

## Macro Economy of a Least Developed Country: The Case of Bangladesh

MUHAMMAD MAHBOOB AH<sup>1</sup>

ANITA MEDHEKAR<sup>2</sup>

### Abstract

*Bangladesh is one of the least developed countries. The economy of Bangladesh suffers from both supply side and demand side problems. This study investigates the country's macro economic conditions over the two sub periods (a) Sub period-1: Macroeconomic policy under administrative control i.e. 1976-77 to 1989-90; (b) Sub period-2: Macroeconomic policy under reform measures i.e. 1990-91 to 2005-06. The study doesn't find full applicability of either Keynesian or Monetarist view of the macro model for this country. Authors suggest that the performance of the Bangladesh economy is a mixture of accomplishment and failure, not significantly different from that of the majority of poor less developed countries and thus a coordinated approach to fiscal, monetary and exchange rate and debt management policy is required to achieve the long-term goal and sustainable economic growth with inflation within control.*

**Keywords:** Bangladesh, Macro economy, Less Developed Countries

### 1. Introduction

Bangladesh remains a poor, overpopulated, and inefficiently-governed nation. Although more than half of Gross Domestic Product (GDP) is generated through

1. Professor, School of Business and Economics, Atish Dipankar University of Science and Technology, Bangladesh. e-mail: pipulbd@gmail.com
2. Senior Lecturer, School of Commerce and Marketing, Central Queensland University, Australia, e-mail: A.Medhekar@cqu.edu.au

the services sector, nearly two-thirds of Bangladeshis are employed in the agriculture sector, with rice as the single-most-important farm produce. The economy has grown at the rate of 5-6% per year since 1996 despite inefficient state-owned enterprises, delays in exploiting natural resources, insufficient power supplies, and slow implementation of economic reforms (ADB 2003). Economic growth is supported by garment exports and remittances from Bangladeshis working overseas. In 2008, Bangladesh pursued a monetary policy aimed at maintaining high employment, but it also resulted in higher inflation rate in the process. In 2008, the country grew at the rate of 4.9% with per capita income of \$ 1500 in PPP terms (World Bank 2009).

Bangladesh economy suffers from problems on both supply and demand sides. It is one of the least developed countries and suffers from poverty, imperfection in factor and product markets, continuous disequilibria in the economy, defective administrative structure, inappropriate tax policy, heavy dependence on external sector, lack of capital stock, infrastructure bottlenecks, high unemployment, low standard of living, low level of savings and investment, unskilled labour, acute balance of trade deficit, and low GDP growth rate. The country is not only technologically backward but is also underdeveloped in the key areas of infrastructure such as transport, telecommunication, and energy (World Bank 2009; ADB 2003; SPBB 2002).

There are numerous social problems that pose as threats to the nation but yet remain unsolved. These problems include overpopulation and inadequate nutrition, health, illiteracy, a low standard of living, scarcity of land, vulnerability to natural disaster-floods, virtual absence of valuable metals, and inadequate government and bureaucratic structures. The agricultural and the industrial sectors are still underdeveloped. Public and private sector investment is inefficient due to the presence of bureaucratic delay and corruption. Government policies have been somewhat effective in stimulating the economy, but instances of government as well as market failure abound (Wolf 2003).

The private sector has benefited from an environment of greater economic freedom, and has improved performance in banking, production of jute, fertilizer, ready-made garments, and frozen seafood. Over the period of 2001-2005, growth averaged 5.4% per year which is the highest 5-year average since the country's independence. This growth was mainly underpinned by private investment, which grew at an annual average rate of 10% with an increase in its share in GDP from 16% in 2001 to 18.5% in 2005. The share of public investment fell from 7% to 6% during the same period. This period witnessed strong growth of exports,

particularly garments, and large inflows of remittance fueled growth in construction and services sectors. The agriculture sector growth was, however, low, averaging just 2% during the period (World Bank 2009).

Monetary and fiscal policy of the country is yet to be properly coordinated and macro management of the country faces problems. Real, monetary and external indicators show a wide variation in the rate of economic growth during the past four decades. This research examines the multi-flow impact on the macroeconomic variables of the country in the selected time periods. The paper is structured as follows. The first section of the paper provides a review of the available literature. Section two outlines the objective of the paper and explains the research methodology. Section three analyses the results, and section four provides policy implications and makes some concluding remarks.

