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Capital Account Liberalization and Economic Growth: An Empirical Analysis for Pakistan

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Abstract

The positive contribution of the free capital movement in the growth of the economies as advocated by proponents of neo classical theorists has led the number of developed and developing economies to undertake liberalization of their external sectors. This paper examines the impact of capital account liberalization on economic growth in case of Pakistan from 1972-2010. The paper in particular captures the external financial liberalization through *de Jure* measure after a thorough investigation of the reform process. This measure is a quantitative measure based on a scale that captures the gradual liberalization of capital account openness in Pakistan. While controlling for other growth control variables and using multivariate co integration technique and error correction mechanism, the empirical results indicate a positive impact of capital account openness on growth in the long run. However, the size of the coefficient as well as its low significance level implies that capital account liberalization is not a significant contributor to growth. The results of the study show that external sector financial reforms have not contributed significantly to the economic growth of the country. To materialize the benefits of external financial openness, the reforms should be accompanied with those favorable factors that are important for the successful implementation of reforms.

1. Introduction

During the past few decades the financial landscape of the world has changed on account of dramatic changes observed in the financial sectors of both developed and developing economies. The financial system of the countries has been transformed not only on account of liberalization of their domestic markets but also on account of unhindered capital flows. Capital account liberalization can be described as dismantling of barrier in the external financial sector of an economy where by the capital can freely move in and out of the country. As suggested by the neo-classical framework, and advocated by proponents of external financial liberalization, the openness of the capital account can lead to an unhindered flow of capital from capital rich economies to capital scarce economies where the return on capital is usually high. This flow of capital complements the limited domestic savings in capital scarce economies. The resultant reduction in cost of capital allows for increased investment and hence economic growth. (Fischer, 1998, 2003; Summers, 2000).

On account of the prospective gains in term of increased growth, number of developed and developing countries have liberalized their capital account since the last couple of years. The empirical evidence provides a mixed result regarding the impact of capital

account liberalization on economic growth. As Eichengreen (2001) after survey of literature on capital account liberalization come up with an ambiguous impact of capital account liberalization on economic growth. Another study by Edison, Klein, Ricci, and Sløk (2004) also survey the studies regarding liberalization and they found that only three of the studies out of ten report a positive impact of liberalization on growth. Prasad et al. (2003) also review the existing literature on financial integration in a comprehensive manner and report only three studies that find a significant positive impact of financial integration on growth.

Numbers of studies have examined the relationship between capital account openness and economic growth both in case of developed countries as well as the developing one. Rodrik (1998) studies the relationship between capital account liberalization and economic growth through share measure of capital account liberalization among a sample of 100 developed and developing countries from 1975 to 1989. The share measure is the proportion of years during which the capital account was free of restrictions. The results of the study do not suggest positive relationship between capital account liberalization and growth.

Quinn (1997) examines the relationship between capital account liberalization and growth for a sample of 65 OECD and non-OECD countries from 1958-89. He uses the information in the Annual Report on Exchange Arrangements and Exchange Restrictions (AREAER) to create a measure of intensity of capital account openness that is named "CAPITAL" and it ranges from 0-4. He regresses the average annual growth rate of Gross Domestic Product (GDP) on the variable "change in CAPITAL" to study the impact of capital account liberalization on growth and finds a positive and significant correlation among the two variables.

Edward (2000) investigates the impact of capital account liberalization on growth for a sample of twenty industrial and emerging economies during the 1980s. He uses Quinn's CAPITAL measure and a variable "SHARE" to measure capital account openness. The results of the study suggest that countries with more open capital accounts outperform in contrast to counties with restricted capital mobility. However, the evidence also points to the fact that the positive impact of an open capital account can be seen given a country has achieved a certain degree of economic development.

Arteta *et al.*, (2001) find a positive growth effect of capital account liberalization only in counties with strong institutions as measured by standard rule of law. However, the evidence that benefit of capital account liberalization grow with an improvement in a country's financial deepening and development are rather fragile. The results of the study suggest removing any major macroeconomic imbalances before undertaking capital account liberalization.

Eichengreen and Leblang (2003) study the relationship between capital account liberalization and growth for a panel of 21 countries from 1880-1997 and a wider panel for the post 1971 period. They argue that the reason for the inconclusive results obtained through previous studies is their

failure to account for the impact of crisis on growth and for the capacity of controls to limit those disturbing output effects. They account for these effects through inclusion of capital controls and crisis in their dynamic panel estimation. The study thus concludes that the benefits of an open capital account dominate its cost in the presence of a robust well function domestic and international financial system. Controls hurt the growth on account of forgone efficient allocation of resources offered by an open capital account. However, in the periods of financial instability controls best serve the economies by insulating them from the negative impacts of crisis.

