## CHAPTER X

### CONCLUSION AND RECOMMENDATIONS

#### 10.1 The Conclusion

The purpose of conducting the thesis opts for three fundamental objectives. At first, it attempts to reconstruct and testify a macroeconometric model of Bangladesh for the sake of capturing the true linkages among different macroeconomic blocks. Secondly, the research analyzes the empirical strength of monetary, fiscal, and exchange rate policies on the macroeconomic development of Bangladesh focusing on real GDP. In this regard, interest rate, total government expenditures, and exchange rate have been considered as policy variables respectively. The model used in the research can be used as a tool of forecasting the economy with different alternative policy simulations. Finally yet importantly, the thesis recommends a policy package for macroeconomic planning and management by forecasting the future path of the economy. However, forecasting performance usually declines with the length of the forecasting horizon. In the case of Bangladesh, considering the rapidly changing economic structure, it is more likely to be so. Considering this, the forecasting horizon is set at 10 years.

A series of attempts has been conducted in retrospect to fabricate macroeconomic model for Bangladesh economy. As macroeconomic model is still an art to formulate, each model has some advantages and disadvantages that have made them different to each other. In recent years, one of the most comprehensive models has been formulated by Hossain (1995) that included 29 behavioral equations and 15 identities. However, this model cannot be estimated empirically as it does not achieve a convergence rule to run the simulation. In other words, a model is said to constitute a system of simultaneous equations if all of the relationships involved are needed for determining the value of at least one of the endogenous variables included in the model. This situation implies that at least one of the relationships includes more than

one endogenous variable. Due to this estimation problem, Hossain and Razzaque (2003a) have revised the model that can run policy simulation scenarios. However, this model has only 18 behavioral equations and 13 identities, which are not enough to explain the diversified economy of Bangladesh by any standard. Therefore, the thesis has considered the initial Hossain (1995) model and attempted to reconstruct for accomplishing empirical forecasting with alternative shocks based on monetary, fiscal, and exchange rate policies.

The model in this research has developed based on 6 building blocks, viz., (i) production, (ii) expenditure, (iii) balance of payments, (iv) Government, (v) monetary and (vi) price blocks. It has 44 equations comprising of 28 behavioral and 16 identities of which 44 are endogenous and 53 are exogenous variables. It covers aggregate production, consumption, international trade, money supply, price, and government revenue and expenditure that can be used to examine the effects of both domestic and external shocks to the economy. In other words, the model is suitable for examining the effects of monetary, fiscal and exchange rate polices on the overall economy. That is, while the thesis provides the specification of various sectoral equations and their econometric estimates in one hand, the tasks of model validation and policy simulations based on the estimated equations have also been undertaken in other hand.

The model in the research has several distinctive features that put important contributions towards the applied macroeconomic structure of Bangladesh. Recently, the Bangladesh Bureau of Statistics (BBS) has published national income accounting for the country by incorporating extensive methodological and conceptual data improvements. This resulted in an increase in national income by 26 – 43 per cent (in nominal terms) between 1980 and 2000. As the research has used revised data, it has overcome statistical deficiencies that reflect the true scenario of the economy.

As Bangladesh economy is becoming increasingly market-driven, most of the equations used in the model are formulated from the viewpoint of demand-side analyses. However, neither the Keynesian nor the classical view of the

macroeconomic model is completely applicable to the case of Bangladesh, and to attain sustainable development, a good coordination between fiscal and monetary policies is required (Ali, 2006). Overall, as Bangladesh economy is now governing by open market forces while having cyclical unemployment, most of the equations used in the model are formulated from Keynesian framework. Precisely, the Macroeconometric Model used in this research follows the Keynesian income-expenditure approach by endogenizing GDP.

As assumptions are most vital ingredients in theorizing the sophisticated economic observations, this research has presupposed some assumptions for constructing the macroeconometric model of Bangladesh economy. Total production in all sectors depends on capital stock. Imported intermediate and raw materials act as constraint to production in agriculture and manufacturing sectors. The economy is labor-abundant, i.e. labor does not act as a constraint to production. Bangladesh is a price taker in the world market. Moreover, main constraint to export of Bangladesh arises from the supply side. The equilibrating mechanism in the monetary sector does not work through the demand for and supply of money determining the rate of interest.

