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

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Abstract

Bangladesh is one of the least developed countries. The economy of Bangladesh suffers from both supply side and demand side problems. This study has been undertaken with a view to investigate macro economic conditions of the country over the two sub periods period 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' suggested 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. The first section of the paper provides the background to the literature review. Section two outlines the objective and explains the research methodology applied by gathering quantitative data. Section three explains the analysis of the data and results and section four provides policy implications and finally concluding comments.

Keywords: Bangladesh, Macro economy, Less Developed Countries
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Introduction

Bangladesh remains a poor, overpopulated, and inefficiently-governed nation. Although more than half of Gross Domestic Product (GDP) is generated through the service 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 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 the per capita income growth of $ 1500 US per annum (World Bank 2009).

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

There are numerous underlying social problems that have threatened the nation which 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 sector are still in infancy stage. Public and private sector investment is inefficiently utilised, due to the presence of bureaucratic delay and corruption. Government policies have been somewhat effective in stimulating the economy however, resulting in government failure as well as market failure (Wolf 2003).

The private sector had benefited from an environment of greater economic freedom, decentralisation, 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 has been 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; share of public investment fell from 7% to 6% during the same period; strong exports, of the garments; large inflows of remittance fueled growth in construction and services sectors; and finally agriculture, growth has been low, averaging just 2% over the same 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 are showing that the rate at which economic growth is rising around 6 % (on an average) for the last thirty-seven years. This research has examined the multi-flow impact on the macroeconomic variables of the country over the time period. This paper is structured as follows. The first section of the paper provides the background to the literature review. Section two outlines the objective and explains the research methodology applied by gathering quantitative data. Section three explains the analysis of the data and results and section four provides policy implications and finally concluding comments.

1: Literature Review

Mundell (1962) argues that when internal and external balance has not simultaneously been 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 balances. The proximate determinants of the money supply are determined by three factors, as suggested by Friedman and Schwartz (1963) a) the stock of high –powered money; b) the ratio of deposit to reserve; 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 sectors. 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) reveals 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 have contributed 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 Rashid (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.

Bhuiyan and Rashid (1995) 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, 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 and that statutory saving and financial sector liberalisation has also played a significant role in boosting saving and these effects would appear to have come both through larger 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 that it would provide Korean manufacturing firms with access to the less costly funds available in international financial markets and these funds will facilitate their restructuring away from labor-intensive production techniques toward more capital intensive techniques.

Kannan (1997-98) describes that 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 budget deficit will impact 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, 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 Isik (2004) find that within the context of Bangladesh, monetary policy is more important than fiscal policy. Farashuddin(2005) argues that monetary policy reform measures require higher credit intensity, greater mobilization and integration of the money market, so that it can play an effective role in the mobilization of savings for investment, in combating inflation and in stabilization. Fiscal policy measures should be designed to support monetary policy measures so that it can help to bring macro economic stability. Although the country has moved towards floating exchange rate regime, it is yet to ascertain the benefits of the market determining exchange rate.

2: Objectives and Research Methodology

On the basis of 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 influences among the variables;

2) To investigate effectiveness of the macro economic indicators in the process of sustainable economic development;

3) To find out whether any structural change have taken place in the macro economy of Bangladesh due to continuous financial reform programs especially implemented from the nineties;

4) To provide some policy implications for betterment of macro economic condition of the country.

The study reviews the theoretical and empirical literature on macro economy with special reference to Bangladesh. After independence on 16th December 1971, her economy suffered due to legacy of the war. Three years immediately after independence is considered as transitional abnormal periods (1972-73 to 1975-76) for the purpose of this research and the data is not taken into consideration. Although macro-economic stability programme and structural adjustment process started in the middle of eighties, but due to repression that prevailed in the economy, financial liberalization actually started in 1990. To make the study more up-to-date we have taken latest available data for which the study period is extended up to 2006 (June), a total of thirty years. Time period of the study can be divided into two sub-periods as mentioned below: 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.

Data in the study has been used extensively from the 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 definition 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 shall consider dummy variable (DM) as 'O'. When we consider the period from 1990-91 to 2005-06, then dummy variable (DM) is '1'. Usual t-value, F value, Adjusted R- squared is 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 i.e. AR (1) to remove auto correlation error term.

2.1: 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 in Model-A and model-B are developed. Gross domestic product (GDP) is the most important factor 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 we are specifying the model for money supply we have taken alternatively narrow money and broad money as dependent model. 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, 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 same as Model-A. The study considers independent variables gross domestic product, high-powered money, rate of interest on deposit, national savings and exchange rate. 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 same as model –A, including net foreign assets.

