Economic Growth and Its Determinants in Pakistan

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INTRODUCTION

Economically developed countries have been able to reduce their poverty level, strengthen their social and political institutions, improve their quality of life, preserve natural environments and achieve political stability [Barro (1996); Easterly (1999); Dollar and Kraay (2002a); Fajnzylber, Lederman, *et al.* (2002)]. After the World War II, most of the countries adopted aggressive economic policies to improve the growth rate of real gross domestic product (GDP). The neoclassical growth models imply that during the evolution between steady states; technology, exogenous rate of savings, population growth and technical progress generate higher growth levels [Solow (1956)].

Endogenous growth model developed by Romer (1986) and Lucas (1988) argue that permanent increase in growth rate depends on the assumption of constant and increasing returns to capital.[1] Similarly, Barro and Lee (1994) investigate the empirical association between human capital and economic growth. They seem to support endogenous growth model by Romer (1990) that highlight the role of human capital in economic activity. Fischer (1993) argues that long-term growth is negatively linked with inflation and positively correlated with better fiscal performance and factual foreign exchange markets. In the context of developing countries, investment both in capital and human capital, labour force, ability to adapt technological changes, open trade polices and low inflation are necessary for economic growth.

Since 1988, Pakistan's economic management, have been almost totally dependent on Structural Adjustment Programme (SAP). Focus of the SAP is on improving the balance of payments, cutting the fiscal deficit, lowering inflation and improving economic growth rate. This programme has focused on improving the balance of payments through devaluation of local currency, cutting down the fiscal deficit, decreasing government size and liberalising trade. Beneficiaries of economic reforms are

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[1]Previous theories on growth were based on the assumption of constant return to scale. But increasing productivity due to improvements in human capital, technological developments, more investment in research and development (R&D) violate this assumption. This phenomenon has been stressed in various endogenous growth models. The strong relation between innovation and economic growth has also been empirically affirmed by many studies [see Fagerberg (1987); Lichtenberg (1992); Ulku (2004)].

consume by poor governance, lack of transparency in economic policies, high level of corruption, high burden of internal and external debts and interest rate payments on these debts, weak situation of law and order, and improper implementation of economic policies. Singer (1995) argues that the SAP are based on the assumption that the first and most necessary step is to get the macroeconomic fundamentals right. Supply will respond to the right environment and proper price enticement and this leads to sustainable growth. This seems to neglect some of the SAP impediment to domestic supply. Furthermore, a small developing open economy has limited international capital mobility or financial integration; higher domestic saving results in higher investment and economic growth under the assumption of "investment and domestic savings are highly correlated" (Fledstien-Horioka Hypothesis).

A Brief Look on Relevant Literature

Barro (1996) seems to document that high inflation in a country reduces the rate of economic growth. Many studies find no strong positive association between openness and growth of the economy. Grilli and Milesi-Ferretti (1995) do not support the hypothesis that inflow of foreign capital promotes growth. Rodrik (1998) shows no significant correlation between financial liberalisation and growth in small open economies. Similarly, Edison (2003) does not find strong evidence of a relationship between trade liberalisation and growth. He also concludes that financial integration does not promote the growth per se, without controlling for some economic, financial, institutional and policy characteristics. Edwin and Shajehan (2001) support that apart from growth in the labour force, investment in skill and technology, as well as low inflation rate and open trade polices, are important for economic growth. Moreover, the ability to adopt beneficial technological shocks in order to increase efficiency is also necessary.

Since many developing countries have a large agricultural sector, adverse supply shocks in this sector are likely to originate an adverse impact on economic growth. Growth in agriculture has a positive impact on industrial and service sector's growth, social infrastructure is an important determinant of the investment decisions [Krishna (2004)]. The author however stresses that there is a need for exploring other approaches to explain economic growth from all perspectives. Recent empirical studies confirm that natural resources, climate, topography and 'land lockedness' have a direct impact on economic growth affecting agricultural productivity, economic structure, transportation costs and competitiveness in goods markets [Sachs and Warner (1997), Bloom and Sachs (1998); Masters and McMillan (2001); Armstrong and Read (2004)]. However, others [e.g. Rodrik, *et al.* (2002); Easterly and Levine (2003)] find no effect of geography on growth after controlling for institutions. Edwin and Shajehan (2001) empirically suggest that apart from growth in the labour force, investment in both physical and human capital, as well as low inflation and trade liberalisation polices are essential for economic growth. They also suggest the ability to adopt technological changes in order to increase efficiency is also important.