Precisely, the model used in this thesis has used a two-stage least squares (TSLS) method that is a special case of instrumental variables regression. As the name suggests, there are two distinct stages in two-stage least squares. In the first stage, TSLS finds the portions of the endogenous and exogenous variables that can be attributed to the instruments. This stage involves estimating an OLS regression of each variable in the model on the set of instruments. The second stage is a regression of the original equation, with all of the variables replaced by the fitted values from the first-stage regressions. The rationale behind estimating each equation individually is to examine whether the equations can explain the behavior of the macro economy in a segregated manner. For the sake of clear understanding, all building blocks have been estimated in each equation by equation that is concisely pointed out below.

- a) Among 25 variables used in the production block, almost all of the variables have followed upward sloping trend except 7 indicators including real private investment in agriculture (IAGRP), total arable land (LAND), oil Price (OIL), rainfall index (RAIN), interest rate in agriculture (RAGRP), interest rate in manufacturing (RMANP), interest rate in services (RSERP). Based on TSLS approach, all equations in the production block have been estimated individually in 4 phases respectively. Firstly, in production function subblock, three equations have been regressed of which all preserves higher adjusted R-squared values. However, t-statistic values are alarmingly lower than the critical values at 5% level. Reversely, F-statistics are quite higher than its critical values, which prove that the independent variables as a whole can explain the change in dependent variables of the equations. Furthermore, private investment in agriculture, manufacturing, and service sectors have been estimated based on real credit and government investments in each sector. Adjusted R2 values for private investment in manufacturing and service sectors are at the expected level, whereas in agriculture section it is too low. In the last phase of production function, real credits in agriculture, manufacture, and services sectors have been explained by interest rates. From the estimation output, it has been analyzed that real credits in agriculture and manufacturing could not be explained by only rate of interests, as the associated r<sup>2</sup> is extremely lower.
- b) In expenditure block, 4 variables have been added including consumption, disposable income, consumer credit rate, and currencies outside banks. By plotting time series data for all 4 indicators, it is envisaged that consumption, disposable income, and currencies outside banks have followed upward sloping trend at different ratios. On the contrary, consumer credit rate has not following any specific trend, i.e. irregular ups and downs with respect to time. Based on TSLS technique, consumption function for the model has been estimated that has given very persuasive statistically significant adjusted R-squared value. Though t-statistics for each indicator are less than the critical values, the F-statistic calculated value is higher than the critical level. Hence,

the consumption function as a whole can explain the behavior of expenditure on the economy.

c) As the biggest block of the model, balance of payments block has comprised of 39 variables of which 11 are endogenous and 28 exogenous determined outside the model. Basically, this block has made the link between domestic economy and external economies incorporating international trade effects in the macroeconometric model used in the thesis. After plotting all data series in a two dimensional plain, it has been found that 10 variables have been running in upward sloping trends and the rest of 29 indicators have been following zigzag paths that have no specific trends (depicted in Figure 7.3). One of the main problems with no-trend data series is that it cannot identify any correlation with rest of the variables in lining with respect to time. As the fundamental logic of making this macro model is to explain the economy depending on theories firstly and testified with empirical evidences later, it is determined to stick with the initial restructured macro model without including any interventions based on statistical results.

As most of the variables have not associated with any specific trends, it is too hard to estimate with TSLS approach. However, it is decided earlier that the macroeconometric model has been structured in line with conventional theories rather than depending on empirical statistical estimations. Therefore, both export supply and import demand functions have been estimated with the original data series. In case of export supply functions, 7 equations have been estimated to explain the behavior of aggregate exports of Bangladesh economy. Due to the lack of trends in individual data series, it has been uncovered that most of the adjusted R<sup>2</sup> values came up with statistically insignificant values that prohibit export supply functions into considerations. However, there is only one exception in regard to export values for readymade garments. This functional relationship has achieved the highest adjusted R-squared value that is verified with the condition of *t*-statistic and *F*-statistic along with its probability values.

