble, especially in the real estate market, which has created serious trouble in the economy. This, in turn, crowds out private investment.

The results for South-Africa accept the cointegration relationship between BD and CAD. These outcomes recommend twin deficit holds in South Africa in the long-run. The result implies that the budget deficit has a significant relationship with CAD and other variables. The coefficient of CAD is negative and significant meaning a 1% increase in CAD will increase budget deficit by -0.49520%. The budget deficit should not be used to replace monetary policy in order to preserve internal equilibrium, since when cyclic

variations in the domestic market is due global economy and stained financial development. The above results are based on the fact when BD and CAD are negatively associated. Variables such as the actual effective exchange rate and interest rate have a negative and important relationship with the budget deficit, meaning an interest rate rise of 1 percent and the exchange rate would increase the budget deficit by $-.31927$ and $-.029803$, which is consistent with the Keynesian preposition hypothesis. Inflation and money supply have positive and significant relationship with budget deficit in the short-run. The ECM_{t-1} is $(-.93)$ significant and implies divergence from the budget deficit equilibrium is corrected by 93%. It also tells us that the adjustment process of the variables is very fast to reach the equilibrium. The findings are compatible with the Keynesian premises, invalidating the Ricardian assumption that the BD is unrelated to the CAD. The above findings are also derived by Ahmad and Aworinde (2015), Dornbusch (1997), Çatık et al. (2015), Goyal and Kumar (2018), Enders and Lee (1990) and Bernheim, B. D. (1987).

The study utilizes the Granger causality method to evaluate the association between cause and effect and check the causality between the variables. The results for Brazil illustrate the unidirectional sources of the current account deficit and revenue deficit. At 5%, the causality of the current-account gap to the fiscal deficit cannot be disputed. The conclusion accepts the traditional national accounting economic theory and is the same as Mukhtar et al., (2007). The increasing debt and budget deficit have increased ramifications on three main objectives: inflation, interest rate and exchange rate. Inflation was an effective tool for immediately rising economic costs, allowing households to mix old inflation with new agreements. The problem was triggered by the higher interest rate:

according to Mundell-open Fleming's economy model, higher interest rates deter domestic investment and foster foreign capital influx, triggering CAD.

The results for Russia suggest that the BD and CAD are bidirectionally causal and compatible with Miller and Russek (1989). This means that the rise in the BD triggers the CAD and that the increase of the CAD causes the BD. Fiscal policy tightening can help in decreasing the budget deficit, but on the other side it may decrease private consumption, reduce government expenditure, raise unemployment and decrease economic development in Russia. The decrease in oil prices and the dependency of Russia on energy revenue to raise budget revenue leads to rethink fiscal policy. The results suggest that increase in tax rate will decrease budget deficit and demand for import goods due to reduction in the disposable income. However, it would crowd out private investment, on the other hand, and shrink economic growth. The coefficient of the effective real exchange rate and supply of money has bidirectional causality with CAD and BD. However, the macroeconomic imbalances may lead to current account deficit due to sharp alterations in real effective exchange rate and inflation and many other factors (Forbes, Hjortsoe, and Nenova 2017).

India's findings suggest that there is a bi-directional causality from CAD to BD and vice versa and the same results are mentioned by Banday and Aneja (2016) and Bhat & Sharma (2018). The results reveal the increase in tax rate will widen the BD and CAD and vice versa. The reverse causation can be linked with sterilization effect used by RBI against adverse external shocks which keeps money supply stable against the exogenous shocks and keeps equilibrium domestic interest rate. If the value of output remains same, the extra money increases the price level and causing inflation. The increase in inflation

will decrease the household savings, and increase unproductive investments such as gold, which clearly shows the adverse effects of inflation on CAD. In India the increasing prices makes domestic market inept in the international market, which will not attract enough buyers and import of these product increases current account deficit. The big risk is a spike of inflation which causes the application in exchange rate and promotes capital inflow of goods. Inflation dries investments; country is not in a state of investing in new factories and new roads their prior is to meet the demand for middle class. This will cause supply shock and prices will start booming. The fall in budget balance and investments destabilize government and channels away from productive investments.