Klein and Olivei (2003) utilises quadratic interaction between income per capita and capital inflow or financial liberalisation and[2] established a positive and significant

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[2]The result is supporting with the view that poorer countries do not have the legal, social, and political institution would necessary to full enjoy the benefits of capital account liberalisation.

effect of capital account openness along with stock market liberalisation on economic growth for middle-income countries but not for poor and rich countries. In small, open economies, absorption capacity for capital is limited because the financial markets are impulsive. The excessive capital inflows towards small open economies might cause "Dutch" disease phenomena and asymmetric information might be inefficient use of capital [Carlos, *et al*. (2001); Hauskrecht, *et al*. (2005)].

Stark and Lucas (1988); Taylor (1992); and Faini (2002) establish the positive relationship between remittances and economic growth. Empirical evidence of previous studies of the impact of worker's remittances on economic growth as well as poverty reduction is mixed [Juthathip (2007)]. The results suggests that, remittances have a significant impact on poverty reduction in developing economies through increasing income tends to relax the consumption constraints of the poor, they have a nominal impact on growth working through enhance in both domestic investment and human capital development. On the basis of recent and quite literal evidence, surveyed by Lopez and Olmedo (2005) analyse the positive impact of remittances on education and entrepreneurship at the household-level. The mechanism through which remittances can positively affect growth can be better results in micro-econometric studies based on household-level data.[3] Chaudhary, *et al*. (2002) investigate the role of trade instability on investment and economic growth. The results show that export instability does not affect economic growth and investment in Pakistan. However export instability could affect foreign exchange earnings and as a result it could have negative impact on imports and economic growth. Chaudhary, *et al*. (2007) examine the impact of trade policy on economic growth in Bangladesh. Results strongly support a long-run positive and significant relationship among exports, imports and economic output for Bangladesh. Furthermore, empirical evidence shows relationships between exports and output growth and also between imports and output growth in the short-run. A strong feedback effect between import growth and export growth has also been established.

A number of studies have examined determinants of economic growth in case of Pakistan in terms of a mixture of factors that includes income, real interest rate, dependency ratios, foreign capital inflows, foreign aid, changes in terms of trade, and openness of the economy such as [Iqbal (1993, 1994), Khilji and Mahmood (1997); and Shabbir and Mahmood (1992)]. Iqbal (1994) seems to investigate the relationship between structural adjustment lending and real output growth. The empirical results indicate negative link between structural adjustment lending and output growth, and worsening the terms of trade and economic output in the country. Finally, favourable weather condition and real domestic savings stimulate the real economic growth rate. Furthermore, Iqbal (1995) examines a three-gap model and concludes that real devaluation, increased foreign demand and capacity utilisation are main contributors of economic growth in the country. Khilji and Mahmood (1997) seem to document that military expenditures are contractionary to economic growth in the case of Pakistan. Shabbir and Mahmood (1992) posit positive impact on real GNP growth of foreign

[3]Better understanding to see Lopez Cordova (2005) on education a study for Mexico McCormick and Wahba (2001) on entrepreneurship in Egypt; Dustmann and Kirchkamp (2002) on entrepreneurship in Turkey; Nishat and Bilgrami (1991) also found that remittances have positive impact on consumption, investment and imports. Similarly, Iqbal and Sattar (2005) found that workers' remittances appeared to be the third important source of capital for economic growth in Pakistan.

private investment. The empirical results by Iqbal and Zahid (1998) reveal that openness of trade is positively associated with economic growth while budget deficit and external debt reduce growth of output. Iqbal and Satar, (2005) come to conclusion that foreign workers' remittances impact economic growth positively with high significance. Public and private investment is also an important source of economic growth in the country. But inflation rate, external debt and worsening situation of terms of trade are appeared to be correlated with economic growth negatively. Finally, Shahbaz (2009) reassesses the impact of some macroeconomic variables on economic growth. The results reveal that financial sector's development improves the performance of the economy in the long run. Credit to private sector as a share of GDP, used as a proxy for financial development, is a good predictor of economic growth for case of Pakistan. Similarly, rise in exports and investment boost economic growth while Inflation and imports both reduce economic growth. High economic growth is found to be associated with small size of the government.