Likewise, import demand sub-block under balance of payments block has been incorporated with 4 equations that attempted to explain the aggregate imports behavior of the economy. In this sub-block, 16 variables have been gathered of which 12 are exogenously determined. Equations for import of intermediates and raw materials (MR) and import of capital goods (MK) have experienced with statistically significant adjusted R-squared values that is demonstrated in equations 7.19 and 7.20 respectively. However, functional equations for import of food grains (MF) and import of consumer goods (MC) have unexpectedly lower R<sup>2</sup> followed by lower calculated t-statistics and F-statistic along with the concerning p values.

d) In government block, there are 9 variables of which 5 are endogenously determined by the model. It is very effective for building a model to observe that, out of 9, 8 indicators have experienced with upward sloping curves meaning that all are positively related with each other by convention. However, revenue from other trade related taxes (REVT) has increased up to the year 1989 and simultaneously decreased thereafter.

Government block has been divided into two facets- government revenue and government expenditures sectors. In these two sub-blocks, there are 5 equations of which 4 equations has incorporated with government revenue sector. In this regard, it has been observed that revenue functions for import duties, internal taxes, and non-tax sources have verified with high adjusted R-squared values; whereas only one function i.e. revenue function for other trade related taxes has attached with relatively lower Adjusted R-squared value that forbids to establish a relationship between total imports volume and revenue from other trade related taxes. However, from the viewpoint of F-statistics consideration with its p values, all 4 equations in government revenue sector of the model have preserved higher calculated values than the critical level that is statistically significant enough to reject the null hypothesis.

In government expenditure sector, it is uncovered that time lag has made a significant difference in total government consumption expenditures. Though t-statistic consideration has not given positive indication to verify the 'government consumption expenditure function', calculated F-statistic has proved the validity of higher adjusted R-squared value.

e) It is to be recapitulated that monetary block has comprised of 4 variables including money supply, nominal credit to the private sector, government budget deficit, and rate of interest. However, in this money supply equation, there is only 1 exogenous variable, which is also the monetary policy instrument to the model, i.e. interest rate. By putting the time-series data, it has been seen that an upward sloping trend has been followed by CREDP. On the contrary, just after 1993, government budget deficit has been increasing dramatically due to expansionary fiscal policy made by the then governments. Interest rate has not maintained any trends due to having 2 major structural changes on the economy. Finally, money supply has been increasing increasingly that followed approximately an exponential path.

After estimating money supply equation, it has been visualized that interest rate has dominated total money supply of the economy. The estimated procedure has also passed all general statistical tests vis-à-vis individual t-statistic, F-statistic and its *p* values.

f) As one of the smallest blocks of the model, price block has comprised of only 1 behavioral equation of which there are 3 endogenous and 1 exogenous variable. After plotting all data series in a two-dimensional plain, it has been found that GDP, GDP deflator, and money supply have experienced with the same upward shapes in time-series trends. Furthermore, both GDP and money supply have seemed to have exponential growths with respect to time. Price of imports under price block has been following zigzag paths that have no specific trends in lining with the dependent variable, i.e. money supply. After estimating GDP deflator function, it has been explored that GDP deflator has been influenced dominantly by its own lag-value. This relation has also been testified by F-statistic and its associated p value.

After estimating all of the individual equations, the critical step in developing the thesis is the formulation of hypothesis. In this perspective, the hypothesis for measuring the performance of the macroeconometric model, which is proposed in this dissertation, is: "Monetary policy along with exchange rate policy is more effective than fiscal policy for economic development of Bangladesh economy." It is to be recalled that interest rate, real total government expenditures and exchange rate have been considered as policy variables to measure the effectiveness of monetary, fiscal and exchange rate policy respectively. To testify the hypothesis, the following simulation experiments have been conducted based on highest historical policy shocks at a pre-specified rate, one at a time.

- An increase in real total government expenditures at a maximum historical rate of 18.97 percent from FY 2001 to FY2010, i.e. Expansionary Fiscal Policy;
- A decrease in interest rate at a maximum historical rate of 19.73 percent from FY 2001 to FY2010, i.e. Expansionary Monetary Policy;
- III. An increase in exchange rate at a maximum historical rate of 22.15 percent from FY 2001 to FY2010, i.e. Depreciation under managed floating system;

Beyond the above individual policy shocks, the following policy mixes have also been simulated in order to identify- which policy shock/s would be the best alternative option/s for achieving the expected growth rate in real GDP of Bangladesh.