## **2. Literature Review**

Mundell (1962) argues that when internal and external balance are not simultaneously achieved, the Government can adjust monetary policy to the requirements of internal stability and fiscal policy to the needs of external balance, or it can use fiscal policy for purposes of internal stability and monetary policy for purposes of external balance. As suggested by Friedman and Schwartz (1963), the proximate determinants of the money supply are essentially the three factors: a) the stock of high-powered money, b) the ratio of deposit to reserve, and c) the ratio of deposit to currency. Kaldor (1970) criticises the Monetarist view that the quantity of money is determined by the demand from the public and that the central bank will control the quantity of money supply. Villanueva (1980) describes a semi-annual macro econometric model of the Philippines. Five basic sectors of the economy and their linkages were identified –namely, income-expenditure, monetary, output, credit, and balance of payments. Rashid (1981) observes the relatively poor simulation performance for Bangladesh. Wijesinghe (1982-1983) suggests that in developing countries like Sri Lanka, more emphasis should be placed upon the expansionary effect of output as the substitution effect is conditional upon the assumption of a well-behaved production function of neo-classical type.

According to Chowdhury (1983), foreign investment is likely to favor imported processes based on large-scale production, which involves huge capital and may disfavor the use of locally available skill since in the plan there is no clear-cut provision for preventing the foreigners from using imported processes. Ahmed (1986) concluded that the government of Bangladesh did not relax its saving

efforts and that domestic saving was not substituted by foreign capital inflow. He did not preclude the possibility of a complementary relationship between domestic saving and foreign capital inflow. Chowdhury (1986) observes that the growth in government expenditure in Bangladesh has a greater impact on changes in nominal income than growth in narrow money ( $M_1$ ). Osmani, Bakht and Anwaruzzaman (1986) have analysed that fiscal policy affects the monetary sector in a variety of ways. Deficit financing can contribute significantly to the expansion of money supply. Jones and Sattar (1988) observe that inflation in Bangladesh is not purely a monetary phenomenon.

Parikh and Starmer (1988) results are consistent with a “structuralist” view of the Bangladesh economy. In their study, a framework is presented for investigating bivariate causal relationship using Granger’s notion of causality, which is employed to test the relationship between the money supply and prices in Bangladesh, using monthly data for the period 1973 to 1986. The result indicates evidence of significant unidirectional feedback running from prices to money. The analysis is extended to investigate the relationship between rates of change in money and prices and once again there is evidence of feedback from prices to money. The main conclusion is that strict exogeneity of the money supply is rejected. These results are consistent with a “structuralist” view of the Bangladesh economy.

Lewis (1990) developed a general equilibrium model of the Bangladesh economy in order to examine the macroeconomic and inter-sectoral consequences of proposed trade and industrial policy reforms in Bangladesh. Crow, Murshid and Shahidur (1991) observed that financial brokers lending working capital to the small paddy collecting traders were rewarded with cheaper supplies of paddy. Momen (1992) depicts that money supply is endogenous in less-developed nations while it is exogenous in the industrial economies.

Bhuyan and Rashid (1993) suggest that the array of incentives now available for particular export should be extended fully to other non-traditional exports and backward and forward linkages to the extent that are economically viable, be encouraged and the existing system of export incentives should be streamlined to minimize administrative bottlenecks and to facilitate smooth and quick implementation of policy. Dhanasekaran (1995-96) supports the monetarist claim that it is the change in money stock that primarily determines changes in nominal GNP. Harrigan (1996) argues that national saving rates have been boosted by prudent government budgetary policy, that statutory saving and financial sector liberalisation have also played a significant role in boosting saving, and that these

effects would appear to have come both through higher real interest rates, and financial deepening.

Kenen (1996) was concerned with the implications of openness of the economy and the exchange-rate arrangements for the functioning of monetary and fiscal policies. Roy (1996) opines that fiscal instruments seem to be important for engineering products, paper, newsprint, and paper products to influence exports. Rahman and Shilpi (1996) suggest that in a country where the interest rates and exchange rates are pegged or managed or are subject to non-competitive market influences will have little effect on investment and capital accumulation. Further, traditional aggregated demand management policies could have favorable short run effects with regard to two gaps and inflation, without having any significant impact on growth, unless the policies directly encourage investment.

Rashid and Kemal (1997) comment that in Pakistan the policies pursued under the structural adjustment program have tended to increase the poverty levels mainly because of decline in growth rates, withdrawal of subsidies on agricultural inputs and consumption, decline in employment, increase in indirect taxes, and decline in public expenditure on social services. Donghyun (1997) argues in favor of liberalisation saying that it would provide Korean manufacturing firms with access to the less costly funds available in international financial markets and that these funds will facilitate their restructuring away from labor-intensive production techniques toward more capital intensive techniques.