In view of the fact that the budget deficit causes Granger to the current account deficit and is consistent with the findings of the findings of China's results, reverse causality exists (See, Banday and Aneja (2019), Rosensweig and Tallman (1993) and Goyal and Kumar (2018). The results of Granger causality give us more evidences in support of the Keynesian proposition for China in the light of above data. The reverse causality was not apparent because Chinese economy is one of the most integrated economies with higher capital outflows, export-led growth and export promotion due to market liquidity and flexible governmental policies. A similar movement of the BD and the CAD is the thing that one would expect when there are cyclic shocks to output. Detailed empirical findings highlight that the interest rate bubble and higher inflated housing prices are becoming a challenge for the Chinese economy, as they are now nearing the prices of the US bubble before the financial crisis popped it. The findings also find that unidirectional causality shifts from the budget deficit to the interest rate, as government interest rate rises would be accompanied by current account deficit appreciation in the exchange rate. The results

are compatible with the Mundell-Flemings model. If the US increases interest rates, the money will flow out of the Chinese market, which could cause a similar crisis in China. It will be a challenge for the monetary authority to bring stability in China where inflation, interest rate bubble and exchange rate volatility are of primary concern. Expenditure reduction for low payback sectors, such as energy and communication, in the future, this could also be a problem. Due to a rise in domestic demand, increasing inflation will dramatically increase the inflow of money, which can lead to a current account deficit, as it is now more than half of the GDP. The indebtedness in the economy is at its peak, and this can crush the financial cycle and may cause financial crisis.

Finally, the South African findings show that there is bidirectional causality between the budget deficit and the South African current account deficit. The sluggish demand for exports is a structural danger to the current account balance, as exports are struggling to get momentum and maintain pace with global trade. The demand for exports and productivity is not gaining momentum in South Africa. This leads to a devaluing exchange rate, especially in manufacturing and mining sector. The depreciation in currency value reflects poor integration with the global economy, and uncertainty discourages investments. It leads to lower invocation transfer of technology and fewer imports of technology-intensive goods. A difference in productivity between the world and South Africa makes capital goods more expensive for both consumers and industries based on exchange rate deprecating approach, which pushes them to import from the other countries which increase their current account deficit. A higher inflation can also cause current account deficit, this channel is derived from money supply, when the central bank increase money supply, the demand for goods and services increase which

gears up inflation and current account deficit. The results are consistent with Keynesian absorption approach.

Finally, we attempt to investigate the time way or (input and output behavior of the system) of these components and their responses to shocks from the selected macroeconomic variables for the robustness and policy framework of the results.

The result of the impulse tends to be collaboration between budget deficit and current account deficit. If a shock is given to budget deficit and CAD increases in all the BRICS countries and vice versa. The effects of the impulse reaction function correspond to the cause and effect of Granger.

The interest rate has a detrimental effect on budget deficits in both nations, which implies that a spike in interest rate contributes to capital inflow and a real exchange rate appreciation that can inevitably contribute to CAD. The findings match the Mundell-Fleming model.

The money supplies have a negative impact on budget deficit in all the countries and at the same time inflation also have negative impact on inflation. There may be two channels as suggested by the Sargent and Wallace (1981) and Korsu (2009). First the causality is running from budget deficits to Inflation and then money supply to inflation.

The second one shows that expansion in the budget deficit will increase the money supply when the deficiencies are financed by methods for seigniorage. Expansion in the money supply increases the prices, and then exchange rate appreciation finally current account deficit.

9.3 Policy Recommendations

The results of the study have important policy suggestions in reducing the twin-deficit in BRICS countries. It is being observed that the stability in the current account deficit can help in controlling or managing the budget deficit in BRICS countries.

- The results provide us an insight that can be helpful in reducing the current account deficit and can aid to reduce the budget deficit. However, the BRICS countries depend upon the oil sector, agricultural sector, tourism, and others. Most of the services are exportable and can possibly contribute to foreign reserves which can bring stability to the exchange rate and reduces the current account deficit.
- The central banks of BRICS countries should come up with a policy that will reduce the interest rate and depreciates the exchange rate; this will help them to improve their trade balance.
- It is important to give incentives to small-medium enterprises (SME) in the form of tax credits for research and development. The policies should be made to boost foreign direct investment (FDI) in the major sectors by presenting different fiscal stimuli like tax rebates and corporate tax. These policies will improve the current account balance by encouraging export promotion.
- The production competitiveness should be focused from the perspective of cost and quality.
- The trade-in specialized sector should be focused like China has dominance in electronics and manufacturing, Indian and Brazil has dominance in agricultural

sectors and Russia has dominance in the oil sector, these policies will increase our foreign reserves and improves overall trade.