IV. An increase in real total government expenditures by 18.97 percent and a decrease in interest rate by 19.73 percent from FY 2001 to FY 2010, i.e. expansionary fiscal and monetary policy mix;

- V. A simultaneous increase in real total government expenditures by 18.97 percent and exchange rate by 22.15 percent from FY 2001 to FY 2010, i.e. expansionary fiscal and managed depreciation in exchange rate policy mix;
- VI. A decrease in interest rate by 19.73 percent and an increase in exchange rate by 22.15 percent from FY 2001 to FY 2010, i.e. Expansionary monetary policy and managed depreciation in exchange rate policy mix;

In this dissertation, fiscal policy has been experimented in light of changes in real total government expenditures (TGE). After giving the shock by 18.97% to TGE, all production sectors including primary, secondary, and tertiary sectors are worse off comparing to the macroeconomic situation having no shock. That is, an expansionary fiscal policy has ended with a decrease in real GDP. It worsens the government budget deficit, but expands government revenue too.

To run monetary policy simulation, the maximum historical record to decrease in interest rate has been selected. It has been uncovered that- when interest rate has decreased at 19.73 percent, total production in all sectors has also been reduced that leads to a minor decrease in real GDP. Therefore, after giving an expansionary monetary policy shock, it has been estimated that both real GDP and GDE have dampened slightly, which is reverse to the monetarist school of thought. At the end, this policy shock has experienced with a positive change in money supply and government budget deficit simultaneously.

The thesis has conducted an experiment with the historical rate of 22.15 percent depreciation of nominal exchange rate of Taka vis-à-vis the U.S. dollar in each year under managed floating rate system. After the shock, total volume of exports has risen upward. It is because the domestic goods and services for the foreigners became cheaper due to depreciation of Taka against USD. The expected positive impact on exports, hence, gradually strengthens in the following years. Consequently, there has been an improvement in the trade balance that squeezed trade deficit progressively. It has also been uncovered that- when exchange rate of Taka has

been depreciated by 22.15 percent, total production in all sectors has hiked up that leads to a positive change in real GDP. Among all three sectors, primary sector has got the strongest upward push that has increased at 118.20 percent positive change from 2000 to 2010. After that, in secondary and tertiary sectors, due to depreciation total production has raised at 90.00 percent and 92.81 percent respectively in the next 10 years (i.e. 2000 to 2010). Therefore, by ameliorating all production sectors followed by trade balance, depreciation of exchange rate of Bangladesh has increased real GDP, which has been measured as 97.11 percent aggregately within the year 2010. Precisely, total volume of exports expansion leads to fall foreign trade deficit that ultimately directs to increase real GDP. The effect has made a synergy by increasing total investment in future that supported the government to expend more for consumption purposes. That is, an increase in GDP results in an increase in government consumption expenditures, and total investment due to the depreciation.

After analyzing fiscal, monetary, and exchange rate policy individually, this dissertation has attempted to interpret the impacts of different policy mixes on the aggregate economy. At first, a mix between fiscal and monetary policies has been simulated and thence found that total productions in all sectors including agriculture, manufacturing, and services have been affected with diminishing trends that lead real GDP to worsen. However, in line to the theory, the model built in the thesis has experienced with an exponential growth rate of money supply due to the implementation of expansionary monetary and fiscal policies simultaneously. In fine, an increase in total government expenditures together with a decrease in interest rate lead to a decrease in real GDP, exponential increase in government budget deficit and money supply, an increase in total government revenues, a decrease in volume of imports, and an increase in private consumption expenditures in the economy of Bangladesh.