Kannan (1997-98) describes the linkage between monetary and fiscal policy of Mauritius, a small country. An increase in Government capital expenditure improves output, but its impact on output and prices depends upon how the increase in its capital expenditure is financed. Ali (2001) doesn't find full applicability of Keynesian or Monetarist view of supply of and demand for money in Bangladesh. Arndt, Dorosh, Fontana, Zohir, El-said, and Lungren (2002) observes that the Bangladesh economy and household incomes are clearly linked with the global economy, particularly through food grain trade and the Readymade Garments sector. Maroney, Hassan, Basher, and Ihsan (2004) find that in the context of Bangladesh, monetary policy is more important than fiscal policy.

### **3. Objectives and Research Methodology**

On the basis of the aforesaid literature review, the article has been undertaken with the following objectives:

1. To determine the factors which simultaneously explain the variations in macro economic factors due to multi-flow influence among the variables;
2. To investigate the effectiveness of the macro-economic indicators in the process of sustainable economic development; and
3. To find out whether any structural change has taken place in the macro economy of Bangladesh due to continuous financial reform programs especially implemented from the 1990s.
4. To draw some policy implications for betterment of macro economic conditions of the country.

The study has reviewed the theoretical and empirical literature on macro economy with special reference to Bangladesh. After independence on 16 December, 1971, the economy suffered due to the legacy of the war. The three years immediately after independence is considered a transitional abnormal period (1972-73 to 1975-76) for the purpose of this research and, therefore, the data for this period is not taken into consideration. Although macro-economic stability programme and structural adjustment process started in the middle of the 1980s, due to repression that prevailed in the economy, financial liberalization actually started in 1990. To make the study more up-to-date, we have extended the study period up to 2006 (June), a total of thirty years. The time period of the study has been divided into two sub-periods, viz., a) Sub period-1: Macroeconomic policy under administrative control, i.e. 1976-77 to 1989-90; and b) Sub period-2: Macroeconomic policy under reform measures, i.e., 1990-91 to 2005-06.

Data in the study has been used extensively from secondary sources, i.e. published data in various issues of Economic trends, Bangladesh Bank Bulletin, Bangladesh Arthanaitic Jarip, Bangladesh Arthanaitic Samikhaya, Statistical Year book of Bangladesh, Annual Report of Bangladesh Bank, Statistical Pocket Book of Bangladesh, Bangladesh Bank Quarterly and Twenty one years of national accounting of Bangladesh (1972-73 to 1991-92) etc. We have also consulted published books, journals and unpublished Ph.D. dissertations and research works that are relevant to the study.

This research has attempted to determine multi-flow effect between variables of real monetary and external sectors by estimating the reduced form of equations as an example of showing the multi-flow effect in the overall economy of the country. We use alternative definitions of the money supply i.e. Narrow money ( $M_1$ ) or Broad money ( $M_2$ ) where money supply is considered as either dependent variable or independent variable in various equations.

To test the structural change for the period from 1976-77 to 1989-90, we consider dummy variable (DM) as '0'. When we consider the period from 1990-91 to 2005-06, then the dummy variable (DM) is '1'. Usual t-value, F value, Adjusted R-squared are estimated. Besides the statistical test, we also test whether serially correlated errors are present or not. As such the study has computed Durbin Watson statistics. Wherever serially correlated errors are present, we have used first order autoregressive transformation, i.e. AR (1) to remove auto correlation error term.

### 3.1 Specification of the Model

One can build a simultaneous equation model to show the multi-flow effects of the determinants of the real-monetary-external sector model. Instead of undertaking such modelling exercise, we have estimated the following reduced from equations of a real-monetary-external type model to test the multi-flow effect. From the literature review Model-A and Model-B are developed. Gross domestic product (GDP) is the most important variable, which depends on consumption, investment, domestic savings, money supply, bank rate and foreign exchange reserve. Instrumental variables are investment, high-powered money and interest rate, total number of bank branches, domestic saving and consumption.

When specifying the model for money supply, we have taken alternatively narrow money and broad money as dependent variable. Independent variables are GDP, bank rate, consumption, domestic savings, and foreign exchange reserve. In this case instrumental variables are foreign aid and loan, high-powered money, investment, consumption, total number of bank branches, and net foreign asset. Foreign exchange reserve depends on GDP, bank rate, consumption, domestic savings, and money supply. In this equation instrumental variables are bank rate, GDP, capital outflow, foreign remittance, investment, consumption, and domestic savings.

Similarly, the study also built Model-B where GDP depends on consumption, investment, money supply, rate of interest on deposit, and exchange rate. Instrumental variables are high-powered money, foreign remittance, exchange rate, domestic savings, rate of interest on deposit, net foreign asset, and deposits with bank. When we are specifying the model for money supply, it is the same as Model-A.