To better understand the growth process, this study develops an empirical model using a time series approach for the country specific case of Pakistan. This attempts to explore the some of the necessary factors for sustained economic growth in the country. The rest organisation of the papers is as follows; Section II explains the model and data collection procedure, Section III describes methodological framework and Section IV investigating the empirical results. Finally, Section V presents conclusion and policy recommendations.

II. MODEL AND DATA

International Financial Statistics (IFS) (2008) and Economic Survey of Pakistan (various issues) have been combed to obtain the data of said variables. Finally, quarterly data for GDP per capita has been collected from Ahmed (2007).[4] The study utilises the data period from 1991Q1 up to 2007Q4. Log-linear model has been constructed to find the required linkages. It provides better results than simple linear regression. Above discussed literature permits us to construct empirical model as following:

$$GDPR = \varphi_0 + \varphi_1 FD + \varphi_2 FDI + \varphi_3 REM + \varphi_4 TR + \varphi_6 INF + vi \quad \ldots \quad \ldots \quad (1)$$

Where, *GDPR = GDP* per capita, *FD* = Credit to private sector as share of *GDP* proxy for financial development, *FDI* = Financial openness proxies by foreign direct investment as share of *GDP*, *TR* = [(Export +Imports)/*GDP*] proxies for trade-openness, *INF* = Annual Inflation.

Financial sector's development stimulates the economic growth. Financial development improves productivity of investment projects and lowers the transaction cost that increases more investment activities. Development of financial also increases savings in the country and savings in resulting contributes to economic growth positively [Pagano (1993)].

Financial openness (foreign direct investment) promotes economic growth though improved technology transferee, efficiency, improvement in the quality of production factors and enhanced production. This will not only lead to increase in exports but also

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increases in savings rate in the country. The increased savings rate definitely stimulates investment opportunities that ultimately faster growth of output and employment [Khor (2000)].

It is expected that increased foreign remittances raises the economic growth. Continuous flow of remittances is important sources to lower current account and external borrowing as well. Remittances play its role to decline external debt and maintain exchange rate of an economy. External shocks are absorbed through sustainable flow of foreign remittances. So impact of remittances on economic growth may be positive because foreign remittances are perquisite to accelerate real output in the country [Iqbal and Satar (2005)].

International trade posits that economic growth can be accelerated through openness of an economy through its effects of increased competition, easy access to trade opportunities on efficiency of resource allocation. These positive externalities such as access to advanced technology with its spillovers effects, and availability of necessary inputs from rest of the world increase domestic output and hence economic growth in the country.

In the literature, there are two arguments about link between inflation and economic growth. In first view, Mundell (1963) and Tobin (1965) document that high inflation increases the cost of holding money. It leads to increase the shift of capital from money portfolio that improves investment and hence economic growth. But rise in inflation retards economic growth through various channels. For instance, cost of capital that is increased due to high inflation lessens investment rate and rate of capital accumulation which declines real growth rate. High inflation rate encourages inflation tax to rise and alleviates the incentive to work. Thus rise in unemployment will not only reduce real output but also decline economic growth.