Model: A

GDP = f (CONS, DS, Ms, BR, FER) ....(1)

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

Ms = f (GDP, BR, CONS, DS, FER) .... (2)

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

FER = f (GDP, BR, CONS, DS, Ms) ....(3)

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

Model: B

GDP = f (CONS, INVT, Ms, R, ER)........... (4)

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

Ms = f (GDP, H, R, NS, ER)...................... (5)

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

ER = f (GDP, R, CONS, NS, Ms, FER) .... (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 definition of money, i.e. M_1 and $M_{2,}$ and assume following priori relationship:

- 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.

- It 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.

3: Analysis of Results

The data below is collected from various sources, Bangladesh Bank (1993, 1997& 2007) and Ministry of Finance (1997 & 2007). In model (A) from equation (1A) below, we see that while considering gross domestic product as 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 statistics is 1.625414, which indicates that no autocorrelation prevails at 1% level of significance. F-statistics is significant at 1% level of significance.

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	PROB.
C	-10670.32	14624.85	-0.7296	0.4737
CONS	0.0636	0.0242	2.6249	0.0158
DS	0.0523	0.0448	1.1686	0.2556
M_1	9.9187	3.4536	2.8719	0.0091
BR	-1539.381	7962.501	-0.1933	0.8486
FER	16.8847	3068.847	0.0055	0.9957
DM	0.8207	0.0658	12.4716	0.0000
Adjusted R-squared	0.9746	F-statistic	176.1949	
Durbin-Watson stat.	1.6254	Prob (F-statistic)	0.0000	

Considering 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 1.618510, which indicates that no autocorrelation prevails at 1% level of significance. F-statistics is significant at 1% level of significance.

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	PROB.
C	2718.208	9627.628	0.2823	0.7805
CONS	0.0208	0.0138	1.5013	0.1482
DS	0.0512	0.0239	2.1444	0.0439
M_2	2.7521	0.5098	5.3980	0.0000
BR	6513.053	5547.370	1.1740	0.2535
FER	-1901.254	1972.294	-0.9639	0.3460
DM	0.4025	0.2830	1.4221	0.1678
Adjusted R-squared	0.9928	F-statistic	622.4755	
Durbin-Watson stat.	1.6185	Prob (F-statistic)	0.0000	

In equation (2A), we observed 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 statistics is 1.603477, which indicates that no autocorrelation prevails at 1% level of significance. F-statistics is significant at 1% level of significance.

Equation No: 2A
Dependent Variable: M_1
Method: Two Stage Least Squares
Instrument list: FAL H INVT CONS TNBB NFA

VARIABLE	COEFFICIENT	STD.ERROR	T-STATISTIC	PROB.
C	-890.6034	5204.635	-0.1711	0.8658
GDP	0.0959	0.0270	3.5396	0.0019

BR	272.9141	665.2476	0.4102	0.6858
CONS	0.0045	0.0019	2.3554	0.0283
DS	-0.0070	0.0140	-0.5044	0.6192
FER	-0.0008	0.0382	-0.0234	0.9815
DM	5143.081	9983.554	0.5151	0.6118
Adjusted R-squared	0.9632		F-statistic	120.9762
Durbin-Watson stat.	1.6034		Prob (F-statistic)	0.0000

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 statistics is 1.592620, which indicates that no autocorrelation prevails at 1% level of significance. F-statistics is significant at 1% level of significance.

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 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 statistics is 1.605101, which indicates that no autocorrelation prevails at 1% level of significance. F value is significant at 1% level.

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 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 statistics 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-statistics is significant at 1% level of significance.

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 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.

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_1	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

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-statistics is significant at 1% level of significance.

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

In equation 5A, we observed 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-statistics is significant at 1% level of significance.

Equation No: 5A
Dependent Variable: M_1
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 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-statistics is significant at 1% level of significance.

Equation No: 5B
Dependent Variable: M_2
Method: Two Stage Least Squares
Instrument list: FAL INVT CONS TNBB NFA BT

VARIABLE	COFFICIENT	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 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-statistics is significant at 1% level of significance.

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 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-statistics is significant at 1% level of significance.

Equation No: 6B
Dependent Variable: ER

Method: Two Stage Least Squares
Instrument list: BR GDP CO FR INVT CONS DS NFA

VARIABLE	COFFICIENT	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

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 LDEs financial structures and levels of industrialisation have improved. This is supported by our results. The study doesn’t fully support Parikh and Starmer’s (1988) view. One of the reason may be 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 rate of interest on deposit, investment, consumption also have an impact on the real sector of the country. We observed that money supply depends directly on high-powered money and GDP; where as the external sector depends on exchange rate and foreign exchange reserve. When we test multi-flow effect through simultaneous equations using instrumental variables, we observed 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, 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 affects 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 overall impact of financial reform measures in the real, monetary and external variable. From the study we find that for the development of Bangladesh, fiscal policy will have to be coordinated with monetary policy, exchange rate and debt management policies along with appropriate measures so that reduction of dependence on the external sector can be achieved to accelerate economic growth, ensuring social justice and to bring stability in the financial sector in an efficient manner (Bahar 2009). Structural changes have occurred partially and the economy did not benefit from these reform measures.