The study considers gross domestic product, high-powered money, rates of interest on deposit, national savings and exchange rate as independent variables. In this case instrumental variables are foreign aid and loan, investment, consumption, total number of bank branches, high-powered money, balance of trade and bank rate. Exchange rate depends on gross domestic product, rate of interest on deposit, consumption, national savings, money supply, and foreign exchange reserve. In this equation instrumental variables are the same as in model-A, including net foreign assets.

**Model: A**

$$\text{GDP} = f(\text{CONS}, \text{DS}, \text{Ms}, \text{BR}, \text{FER}) \quad (1)$$

Where instrument list: INVT, H, R, TNBB, DS, CONS

$$\text{Ms} = f(\text{GDP}, \text{BR}, \text{CONS}, \text{DS}, \text{FER}) \quad (2)$$

Where instrument list: FAL, H, INVT, CONS, TNBB, NFA

$$\text{FER} = f(\text{GDP}, \text{BR}, \text{CONS}, \text{DS}, \text{Ms}) \quad (3)$$

Where instrument list: BR, GDP, CO, FR, INVT, CONS, DS

**Model: B**

$$\text{GDP} = f(\text{CONS}, \text{INVT}, \text{Ms}, \text{R}, \text{ER}) \quad (4)$$

Where instrument list: H, FR, ER, DS, R, NFA, DMB

$$\text{Ms} = f(\text{GDP}, \text{H}, \text{R}, \text{NS}, \text{ER}) \quad (5)$$

Where instrument list: FAL, INVT, CONS, TNBB, H, BT, BR

$$\text{ER} = f(\text{GDP}, \text{R}, \text{CONS}, \text{NS}, \text{Ms}, \text{FER}) \quad (6)$$

Where instrument list: BR, GDP, CO, FR, INVT, CONS, DS, NFA

Where:

GDP=Gross Domestic Product, CONS=Consumption, DS=Domestic Savings, Ms=Money Supply, BR= Bank rate, FER= Foreign Exchange Reserve, INVT= Investment, H= High-Powered Money, R= Rate of interest on deposit, TNBB= Total Number of Bank Branches, FAL= Foreign Aid and Loan, NFA= Net foreign assets, ER= Exchange Rate, CO= Capital Outflow, FR= Foreign Remittance, DMB= Deposit money banks (govt. net), NS = National Savings, BT = Balance of Trade.



Here we use alternative definitions of money, i.e.  $M_1$  and  $M_2$ , and assume following *a priori* relationships:

- GDP is positively related to consumption, investment, domestic saving, national saving, money supply and foreign exchange reserve. Rate of interest on deposit is negatively related to GDP. GDP is also positively related to investment. Exchange rate is negatively related to GDP.
- Money supply (both narrow money and broad money) is positively related to GDP, consumption, rate of interest on deposit, high-powered money and foreign exchange reserve.
- Money supply is negatively related to domestic saving and national saving. High-powered money is positively related to money supply. Bank rate is negatively related to money supply.
- Foreign exchange reserve is positively related to gross domestic product. Rate of interest, consumption, domestic saving and money supply are positively related to foreign exchange reserve.
- Exchange rate is negatively related to gross domestic product. It has also negative impact on consumption, domestic savings, money supply and foreign exchange reserve. Rate of interest on deposit has negative impact due to exchange rate depreciation.

#### 4. Analysis of Results

On the basis of the Models explained in the foregoing, we have estimated 12 Equations, which contain the overall results of the study. The estimated Equations – viz, Equations 1A, 1B, 2A, 2B, 3A, 3B, 4A, 4B, 5A, 5B, 6A and 6B – are shown in the Appendix and the main results as reflected in the Equations are discussed below.

In Equation 1A, we see that while considering gross domestic product as the dependent variable, consumption and narrow money are significant at 1% level of significance and they depict expected sign. Here we also find that dummy variable is significant at 1% level of significance. Adjusted R-squared is 0.974 which indicates that good fit of the equation. Durbin-Watson statistic is 1.625414, which indicates that no autocorrelation prevails at 1% level of significance. F-statistic is significant at 1% level of significance.

In Equation 1B, we find that domestic saving and broad money are significant at 5% and 1% level of significance, respectively. The Equation provides a good fit at 99% of the observed variation in the gross domestic product. Durbin-Watson

statistics is 1.6185, which indicates that no autocorrelation prevails at 1% level of significance. F-statistic is significant at 1% level of significance.

In equation 2A, we observe that GDP and consumption are significant at 1% and 5% level of significance respectively. The equation provides a good fit at 96% of the observed variation in narrow money. Durbin- Watson statistic is 1.603477, which indicates that no autocorrelation prevails at 1% level of significance. F-statistic is significant at 1% level of significance.