III. METHODOLOGICAL FRAMEWORK

In recent times, Ng-Perron (2001) developed four test statistics utilising GLS de-trended data D_t^d. The calculated values of these tests based on the forms of Philip-Perron (1989) Z_α and Z_t statistics, the Bhargava (1986) R_1 statistics, and the Elliot, Rotherberg and Stock (1996) created optimal best statistics. The terms are defined as follows:

$$k = \sum_{t=2}^{T} (D_{t-1}^d)^2 / T^2 \qquad \ldots \qquad \ldots \qquad \ldots \qquad \ldots \qquad \ldots \qquad \ldots \qquad (2)$$

While de-trended GLS tailored statistics are given below:

$$MZ_a^d = (T^{-1}(D_T^d)^2 - f_o)/(2k)$$

$$MZ_t^d = MZ_a \times MSB$$

$$MSB^d = (k/f_o)^{1/2}$$

$$MP_T^d = \left\{ (\bar{c}^2 k - \bar{c} T^{-1}(D_T^d)^2 / f_o, and, (\bar{c}^2 k + (1-\bar{c})T^{-1}(D_T^d)^2 / f_o \quad \ldots \qquad \ldots \quad (3) \right.$$

If $x_t = \{1\}$ in fist case and $x_t = \{1,t\}$ in second.[5]

[5] $\bar{\alpha} = -7, If\ xt = \{1\}\ and\ \bar{c} = -13.7\bar{\alpha} = -7,\ If\ xt = \{1,t\}$.

In economic literature, many methods are bluntly used for conducting the co-integration test; the most widely used methods include the residual based Engle-Granger (1987) test, and Maximum Likelihood based Johansen (1991) and Johansen-Juselius (1990) tests. All these require that the variables in the system be of equal order of integration. The residual-based co-integration tests are inefficient and can lead to contradictory results, especially when there are more than two *I(1)* variables under consideration.

Recently, an emerging body of literature led by Pesaran and Shin (1995), Pesaran, Shin and Smith (1996), Pesaran and Shin (1997), and Pesaran, Shin and Smith (2001) has introduced an alternative co-integration technique known as the "Autoregressive Distributive Lag" or ARDL bounds testing. It is argued that ARDL has a numerous advantages over conventional techniques like Engle-Granger and Johansen Co-integration approaches. The first advantage of ARDL is that it can be applied irrespective of whether underlying regressors are purely *I(0)*, purely *I(1)* or mutually co-integrated [Pesaran and Pesaran (1997)]. The second advantage of using the bounds testing approach to co-integration is that it performs better than Engle and Granger (1987), Johansen (1990) and Philips and Hansen (1990) co-integration tests in small samples [see for more details Haug (2002)]. The third advantage of this approach is that, the model takes sufficient number of lags to capture the data generating process in a general-to-specific modeling framework [Laurenceson and Chai (2003)]. Finally, ARDL is also having the information about the structural break in time series data. However, Pesaran and Shin (1995) contented that, appropriate modification of the orders of the ARDL model is sufficient to simultaneously correct for residual serial correlation and the problem of endogenous variables.

Under certain environment, Pesaran and Shin (1995) and PSS[6] [Pesaran, Shin, and Smith (2001)] established that long run association among macroeconomic variables may be investigated by employing the autoregressive distributive lag model. After the lag order for ARDL procedure, OLS may be utilised for estimation and identification. Valid estimations and inferences can be drawn through presence of unique long run alliance. Such inferences not only on long run but also on short run coefficients may be made which lead us to conclude that the ARDL model is correctly augmented to account for contemporaneous correlations between the stochastic terms of the data generating process (DGP), also that ARDL estimation is possible even where explanatory variables are endogenous. Moreover, ARDL remains valid irrespective of the order of integration of the explanatory variables. But ARDL procedure will collapse if any variable is integrated at *I*(2).

The PSS (2001) procedure is implemented to estimate error correction model given such an equation:

$$Y = \alpha_o + \sum_{i=1}^{n} \beta_i \Delta Y_{t-i} + \sum_{j=1}^{m}\sum_{i=1}^{p} \phi_{ji} \Delta X_{t-1} + \left(\delta_1 Y_{t-1} + \sum_{j=1}^{k} \gamma_1 X_j \right) + \eta_t \qquad \ldots \qquad \ldots \qquad (4)$$

PSS F-test is estimated by imposing zero-joint restriction on $\delta's$ in error correction model. Distribution of PSS F-test is non-standard [Chandan (2002)]. The reason is that

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[6]This theoretical formation of ARDL is based on Chandan (2002).

lower and upper critical bounds are generated by PSS (1996). Lag order of ARDL model is selected on lower value of AIC or SBC. After empirical estimation, if PSS (2001) confirms the presence of unique cointegration vector among variables. This shows that one is outcome variable while other is forcing actor in model. On basis of selected ARDL, long run and short estimates can be investigated in two steps [Pesaran and Shin (1995)].