In cohesion, to make a fiscal and exchange rate shock at the same time, the maximum historical growth rate have been specified. After giving the shock by 18.97% to TGE and 22.15% to exchange rate, all production sectors are worse off

comparing to the macroeconomic situation having no shock. Among all sectors, agricultural and manufacturing sectors have been dampened drastically due to fiscal and exchange rate policy mix. However, tertiary sector has lost its production at a negligible rate. Overall, by reversing the conventional economic theory, an expansionary fiscal and exchange rate policy mix has been regarded as a slowing growth rate in real GDP. Precisely, it has been observed that an expansionary fiscal and exchange rate policy mix leads to a minor decrease in real GDP with a sharp decrease in total investments, an increase in money supply, an increase in government budget deficit, a decrease in gross domestic expenditures, increase in values of imports and exports but resulting in deterioration in trade balance.

Finally, to run the simulation of monetary and exchange rate policy mix, the maximum historical record to decrease in interest rate and devalue in exchange rate have been selected in retrospect. It is noticed that total productions in primary, secondary, and service sectors have been amplified together that lead real GDP to follow upward sloping path after having monetary and exchange rate policy shock at the same time. Furthermore, agricultural sector has made the biggest push to increase total production of the economy. The real GDP has yanked up drastically from 2000 to 2010 due to the policy mix. Values of exports and imports both have increased at the same time, but value of imports has followed steeper upward path than that of exports. It means that- as exchange rate depreciates, the domestic consumers have been fascinated to consume foreign goods and services more than the foreign consumers to consume domestic goods and services at a cheaper price level. However, an increase in value of imports at a depreciated exchange rate is completely reverse to the theory. Perhaps it is because of the incentives given to the domestic consumers by decreasing interest rate at the same time period. Consequently, due to an increase in real GDP, total investment in the economy has hiked up at a minor rate. Factually, an increase in real GDP has resulted in an increase in total investment partially. That is, a decrease in interest rate has improved the overall investment situation in the economy. Moreover, government consumption expenditures has also risen slightly due to a joint shock of monetary and exchange rate policy. At the end, an increase in government consumption expenditures has amplified the aggregate demand for goods and services that lead to produce more resulting an increase in real GDP eventually of the country. Generally, a decrease in interest rate has given an incentive to the producers and consumers to produce and consume more simultaneously. Hence, the borrowers have borrowed more at a lower interest rate than before. This behavior of the economy has raised money supply surely. From the empirical simulation of monetary and exchange rate policy mix, this statement has come up with the positive result to the money supply but at an insignificant rate. Followed by this result, government budget deficit has also ended up with a minor increase after having the policy mix shock in the macroeconometric model. Therefore, after giving a shock by decreasing interest rate and depreciating exchange rate, it is noticed that the policy mix to the model has leaded to an increase in total investment, increase in money supply along with an increase in government consumption expenditures, increase in both values of exports and imports, increase in government budget deficit that has directed towards an increase in real GDP eventually.

In conclusion, from the above simulation results, it has been examined that the hypothesis formulated in this dissertation- "monetary policy along with exchange rate policy is more effective than fiscal policy for economic development of Bangladesh economy"- is testified as a valid result empirically. Thence, based on the macroeconometric model restructured in this thesis, a blending of monetary and exchange rate policy is one of the best alternative options to uplift the aggregate economy of Bangladesh.

#### 10.2 Policy Recommendations

From the phase of policy simulations of this dissertation, it has been uncovered that a change in exchange rate and a policy mix between interest rate and exchange rate can boost up real GDP of the economy to the satisfactory level. Therefore, the impact of exchange rate along with interest rate in the economy needs to be analyzed keenly for policy recommendations.

First of all, it would be admissible to compare between baseline and the impact of having exchange rate shock in the model. In Figure 10.1, it has been visualized that a depreciation in exchange rate at a historical rate has given GDP growth rate an increasing rate. In every year, the growth rate of GDP is increasing due to the intervention made by exchange rate to the economy.

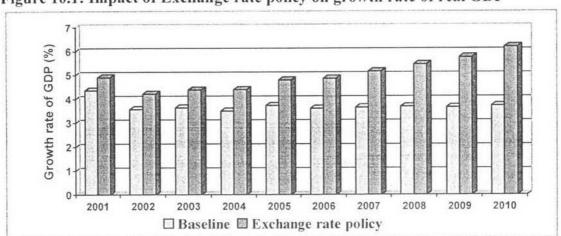


Figure 10.1: Impact of Exchange rate policy on growth rate of real GDP

In another context, after having an exchange rate policy shock, total investment booms up in a stabilized rate. It is because a depreciation in exchange rate causes an increase in demand for domestic goods in international market that induce both private and public investment to produce more in the domestic economy. Figure 10.2 has proved this logical postulation in the context of Bangladesh economy with respect to time.