In equation 2B, we found that GDP is significant at 1% level of significance. The equation provides a good fit at 94% of the observed variation in broad money. Durbin-Watson statistic is 1.592620, which indicates that no autocorrelation prevails at 1% level of significance. F-statistic is significant at 1% level of significance.

Equation 3A depicts that GDP is significant at 5% level of significance. The equation provides a good fit at 87% of the observed variation in foreign exchange reserve. We observe that if the GDP rises by 1%, then the foreign exchange reserve will rise by 1.06%. Durbin- Watson statistic is 1.605101, which indicates that no autocorrelation prevails at 1% level of significance. F value is significant at 1% level.

Equation 3B shows that GDP is significant at 5% level of significance. Here the equation provides a good fit at the 87% of the observed variation in the foreign exchange reserve. Durbin- Watson statistic is 1.582105, which indicates that no autocorrelation prevails at 1% level of significance. Dummy variable is significant at 5% level of significance, which implies that structural change has occurred. F-statistic is significant at 1% level of significance.

Equation 4A shows that consumption and investment is significant at 5% and 1% level of significance. Here the equation provides a good fit at 97% of the observed variation in the GDP. We use AR (1) to remove autocorrelation problem. F-statistics is significant at 1% level of significance.

In equation 4B, we find that investment and rate of interest on deposit is significant at 5% level of significance. The equation provides a good fit at the 99% of the observed variation in the gross domestic product. Here we use AR (1) to remove autocorrelation problem. F-statistic is significant at 1% level of significance.

In equation 5A, we observe that GDP and high-powered money is significant at 1% and 5% level of significance. The equation provides a good fit at the 93% of

the observed variation in the narrow money. To remove autocorrelation problem, we use AR (1). F-statistic is significant at 1% level of significance.

Equation 5B indicates that GDP is significant at 1% level of significance and high powered money at 10% level of significance. The equation provides a good fit at the 94% of the observed variation in the broad money. To remove autocorrelation problem, we use AR (1). F-statistic is significant at 1% level of significance.

Equation 6A indicates that GDP is significant at 5% level of significance. It is negatively related. Dummy variable is significant at 5% level, which implies that structural change has occurred. The equation provides a good fit at the 87% of the observed variation in the exchange rate. We use AR (1) to remove autocorrelation problem. F-statistic is significant at 1% level of significance.

Equation 6B depicts that GDP is significant at 1% level of significance and negatively related. Here we also find that dummy variable is significant at 1% level of significance. The equation provides a good fit at the 88% of the observed variation. Here AR (1) is used to remove autocorrelation problem. F-statistic is significant at 1% level of significance.

To sum up, the study observes that GDP is the key factor of the measurement of macro economy. Consumption and narrow money have a significant relationship with GDP. Broad money and domestic saving also have an impact on the economy. Narrow money has a relationship with GDP and consumption. Broad money has a significant relationship with GDP. Foreign exchange reserve has an impact on GDP. GDP is also related to investment and rate of interest on deposit. Narrow money and broad money both have significant relationship to GDP and high powered money. Exchange rate is related to GDP. The study observes that Rahman and Shilpi's (1996) findings are not fully applicable.

We obtained mixed results of the structural changes. This implies that financial reform measures have some positive impact on the domestic economy. However, the economy still needs more changes. Momen (1992) observed that IMF policy prescriptions for less-developed economies (LDEs) are not likely to be effective or relevant until financial structures and levels of industrialization of LDEs have improved. This is supported by our results. The study doesn't fully support Parikh and Starmer's (1988) view. One of the reasons may be that over the time period Bangladesh faced three distinct stages, i.e. from 1972 to 1975 –socialistic attitude; 1976 to 1989 –mixed economy; and from 1990 to till now –moving towards free market economy. The study has found that real sector is largely dependent on GDP.

Other factors such as the rate of interest on deposit, investment, consumption also have an impact on the real sector of the country. We observe that money supply depends directly on high-powered money and GDP, whereas the external sector depends on exchange rate and foreign exchange reserve. When we test multi-flow effect through simultaneous equations using instrumental variables, we observe that GDP is the key factor in the economy and is directly related to the consumption and investment process. Monetary management of the economy should be designed with proper assessment, planning, implementation, market condition of the people's desire or intention, timely decisions, positive real rate of return, and adjustment of price change for accelerating the growth of GDP. External and internal factors have impacts on the supply of money process.