Long run relationship for said actors can be established by estimating ARDL model as given by means of Ordinary Least Squares (OLS):

$$Y = \varpi + \sum_{i=1}^{p} \beta_i Y_{t-1} + \sum_{i=0}^{q} \vartheta_i X_{t-i} + v_t \qquad \ldots \qquad \ldots \qquad \ldots \qquad \ldots \qquad \ldots \qquad (5)$$

Where v is normally distributed error term. Long run (cointegration) coefficients can be obtained:

$$Y = \alpha + \rho X + \mu_t \qquad \ldots \qquad \ldots \qquad \ldots \qquad \ldots \qquad \ldots \qquad \ldots \qquad \ldots \qquad (6)$$

From Equation 6:

$$\hat{\alpha} = \frac{\hat{\varpi}}{1 - \sum_{i=1}^{p} \hat{\beta_i}}, \quad \text{and} \quad \hat{\rho} = \frac{\sum_{i=0}^{p} \hat{\rho_i}}{1 - \sum_{i=1}^{p} \hat{\beta_i}} \qquad \ldots \qquad \ldots \qquad \ldots \qquad \ldots \qquad (7)$$

Firstly, we try to find out the direction of relationship between economic growth and its determinants in the case of Pakistan by analysing the PSS F-test statistics. The calculated *F-statistic* is compared with the critical value tabulated by Pesaran and Pesaran (1997) or Pesaran, *et al.* (2001).[7]

The ARDL method estimates $(p+1)^k$ number of regressions in order to obtain optimal lag length for each variable, where *p* is the maximum number of lags to be used and *k* is the number of variables in the equation. The model can be selected using the model selection criteria like Schwartz-Bayesian Criteria (SBC)[8] and Akaike's Information Criteria (AIC). SBC is known as the parsimonious model: selecting the smallest possible lag length, whereas AIC is known for selecting the maximum relevant lag length. In the second step, the long run relationship is estimated using the selected ARDL model. When there is a long run relationship between variables, there should exist an error correction representation.

$$\Delta GDPR = \varphi_0 + \varphi_1 \Delta FD + \varphi_2 \Delta FDI + \varphi_3 \Delta REM + \varphi_5 \Delta TR + \varphi_6 \Delta INF + \eta \mu_{t-1} + v_t \qquad (8)$$

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[7]If the *F*-test statistic exceeds the upper critical value, the null hypothesis of no long-run relationship can be rejected regardless of whether the underlying orders of integration of the variables are *I(0)* or *I(1)* . Similarly, if the *F*-test statistic falls below the lower critical value, the null hypothesis is not rejected. However, if the sample *F-test* statistic falls between these two bounds, the result is inconclusive. When the order of integration of the variables is known and all the variables are *I(1)*, the decision is made based on the upper bounds. Similarly, if all the variables are *I(0),* then the decision is made based on the lower bounds.

[8]The mean prediction error of AIC based model is 0.0005 while that of SBC based model is 0.0063 [Shrestha (2003)].

Finally, the error correction model is estimated. The error correction model results indicate the speed of adjustment back to the long run equilibrium after a short run shock. To determine the integrity of fit of the ARDL model, the diagnostic tests are conducted. The diagnostic or sensitivity tests examine the serial correlation, autoregressive conditional heteroscedisticity, normality of error term and heteroscedisticity associated with the model.

IV. EMPIRICAL FINDINGS

ARDL has the advantage of avoiding the classification of variable into *I (0)* or *I(1)* since there is no need for unit root pre-testing. As argued by Sezgin and Yildirim, (2002) that ARDL can be applied regardless of stationary properties of variables in the sample and allows for inferences on long run estimates, which is not possible under alternative co-integration techniques. In contrast, according to Ouattara (2004) in the presence of *I(2)* variables the computed F-statistics provided by PSS (2001) become invalid because bounds test is based on the assumption that the variables should be *I(0)* or *I(1)*. Therefore, the implementation of unit root tests in the ARDL procedure might still be necessary in order to ensure that none of the variable is integrated of order *I(2)* or beyond.