- The support of sound macroeconomic approaches that give impetuses through expansion away from oil and natural resources needs to be supported. The investment should be made in low-pay back sectors like agriculture, industries, and financial sectors.
- The effective functioning of free trade zones for boosting exports.
- Another approach suggestion is fiscal limitations. Despite the fact that it is more difficult than one might expect that the government should reduce their expenditure because all these countries especially Brazil, India, and South Africa development path depend upon government expenditure in infrastructure, roads, health, and poverty alleviation schemes. Moreover, government consumption ought to be spent on productive sectors or on those sectors which are expected to be gainful in near future, as the majority of these are white elephant projects which don't yield returns
- There is a need to boost growth by taking a number of measures: bringing down the cost of production; new technologies to boost agriculture output; new sources of energy resources such as solar, hydroelectricity, electric cars which will reduce the consumption of oil and reduce greenhouse gases, pullout structural bottleneck in growth, improvement in private investment and macroeconomic stability in the form of (Inflation, Exchange rate, and Interest rate) to improve current account balance and economic growth.

- In most of the BRICS countries the fiscal policy rule has shifted from short to medium term. The decline in debt ratio in BRICS countries has created space for policy makers to boost growth. But fiscal policy rule can lead a serious impact on macroeconomic stability through government policy by changing tax rates or government expenditure to boost economic growth. The increase in tax rates in most of the countries like Brazil, India and South-Africa has find it difficult to boost private consumption, investment, savings and economic growth. The first step of my analysis finds that there is a negative association between private consumption and taxes in both short-run and long-run in BRICS countries. The results find household does not behave in the Ricardian way, the results show that households anticipate higher/lower taxes, which will counterbalance thought lower/higher saving. While current fiscal policies with these results can be considered for policy debate in BRICS countries.
- In Brazil, monetary shock in the form of (Inflation and Exchange rate) has a significant impact on current account balance. It is vital important to control appreciation in exchange rate which causes current account deficit.
- In Russia sluggish demand for exports is a structural danger to the current account balance, as exports are struggling to get momentum and maintain pace with global trade and decline in oil and gas prices. The demand for exports and productivity is not gaining momentum in Russia. This leads to devaluing ruble crises, especially in energy and mining sector. The inflation and exchange rate control may be useful to control current account deficit and budget deficit in the long-run, but

also needs a stabilization program to bring pace in economic growth and stability in demand to counter unemployment.

- In India the spending habit is becoming the core cause of BD. The spending on welfare schemes such as (Rural Employment Guarantee Scheme) does not create productive incentives for farmers. But looking to other countries like China they managed to absorb their labour forces into an economic miracle by migration from inland farmers to productive coastal cities.
- In China the interest rate bubble and higher inflated housing prices are becoming a challenge for the Chinese economy, as they are now nearing the prices of the US bubble before the financial crisis popped it. It will be a challenge for the monetary authority to bring stability in China where inflation, interest rate bubble and exchange rate volatility are of primary concern. Expenditure reduction for low payback sectors, such as energy and communication, could also be a worry in the future.
- In South-Africa the sluggish demand for exports is a structural danger to the current account balance, as exports are struggling to get momentum and maintain pace with global trade. The demand for exports and productivity is not gaining momentum in South Africa. This leads to a devaluing exchange rate, especially in manufacturing and mining sector. The depreciation in currency value reflects poor integration with the global economy, and uncertainty discourages investments. It leads to lower invocation transfer of technology and fewer imports of technology-intensive goods.

To sum up all the above policy measures for achieving internal and external stability the following policies should be considered.

- I. Interest rate and exchange rate target approach;
- II. Tax reforms;
- III. Diversification in other sectors;
- IV. Monetary approach for controlling Inflation and money supply;
- V. Boosting production in special sectors;
- VI. Technological and investment promotion in exporting sectors.

9.4 Limitations and Directions for Future Research

There is a great promise in this area as different countries or a different group of countries can be examined.

- Most of the studies in this area use time series data, as i have used for the BRICS countries. A more detailed and insight analysis is possible by using quarterly data for all the variables.
- The data constraints for some of the variables (like budget deficit and money supply) have been a serious problem for some of the BRICS countries (like Russia and China).
- The current limitations in the empirical analysis based on the structural break in the ARDL technique using dummy. The more advanced technique of cointegration method that can oblige numerous breaks, and a mix of the diagnostic system considered here.

- Regardless of the long-term and short-term research allowed by the ARDL system. Nevertheless, the dynamic connections between variables are evaluated utilizing modern techniques, such as structural vector auto regression (SVAR), Nonlinear Autoregressive Distributed Lag techniques (NARDL) and a dynamic stochastic general equilibrium model (DSGE). For this sort of analysis, the Global Integrated Monetary and Fiscal Model may be quite helpful.