Foreign exchange reserve is directly related to GDP, and depends on export-import of the country, foreign aid and loan, foreign remittances etc. International commitment, commercial transaction, and transfer payment of the country affect the reserve position and it cannot be fully predetermined. The study reveals that some of the determinants of export sector of the country have multi-flow effect on other sectors of the economy.

The study has also investigated the overall impact of financial reform measures on the real, monetary and external variable. Results of the study indicate the need for coordination of fiscal policy with monetary policy, exchange rate and debt management policies along with appropriate measures to reduce the dependence on the external sector in order to accelerate economic growth, ensure social justice and bring stability in the financial sector (Bahar 2009). Structural changes have occurred only partially and the economy did not benefit from these reform measures.

## **5. Policy Implications**

Globalisation challenges had a negative impact on the domestic economy and aggregate output, therefore dependence on external sector should be minimised. The findings of this study supports Lewis's (1990) results that for the Bangladesh economy to replace the current off-budget export subsidy, based on retention of foreign exchange earnings, by export subsidies financed out of the government budget would promote exports. These measures may be applied for the economic development of the country.

From the study it is also evident that for the development of the country, fiscal policy will have to be coordinated with monetary policy and other policies along

with appropriate measures to minimize the dependence on the external sector. The deregulation of Bangladesh economy and structural adjustment began since the mid-eighties along with the financial reforms in 1990. Although Bangladesh is still an undeveloped country, the primitive characteristics of LDCs do not exist here. This indicates that the country is able to bring stability in the financial sector, which will facilitate the process of development, though it is not sufficient.

One of the objectives of the study is to test whether structural change has occurred or not. Although Bangladesh economy was deregulated from the mid-1980s when macroeconomic stabilisation measures were taken, lack of planning and political will hindered the growth process. To expedite the process, financial sector reform program were launched in 1990. Though economic development of the country needed to be given a big push, only a partial financial sector reforms took place in the country. Economic development of the country calls for higher saving and investment, a favorable balance of payments position, and productive utilization of foreign remittances. As such financial sector reforms should be designed with more positive attitude. For example, these reforms should include independence of Bangladesh Bank, growth oriented resource mobilization, and a reduction in government borrowing from the banking sector. When the rate of interest on deposit is high, the Bangladeshi expatriates from abroad become motivated to send their earnings. This also helps to narrow the balance of payments deficit, and the exchange rate, too, remains in a favorable position. The study observes that government expenditure has a positive impact on GDP, which supports Kannan's (1997-98) findings for Mauritius.

Monetarists argue that money supply has a dominant influence on the price level, spending, production, and employment. On the other hand, neo-Keynesians believe that a wide range of factors, both monetary and non-monetary, influence employment, growth and prices (Keynes 1936). The present study neither supports the monetarist view fully nor the Keynesian view fully. The economic condition cannot be fully improved by depending on fiscal policy alone. The study concludes that Bangladesh needs a mix of fiscal and monetary policy. A combination of demand management and supply side policies will be needed to improve the economy.

While the study doesn't find full applicability of either Keynesian or Monetarist view to the Bangladesh economy, it supports the conclusion of Osmani *et.al* (1986) who argue that fiscal policy affects the monetary sector in a variety of ways. Results of the findings of Maroney *et.al* (2004) in their macro-econometric model for the Bangladesh vary with the findings of the present study. Maroney *et.*

*al* find that in the context of Bangladesh, monetary policy is more important than fiscal policy since monetary stability is essential for economic growth.

Fiscal policy of the country has not been designed well enough to stimulate growth through taxation, public expenditure, domestic resource mobilization, and institutional framework. Despite reform measures, real variables indicate that government has failed to raise taxes, properly mobilize domestic resources and effectively allocate these resources as per the requirement of the economy.

To conclude, the performance of the Bangladesh economy is a mixture of accomplishment and failure, not significantly different from that of the majority of poor Third World countries. The country has achieved a degree of success since independence. The international donors led by the World Bank, similarly can be proud of the role it has played in assisting in the development process. On the policy side, a good record on GDP growth seems to have benefited from impressive macro stability. Inflation hasn't touched double digits for almost two decades, while public and external debt situation is tolerable with growth in saving and investment rates, currently at about 24%, are relatively high compared with other countries at similar income levels.