For this purpose, Ng-Perron (2001) test is employed which is more powerful and reliable for small data set. To find out the integrating order, ADF [Dicky and Fuller (1979), P-P [Philip and Perron (1989)] and DF-GLS [Elliot, *et al.* (1996)] tests are often used respectively[9]. Due to the poor size and power properties, both tests are not reliable for small sample data set [Dejong, *et al.* (1992) and Harris (2003)]. They concluded that these tests seem to over-reject the null hypotheses when it is true and accept it when it is false. Therefore, Ng-Perron test utilised to overcome these above-mentioned problems about order of integration of running actors. Results of unit root estimation reveal that all variables are having unit root problem at their level form as shown in Table 1.

Table 1

Unit Root Estimation

Variables	Ng-Perron at Level			
	MZa	MZt	MSB	MPT
GDPR	–2.24659	–0.93072	0.41428	34.5487
FD	–6.31198	–1.77509	0.28123	14.4366
FDI	–4.62640	–1.40700	0.30412	18.9167
REM	–4.20373	–1.35165	0.32154	20.7106
TR	–3.22751	–1.27009	0.39352	28.2284
INF	–6.06434	–1.71566	0.28291	15.0046
	Ng-Perron at First Difference			
GDPR	–20.2050[b]	–3.17820	0.15730	4.51153
FD	–17.9143[b]	–2.98975	0.16689	5.10575
FDI	–23.9579[a]	–3.46080	0.14445	3.80512
REM	–34.3966[a]	–4.14688	0.12056	2.65036
TR	–31.8459[a]	–3.98930	0.12527	2.86748
INF	–28.0171[a]	–3.73957	0.13347	3.27150

Note: a (b) representing significance at 1 percent (5 percent) level of significance.

[9]We also utilised these three tests but decision is based on Ng-Perron test.

Established order of integration leads us to apply the ARDL approach to find out cointegration among macroeconomic variables. So lag length for conditional error correction version of ARDL model has been obtained by means of swartz bayesian criteria (SBC) and akaike information criteria (AIC) through Vector auto regressive (VAR). With such type of time series data set, we cannot take lag more than 4 lags (see Table 2). The calculated F-Statistics is 5.674 that is higher than upper bound 4.37 and lower bound 3.29 at 1 percent level of significance. This implies that alternative hypothesis of cointegration may be accepted. It is concluded that there prevails cointegration among macroeconomic variables. After establishing cointegration among running actors in model, we can employ ARDL regression to investigate the long run elasticities.

Table 2

Lag Length and Cointegration Estimation

Lag- order	Akaike Information Criteria	Schwarz Criteria	Log Likelihood	F-statistics
3	–11.950	–8.1045	50.9202	5.441
4	–13.215	–8.1553	93.2191	5.674

Short-run Diagnostic Tests

Serial Correlation LM Test = 0.2671 (0.6073)

ARCH Test: 1.3585 (0.264831)

Heteroscedisticity Test = 0.9213 (0.5586)

Jarque-Bera Test = 0.3850 (0.8248)

Table 3

Long Run Correlations

Dependent Variable: GDPR				
Variable	Coefficient	T-statistic	Coefficient	T-statistic
Constant	12.047	120.077[a]	11.992	146.153[a]
FD	0.4642	8.0658[a]	0.4065	7.4253[a]
REM	0.0693	3.3141[a]	0.0565	2.9702[a]
TR	–0.2369	–3.5454[a]	–0.2568	–4.1965[a]
FDI	0.0283	1.8024[a]	–	–
INV	–	–	0.2058	3.8476[a]
INF	–0.0155	–1.6453[c]	–0.0132	–1.6351[c]
R-squared = 0.9229			R-squared = 0.931572	
Adjusted R-squared = 0.9165			Adj-R-squared = 0.925870	
Akaike info Criterion = -2.588			Akaike info Criterion = -2.75	
Schwarz Criterion = -2.390			Schwarz Criterion = -2.560	
F-Statistic = 146.049			F-Statistic = 163.36	
Prob(F-statistic) = 0.000			Prob(F-statistic) = 0.000	
Durbin-Watson = 1.95			Durbin-Watson = 2.10	

Note: a (c) represent the significance at 1 percent (10 percent) level of significance.