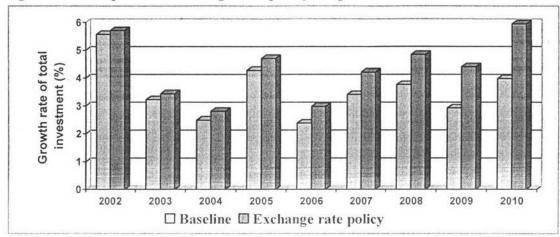


Figure 10.2: Impact of Exchange rate policy on growth rate of total investment

In line to the conventional theory of economic literature, it has been found that a depreciation in exchange rate has given a boom in total volume of exports but at a decreasing rate. This decreasing can be observed in Figure 10.3.

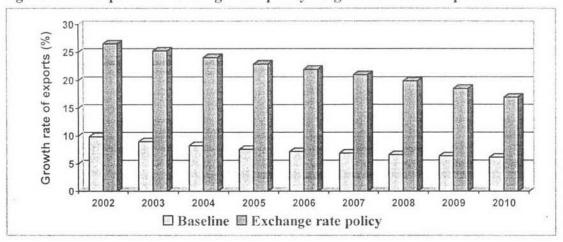


Figure 10.3: Impact of Exchange rate policy on growth rate of exports

On the contrary, total volume of imports has followed an increasing trend due to having an exchange rate policy shock. Perhaps, due to a depreciation in exchange rate, domestic consumers have got more purchasing power to consume imported goods that increased total imports even though the price for foreign products hiked up in effect.

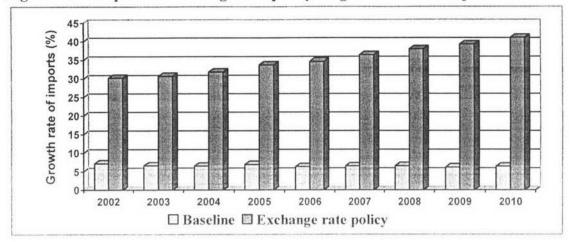


Figure 10.4: Impact of Exchange rate policy on growth rate of imports

It has been noted that government revenues in Bangladesh have been following an increasing upward sloping trend after having an exchange rate shock. The reason behind increasing government revenue is that a depreciation in exchange rate has increased total production in all sectors and the government levied taxes on value added afterwards. It can be visualized in Figure 10.5.

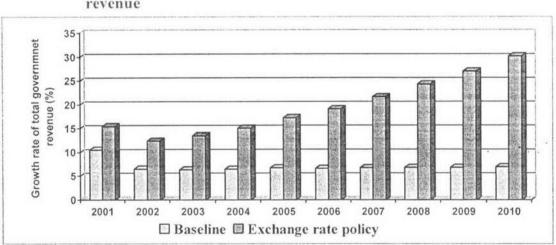


Figure 10.5: Impact of Exchange rate policy on growth rate of total government revenue

Consequently, as government revenues increased due to exchange rate policy, the government would get enough room to induce public consumption expenditures. The economy of Bangladesh has also given a gentle push to increase total government consumption expenditures in parallel to an increase in total revenues.

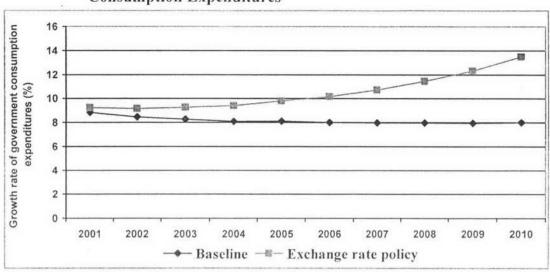


Figure 10.6: Impact of Exchange rate policy on growth rate of Government Consumption Expenditures

Secondly, after giving a shock by decreasing interest rate and depreciating exchange rate, it is noticed that the policy mix to the model has leaded to an increase in total investment, increase in money supply along with an increase in government consumption expenditures, increase in both values of exports and imports, increase in government budget deficit that has directed towards an increase in real GDP eventually. However, only exchange rate policy is more effective than a policy mix between monetary and exchange rate to induce real GDP of the economy that has been proved from Figure 10.1 and 10.7.