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## Appendices

### Equation No: 1A

Dependent Variable: GDP

Method: Two Stage Least Squares

Instrument list: INVT H R TNBB DS CONS

Variable	Coefficient	Std. Error	T-statistic
C	-10670.32	14624.85	-0.7296
CONS	0.0636	0.0242	2.6249
DS	0.0523	0.0448	1.1686
M <sub>1</sub>	9.9187	3.4536	2.8719
BR	-1539.381	7962.501	-0.1933
FER	16.8847	3068.847	0.0055
DM	0.8207	0.0658	12.4716
Adjusted R-squared	0.9746	F-statistic	
Durbin-Watson stat.	1.6254	Prob (F-statistic)	

### Equation No: 1B

Dependent Variable: GDP

Method: Two Stage Least Squares

Instrument list: INVT H R TNBB DS CONS

Variable	Coefficient	Std. Error	T-statistic
C	2718.208	9627.628	0.2823
CONS	0.0208	0.0138	1.5013
DS	0.0512	0.0239	2.1444
M <sub>2</sub>	2.7521	0.5098	5.3980
BR	6513.053	5547.370	1.1740
FER	-1901.254	1972.294	-0.9639
DM	0.4025	0.2830	1.4221
Adjusted R-squared	0.9928	F-statistic	
Durbin-Watson stat.	1.6185	Prob (F-statistic)	

### Equation No: 2A

Dependent Variable: M<sub>1</sub>

Method: Two Stage Least Squares

Instrument list: FAL H INVT CONS TNBB NFA

Variable	Coefficient	Std. Error	T-statistic
C	-890.6034	5204.635	-0.1711
GDP	0.0959	0.0270	3.5396
BR	272.9141	665.2476	0.4102
CONS	0.0045	0.0019	2.3554
DS	-0.0070	0.0140	-0.5044
FER	-0.0008	0.0382	-0.0234
DM	5143.081	9983.554	0.5151
Adjusted R-squared	0.9632	F-statistic	
Durbin-Watson stat.	1.6034	Prob (F-statistic)	

**Equation No: 2B**Dependent Variable:  $M_2$ 

Method: Two Stage Least Squares

Instrument list: FAL H INVT CONS TNBB NFA

Variable	Coefficient	Std.error	T-statistic	Prob.
C	-7037.314	24182.34	-0.291010	0.7739
GDP	0.355765	0.125908	2.825592	0.0101
BR	9502743	3090.945	0.307438	0.7615
CONS	0.007358	0.009059	0.812318	0.4257
DS	-0.063532	0.065107	-0.975803	0.3403
FER	0.087439	0.177601	0.492334	0.6276
DM	22864.50	46386.66	0.492911	0.6272
Adjusted R-squared	0.948522		F-statistic	87.03205
Durbin-Watson stat.	1.592620		Prob(F-statistic)	0.000000

**Equation No: 3A**

Dependent Variable: FER

Method: Two Stage Least Squares

Instrument list: BR GDP CO FR INVT CONS DS

Variable	Coefficient	Std.error	T-statistic	Prob.
C	-34730.27	27606.24	-1.2580	0.2254
GDP	1.0618	0.4149	2.5589	0.0203
BR	8871.135	16556.63	0.5358	0.5990
CONS	0.0133	0.0301	0.4407	0.6649
DS	0.0254	0.0551	0.4616	0.6599
$M_1$	5700.087	6268.753	0.9092	0.3759
DM	56464.36	92246.73	0.6121	0.5486
Adjusted R-squared	0.8730		F-statistic	25.4052
Durbin-Watson stat.	1.605101		Prob(F-statistic)	0.0000

**Equation No: 3B**

Dependent Variable: FER

Method: Two Stage Least Squares

Instrument list: BR GDP CO FR INVT CONS DS

Variable	Coefficient	Std.error	T-statistic	Prob.
C	42081.81	119691.3	0.3515	0.7295
GDP	1.0749	0.4150	2.5897	0.0191
BR	-10325.82	18755.65	-0.5505	0.5891
CONS	0.0141	0.0305	0.4617	0.6501
DS	0.0224	0.0498	0.4515	0.6573
$M_2$	2.2333	7.3315	0.3046	0.7644
DM	0.1682	0.0673	2.4981	0.0197
Adjusted R-squared	0.8797		F-statistic	26.8220
Durbin-Watson stat.	1.5821		Prob(F-statistic)	0.0000

**Equation No: 4A**

Dependent Variable: GDP

Method: Two Stage Least Squares

Instrument list: H FR ER DS R NFA DMB

Variable	Coefficient	Std.error	T-statistic	Prob.
C	-11629.70	15525.80	-0.7490	0.4630
CONS	0.0620	0.0258	2.4044	0.0266
INVT	0.0493	0.0479	1.0300	0.3159
M <sub>1</sub>	10.0804	3.6596	2.7544	0.0126
R	-770.9253	8802.406	-0.0875	0.9311
ER	-169.9178	3276.799	-0.0518	0.9592
DM	47003.22	54216.55	-0.8669	0.3968
AR(1)	0.0025	0.2486	0.0100	0.9921
Adjusted R-squared		0.973303	F-statistic	138.0736
Durbin-Watson stat.		1.7842	Prob(F statistic)	0.0000