Table 3 reveals the impact of independent variables on dependent one. Improved performance of financial sector enhances the speed of economic growth significantly. It is concluded that 9 percent improvement in the efficiency of financial sector causes the economic growth by 4.18 percent to rise. Continuous inflows of remittances effect economic growth positively with minimal significance. Economic growth is negatively caused by increased trade-openness significantly. This reveals the low demand of country's exports in international market due to low quality. Trade history of the country shows the high dependence on imports as compare to exports which increases trade deficit and hence slows down the speed of economic growth. Financial openness correlates positively with economic activity in the country and improves economic growth rate. A 10 percent increase in FDI inflows (financial openness) will improve economic growth by 0.3 percent. Inflationary situation retards the economic growth, 0.16 percent of economic growth is eroded by 10 percent increase in inflation.

The ecm_{t-1} coefficient indicates how quickly/slowly variables return to equilibrium and it should have a negative sign with high significance. The error correction term, ecm_{t-1}, shows the speed of modification required to re-establish equilibrium in the short-run model. Bannerjee, *et al.* (1998) argue that the error correction term is significant at 5 percent level of significance. The coefficient of ecm_{t-1} is equal to -0.2705 for the short-run model and implies that deviation from the long-term economic growth is corrected by 27.05 percent over each year. The lag length of the short-run model is selected on the basis of the schwartz bayesian criteria.

In short span of time, economic growth is improved through previous supporting policies. Development of financial sector declines economic growth significantly as shown in Table 4. This shows that improvements in financial sector could not stimulate the economic activity in short span of time. Actually, financial activities take time to contribute in economic activity through capital formation process. Financial openness affects the economic growth positively but insignificant. Remittances and inflation lower down economic growth insignificantly. Finally, trade-openness and economic growth are inversely linked with significance.

Table 4

Short-run Correlations

Dependent Variable = ΔGDPR				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
Constant	0.0301	0.0081	3.7012	0.0005
ΔGDPR$_{t-1}$	0.2642	0.1336	1.9774	0.0530
ΔGDPR$_{t-2}$	0.0540	0.0768	0.7032	0.4849
ΔFDI	0.0038	0.0102	0.3762	0.7082
ΔFD	−1.0276	0.0996	−10.308	0.0000
ΔFD$_{t-1}$	0.3408	0.1658	2.0553	0.0446
ΔREM	−0.0048	0.0269	−0.1818	0.8564
ΔTR	−0.1690	0.0596	−2.8339	0.0064
ΔINF	−0.0073	0.0052	−1.4073	0.1650
ecm$_{t-1}$	−0.2705	0.1328	−2.0372	0.0464

R-squared = 0.9387
Adjusted R-squared =0.9287
Akaike info criterion= -3.7654
Schwarz criterion=-3.4309
F-statistic= 93.6420
Durbin-Watson stat =1.9488
Prob(F-statistic)= 0.0000

Sensitivity Analysis and Stability Tests

The results for serial correlation, autoregressive conditional heteroskedasticity, normality and heteroskedasticity (sensitivity analysis) are presented in Table 2. These results show that the short-run model passed the diagnostic tests. The empirical estimations indicate that there is no evidence of autocorrelation and that the model passes the test for normality, the error term is also proved to be normally distributed. There is no existence of white heteroscedasticity in the model.