4: Policy Implications and Conclusion

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 along with appropriate measures in order to minimize the dependence on the external sector to accelerate economic growth, ensuring social justice and to bring stability in the financial sector. The deregulation of Bangladesh economy and the gradual introduction of different programs for macroeconomic stability 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 attain a certain level of infrastructural development especially in the financial sector, which facilitates 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. From the study, we have obtained mixed results about the structural change. Although Bangladesh economy was deregulated from the mid eighties when macroeconomic stabilisation measures were taken, however, 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 needs to be given a big push, partial financial intermediation specially depository intermediation of the country has more or less occurred. This indicates that to develop the economy of the country channeling saving-investment, favorable balances of payment position, productive utilization of foreign remittances is needed. As such financial reform measures should be designed with more positive attitude which includes independence of Bangladesh Central Bank, allocation of capital funds, growth oriented resource mobilization, reduce government borrowing from the banking sector, designing of appropriate tariff rate structure, removal of red tape and bureaucratic control and delay. When rate of interest on deposit is high, the Bangladeshi expatriates from abroad become motivated to send their earnings. This also helps to narrow the gap of huge trade deficit and exchange rate remains in a favorable position. The study observes that government expenditure has positive impact on GDP which supports Kannan's (1997-98) findings for Mauritius.

Monetarists argue that money supply has a dominant influence on change in price level, spending, production, and employment. On the other hand, neo-Keynesians believe that a wide range of factors, both monetary and non-monetary, have influenced employment, growth and prices (Keynes 1936). The study neither support monetarist view fully or the Keynesian view fully. The economic condition cannot be fully improved by depending on fiscal policy. The study concludes that Bangladesh needs a mix of fiscal and monetary policy. Over the long time period in case of some equations structural changes have occurred. It indicates that fiscal policy and monetary policy cannot alone improve the economic condition. We need a combination of demand management and supply side policies to improve economy.

The study doesn't find full applicability of either Keynesian or Monetarist view of the macro model for this country. Our observation also supports the conclusion of Osmani, Bakht and Anwaruzzaman (1986), as they argue that fiscal policy affects the monetary sector in a variety of ways. Results of the findings of Maroney, Hassan, Basher, and Isik's (2004) macro-econometric model for the Bangladesh vary with the findings of this study. They find that within the context of Bangladesh, monetary policy is more important than fiscal policy.

Fiscal policy of the country has not designed well enough to stimulate growth through taxation, public expenditure, and revenue adjustment, accumulation of capital and domestic resource mobilization and institutional framework. Despite reform measures, real variables indicate that government has failed to raise taxes, proper mobilization of domestic resources and creation of effective allocation as per the requirement of the economy. Monetary stability in the economy can be achieved through attaining price stability, inflation and real rate of return to increase economic growth rate. This study reveals that for the development of Bangladesh, fiscal policy will have to be coordinated with monetary policy simultaneously along with appropriate measures so that reduction of dependence on the external sector can be achieved to accelerate economic growth, ensuring social justice, income equality, improvement in the balance of payment position, exchange rate and price stability in the financial sector along with managerial and operational efficiency both in the private and public sector can be ensured. Farashuddin's(2005) observations for the economy of Bangladesh is correct.

The pace of human development, which is a key factor contributing to economic growth and includes health, education, social protection, infant and maternal mortality, life expectancy has surpassed that of most low income countries (LDCs). Main question is how to ensure long term sustainable growth of 5-6% and how to raise growth to the 7-8% range, which is desirable and needed to meet the government's poverty reduction goals. The key barriers to improved growth performance as observed by the World Bank (2009) include: a) inadequate infrastructure, road, rail, power and inefficient and cost ineffective ports, given the increase in demand. b) Transparency International has ranked Bangladesh last in its corruption ratings for five years in a row and many important aspects of governance are very weak. c) Urbanization has been very rapid and largely imbalanced. More than quarter of the population now lives in urban areas, while in 1960 the number was just 5%. Fifty percent of GDP is spent on urban activities. Urbanization has been skewed toward Dhaka, making it among the fastest growing metropolises in the world. This is adding to growing concerns about congestion, lagging urban planning and management, and skyrocketing real estate prices

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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