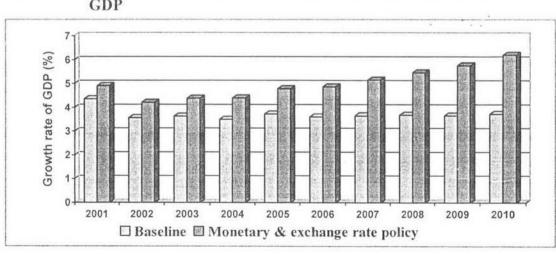


Figure 10.7: Impact of Monetary & Exchange rate policy on growth rate of real GDP

Therefore, as monetary policy along with exchange rate policy is not a good option, the policy recommendation for the upliftment of Bangladesh economy would be to adopt exchange rate policy alone that gives the highest boom in increasing real GDP.

# 10.3 Limitations of the Study and Recommendations for Further Study

One of the many problems that economic forecasters and policy makers face is conveying to the public the degree of uncertainty associated with the simulated results. Policy makers recognize that their announcements, in addition to providing information on policy objectives, can themselves initiate responses, which affect the macroeconomic outcome. This means that Central Bank Governors are reluctant to discuss either pessimistic possibilities, as this might induce recession, or more optimistic possibilities, since this might induce inflationary pressures. There is therefore an incentive for policy makers to seek ways of making clear statements regarding the range of potential macroeconomic outcomes for a given policy, and the likelihood of the occurrence of these outcomes, in a manner, which avoids these difficulties. (Garratt, Lee, Pesaran, & Shin, 2003). However, perhaps the most difficult challenge for the model builders is the inclusion of the theory in the model, as most of the theories are one-sided and cannot be amalgamated with other conventional theories. This model has been reconstructed based on Hossain model (1995), and in lining with the conventional economic theory, the fundamental changes have been done in production function, private investment functions, export supply functions, money supply function, food grains and raw materials functions. The nexus between output, government deficit, external sector, interest rate and inflation are captured in the model. One thing that has to be mentioned is that the model has considered exchange rate as exogenous variable for the economy of Bangladesh. Recently, the central bank of Bangladesh has decided to determine the exchange rate with respect to the interaction between demand for and supply of domestic currencies in international currency market. Therefore, an inclusion of exchange rate as an endogenous variable is highly recommended for further development of the model.

Another significant shortcoming for the model is that labor market has totally omitted in making the building blocks of the model. For getting better results, the model needs to add up with the concept of wage, level of employment, productivity and so forth. The model can be used to examine the effects of both domestic and external shocks on the economy. The model can also be used to analyze the effects of monetary and fiscal policies on the macroeconomy. Recently, macroeconomists are trying to incorporate qualitative issues (e.g., health, happiness, altruism, beliefs, cultural heritage etc.) in quantitative modeling that could be a unique work to extent this research. Furthermore, total production of an economy can be computed by Production Method or Expenditure Method. More specifically, as in economics supply is always equal to demand, total production can be calculated either from supply or demand side. In this regard, the thesis has used the term 'GDP' (Gross Domestic Product) to calculate total production under supply side considerations and 'GDE' (Gross Domestic Expenditures) under demand side considerations. However, in reality the official statistical division of Bangladesh government provides different figures and the difference between GDP and GDE shows under statistical discrepancy. To overcome this difficulty, the formulation of one equilibrating equation can be recommended to balance GDP and GDE being equal for the future model builders. Finally yet importantly, the model has included the concept of inflation rate under the light-shed of GDP deflator indicator. However, Consumer Price Index (CPI) is a better technique of computing and thence explaining the effect of inflation in the macroeconomy that has to be considered in the next triumph of ameliorating the macroeconometric model for Bangladesh.