Finally, for analysing the stability of the long-run coefficients together with the short-run dynamics, the cumulative sum (CUSUM) and the cumulative sum of squares (CUSUMsq) are applied. According to Pesaran and Shin (1999), the stability of the estimated coefficient of the error correction model should also be empirically investigated. A graphical representation of CUSUM and CUSUMsq is shown in Figures 1 and 2. Following Bahmani-Oskooee and Nasir (2004) the null hypothesis (i.e., that the regression equation is correctly specified) cannot be rejected if the plot of these statistics remains within the critical bounds of the 5 percent significance level. As it is clear from Figures 1 and 2, the plots of both the CUSUM and the CUSUMsq are within the boundaries, and, hence these statistics confirm the stability of the long-run coefficients of the regressors that affect the economic growth in the country. The stability of the selected ARDL model specification was evaluated using the CUSUM and the CUSUMsq of the recursive residual test for structural stability [see Brown, Durbin and Evans (1975)]. The model appears to be stable and correctly specified given that neither the CUSUM nor the CUSUMsq test statistics exceed the bounds of the 5 percent level of significance (see figure given in appendix).

V. CONCLUSIONS AND POLICY IMPLICATIONS

Over the last two decades the determinants of economic growth have been the primary focus of theoretical and applied research. Generally, it has been observed that both developing and developed countries with strong macroeconomic fundamentals tend to grow faster than those without them. Despite the lack of a unifying theory, there are several partial theories that argue the role of various factors in determining the economic growth.

This study explores some of the causal factors for sustained economic growth in the country after the Structural Adjustment Programme (SAP). This programme was initiated as part of a massive world-wide policy measures under the directive of IMF. It aimed to improve the balance of payments through devaluation of local currency, cutting the fiscal deficit and reducing subsidies, decreasing government size and liberalising trade.

Empirical psychology reveals that ARDL bounds testing approach employed to find out the cointegration among running macroeconomic variables. ARDL *F*-statistic confirmed about the existence of long run association. Financial sector's development seems to stimulate economic activity and hence increases economic growth in long span of time but in short run. Remittances are positively correlated with economic growth in the country. Trade-openness erodes economic growth while financial openness promotes it. Domestic investment activities generate employment opportunities and in resulting contribute to improve economic growth. Finally, increased inflation and economic growth correlated inversely in the country.

The findings show that structural adjustment program adopted by government was totally failed to fill its objectives. This study could not incorporate other important macroeconomic variables for economic growth due unavailability of data (quarterly). There is a need to make comprehensive study to find out impact of other macroeconomic variables in the country. Further research on this particular topic will provide inclusive policy implications to enhance growth rate in the country.
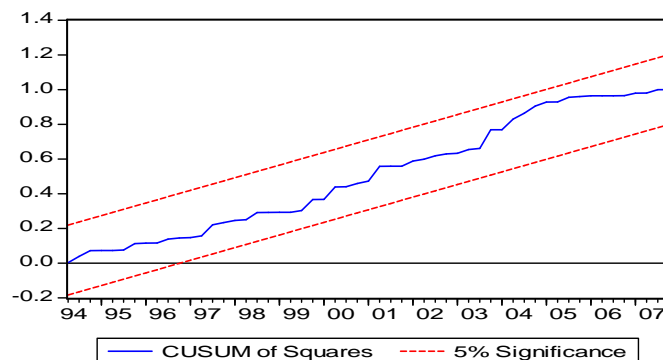
APPENDIX-A

Fig. 1. Plot of Cumulative Sum of Recursive Residuals
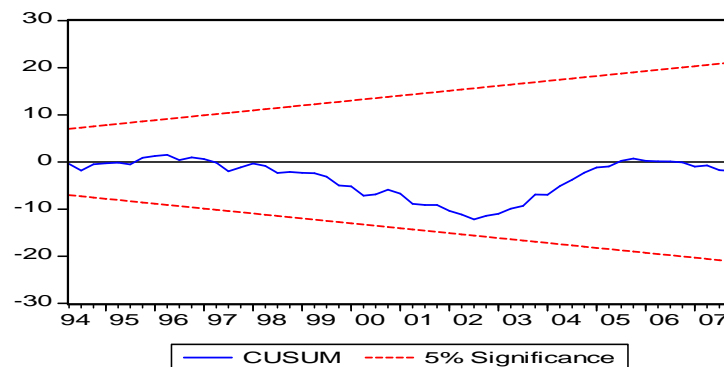
The straight lines represent critical bounds at 5 percent significance level.

Fig. 2. Plot of Cumulative Sum of Squares of Recursive Residuals

The straight lines represent critical bounds at 5 percent significance level.

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