**Equation No: 4B**

Dependent Variable: GDP

Method: Two Stage Least Squares

Instrument list: H FR ER DS FAL NFA

Variable	Coefficient	Std.error	T-statistic	Prob.
C	-79863.98	36537.66	-2.1857	0.0416
CONS	-0.0480	0.0423	-1.1354	0.2703
INVT	0.5179	0.2523	2.0526	0.0541
M2	0.0011	1.0441	0.0011	0.9991
R	7972.294	3634.989	2.1932	0.0409
ER	-5.5839	5.6203	-0.9935	0.3329
DM	-9253.656	34243.25	-0.2702	0.7899
AR(1)	-0.1696	0.2426	-0.6992	0.4928
Adjusted R-squared		0.9900	F-statistic	369.8355
Durbin-Watson stat		1.9648	Prob(F-statistic)	0.0000

**Equation No: 5A**Dependent Variable: M<sub>1</sub>

Method: Two Stage Least Squares

Instrument list: FAL INVT CONS TNBB NFA BT

Variable	Coefficient	Std.error	T-statistic	Prob.
C	-138.6187	4848.517	-0.028590	0.9775
GDP	0.0976	0.026264	3.717900	0.0015
BR	-187.3764	614.2428	-0.305053	0.7636
H	0.0045	0.001945	2.361074	0.0291
DS	-0.0063	0.013734	-0.459201	0.6513
ER	0.0008	0.036667	0.022812	0.9820
DM	4310.607	9383.615	0.459376	0.6512
AR(1)	0.0025	0.239532	0.01437	0.9918
Adjusted R-squared		0.96360	F-statistic	100.7955
Durbin-Watson stat		1.7469	Prob(F-statistic)	0.0000

**Equation No: 5B**Dependent Variable:  $M_2$ 

Method: Two Stage Least Squares

Instrument list: FAL INVT CONS TNBB NFA BT

Variable	Coefficient	Std. error	T-statistic	Prob.
C	-4715.367	23761.96	-0.1984	0.8448
GDP	0.3611	0.13059	2.7650	0.0123
BR	-686.1547	3040.732	-0.2256	0.8239
H	0.0189	1.5081	1.8036	0.0616
DS	-0.0611	0.0700	-0.8733	0.3934
ER	-0.0820	0.1745	-0.4703	0.6434
DM	20294.03	46851.69	0.4331	0.6698
AR(1)	0.0025	0.2601	0.0096	0.9924
Adjusted R-squared	0.9492		F-statistic	72.8897
Durbin-Watson stat.	1.6282		Prob(F-statistic)	0.0000

**Equation No: 6A**

Dependent Variable: ER

Method: Two Stage Least Squares

Instrument list: BR GDP CO FR INVT CONS DS NFA

Variable	Coefficient	Std.error	T-statistic	Prob.
C	-36979.33	35818.43	-1.0324	0.3172
GDP	-1.0437	0.4087	-2.5538	0.0212
R	10357.00	23727.27	0.4365	0.6683
CONS	-0.0161	0.0438	-0.3690	0.7170
NS	0.0274	0.0654	0.4190	0.6807
$M_1$	2025527	10.4451	0.1939	0.8487
FER	-6240.654	8761.889	-0.7122	0.4866
DM	0.8451	0.2431	3.4766	0.0021
AR(1)	-0.0587	0.4243	-0.1385	0.8915
Adjusted R-squared	0.8701		F-statistic	21.7739
Durbin-Watson stat.	1.6169		Prob(F-statistic)	0.0000

**Equation No: 6B**

Dependent Variable: ER

Method: Two Stage Least Squares

Instrument list: BR GDP CO FR INVT CONS DS NFA

Variable	Coefficient	Std. error	T-statistic	Prob.
C	59484.26	148633.3	0.4002	0.6943
GDP	-1.0450	0.3794	-2.7536	0.0141
R	-13120.66	23256.87	-0.5641	0.5805
CONS	-0.0187	0.0378	-0.4961	0.6265
NS	0.0241	0.0513	0.4698	0.6448
$M_2$	0.5917	10.1838	0.0581	0.9544
FER	-6563.060	7343.351	-0.8937	0.3847
DM	0.7692	0.1262	6.0944	0.0000
AR(1)	-0.1110	0.3718	-0.2987	0.7690
Adjusted R-squared	0.8838		F-statistic	24.3635
Durbin-Watson stat.	1.6848		Prob(F-statistic)	0.0000