The positive and significant impact of open capital account on financial depth and economic growth is limited only to developed countries included in the sample in a study by Klein and Olivei (2001). Similarly, Klein (2005) empirically examines the link between liberalization of capital account, quality of institutions and economic growth in a panel of 71 countries. The findings of his study show that capital account openness impact positively the economic growth in about one quarter of the countries with better institutional quality.

In the existing literature, some of the studies examine the international financial integration or external financial liberalization/capital account liberalization through equity market liberalization (Bonfiglioli (2005), Bekaert *et al.* (2001)) and others use a measure of de jure/de facto financial openness. (Ozdemir and Erbil (2008), Kose *et al.* (2006), Lane and Ferretti (2006), Quinn (1997), Edison, *et al.* (2002)). The result coming out of these studies present mixed evidence regarding the impact of external financial liberalization on growth. Majority of studies find that external financial liberalization does not significantly affect growth. Nevertheless, these empirical conclusions are not enough to negate the actual relationship that external financial liberalization has with growth. Since not only the choice of a particular technique matters a lot, but certain macroeconomic factors that are prerequisite for the successful implementation of external financial liberalization are indeed vital.

A vast literature on the relationship between capital account liberalization and growth in case of both developed and developing countries exists, however the contribution of capital account openness in the growth of Pakistan is still an unexplored area. Pakistan like other developing countries also liberalized its capital account accompanied with other reforms in the financial sector of its economy in the late 1980s. However, no significant work to-date exists in the literature that has comprehensively examined the impact of external financial openness on economic growth for a developing country like Pakistan. Only few studies on this topic are available in case of Pakistan. Among them, the empirical relationship between capital account openness and economic growth has been explored by Shahbaz *et al.*, (2008). The result of their study shows a positive impact of capital account openness on economic growth in the long run. However, the study suffers from serious flaws as the

authors even do not mention the measure of capital account openness that is used to examine the impact of openness on growth.

A discussion on capital account convertibility by Janjua (2011) shows that the measures so far introduced in external financial sector of Pakistan label it as partially convertible. The gradual move from a closed capital account to open one has been followed since the 1990s and Pakistan's capital account is liberalized in terms of foreign direct investment (FDI) inflow and outflow, portfolio inflow, and a flexible exchange rate regime. According to Haque (2011), the Pakistani economy is by and large free of restrictions in terms of capital account convertibility; however, the actual integration of Pakistan economy with the global economy in comparison to other emerging markets is still limited. The country's access to private foreign capital has improved on account of capital account liberalization; however, the convertibility has also made the country more vulnerable to outside shocks.

On account of limited literature on external financial openness and economic growth in the context of developing country like Pakistan, the present paper seeks to explore the impact of external financial openness on economic growth of Pakistan through *de Jure* measure. The paper in particular captures the external financial liberalization through *de Jure* measure, which is a quantitative measure based on a scale that captures the gradual liberalization of capital account openness in Pakistan. This measure resembles the one constructed by Quinn (1997). The multivariate co integration technique and error correction mechanism is applied to examine the impact of external financial liberalization on economic growth for the period of 1972-2010.

The rest of the paper is organized as follow. Section 2 provides a review of external financial sector reforms in Pakistan. Section 3 discusses the empirical model. Measurement of *de Jure* variable is explained in section 4. The estimation methodology and empirical results will be discussed in section 5. The final section summarizes main findings of the paper.

2. External Financial Reforms in Pakistan

The decade of the 1970s and 1980s is characterized as period of financial repression in the economic history of Pakistan. Directly controlled interest rate movements, control of domestic credit in the form of credit ceiling and directed and subsidized credit, controlled deposit and lending rates, high reserve requirements, segmented and under developed financial markets were the hallmark of Pakistan's financial sector during that period. Not only that domestic financial sector was repressed, but the restrictions on current and capital account transactions were also present on the external front in the pre-reform era. State Bank of Pakistan (SBP) was regulating the foreign exchange market through a system of exchange controls. The foreign exchange market was not working under market based price mechanism and this

market was also rigid to changes in demand and supply conditions in the external sector of the economy. Exchange rate was not working under the flexible regime although we shifted to managed float in 1982; however, in reality it was close to a fixed rate regime and was not a true reflection of the market imbalances. (Hanif, 2002)

In accordance with the transitional arrangement under Article XIV of the Article of Agreement of the IMF, Pakistan had maintained for a long time a number of restrictions on the payments and transfers for current international transactions. Liberalization of exchange and payment regime in fact started since February 1991 in Pakistan. Pakistan, however, has moved to managed float exchange rate system in 1982. The liberalization of the external sector encompasses the following broad based measures:

In July 1994, Rupee was made convertible on current international transactions under the IMF Article VIII. To attract the foreign money detained out of the country, Pakistani residents were permitted to open and maintain foreign currency accounts with banks in Pakistan on the same basis as non-residents. These accounts were freely transferrable abroad and besides the exemption of wealth and income taxes on these accounts, no questions were asked about the source of income. All sectors/industries were opened to foreign investors for investment except certain specified one. Not only that foreign investment in these industries was allowed without prior approval, but investors could purchase up to 100 percent equity in industrial companies on repatriable basis. There was no restriction on repatriation of disinvestment proceeds/capital, profits and dividends. (Financial Sector Assessment, 1990-2000)

Special Convertible Rupee Account (SCRA) was opened in 1996-97 and inward portfolio investment was allowed without any prior approval provided the transactions take place through SCRA. Foreign investors were thus allowed to make investment in listed securities on stock exchange through these accounts. (Janjua, 2011) To purchase residential flats, plots, houses in Pakistan, authorized dealers, Development Finance Institutions (DFIs) and housing finance institutions were allowed to grant rupee loans to Pakistani nationals working outside Pakistan. (Hanif, 2002) In February 1998, Authorized Dealers (AD) were granted the permission to decide their own exchange rates for currencies, with the exception of US dollar. Pakistan's Exchange rate (ER) system was working under a managed float till July 1998, when a new mechanism in ER regime was introduced. This comprised of an official exchange rate and a floating interbank exchange rate (FIBR). This multiple ER system was replaced by a market based unified exchange rate system in May 1999 when FIBR became applicable to all foreign exchange transactions. In addition to the adoption of a unified ER system, the condition for the AD to surrender all foreign exchange receipts to SBP was also eliminated. The rupee was put to a free float in July 2000, and this was considered to be a major achievement in the area of exchange rate management. (Financial Sector Assessment, 1990-2000)

Currently, the external financial sector in Pakistan is

working under full current account convertibility with partial capital account liberalization. There are no restrictions on inflow of foreign direct investment (FDI) but outflow of FDI requires SBP's prior approval and detailed justifications. Similarly, there are no restrictions on portfolio inflow as long as they are routed through Special Convertible Rupee Account (SCRA), however, portfolio investment abroad is not permissible. Only locally established mutual funds are allowed to invest abroad to the extent of 30 % of the aggregate funds mobilized, in permissible categories subject to a cap of US \$15 million at any given time with a prior approval of SBP and Securities and Exchange Commission of Pakistan (SECP). Foreign currency borrowing from abroad is allowed subject to certain terms and conditions and registration of loan with SBP and authorized dealer. Foreign currency lending abroad is completely restricted. (Janjua, 2011) In terms of capital account convertibility, Haque (2011) further points out that Pakistani economy today is by and large free of restrictions. The only prominent restriction is on the amount of domestic currency that a traveler may physically carry overseas and on the amount Pakistani residents may hold in overseas bank accounts. However, the actual integration of Pakistani economy into the global economy in comparison to other emerging markets is still limited.

It is pertinent to mention that reforms introduced in the external financial sector in Pakistan have helped in moving the economy from repression of 1970 and 1980s to a more liberalized environment. However, we need to carefully deal with the costs attached to a full liberalization of capital account/external financial liberalization and the challenges faced by the economy in terms of macro economic management or real cost of unhindered capital. Full liberalization of capital account in terms of removal of restrictions on all inflows and outflows in the presence of weak institutions, under developed and poorly regulated financial sector and weak economic fundamentals can lead to misallocation of foreign capital, making the economy more vulnerable to financial crisis. The unhindered capital flows can also lead to banking and currency crises thus leading to financial instability in the economies undertaking full liberalization of their capital account. So further opening of the external financial sector of Pakistan should be dealt carefully.

3. The Empirical Model

In order to examine the impact of capital account liberalization on economic growth, following empirical model is constructed.

$$Y_t = b_0 + b_1 cal_t + b_2 X_t + \varepsilon_t \quad (1)$$

Where Y_t the dependent variable is the Real GDP, which is obtained by dividing nominal GDP by GDP deflator at 2000 base. " cal_t " represents capital account liberalization and is a

measure of external financial openness through de Jure approach. X_t the vector of growth control variables includes

employed labor force, enrolment ratio, capital stock, and inflation rate. Data for employed labor force include the actual employed working force. For enrolment ratio, we divide the sum of primary, middle, high stage and arts and science college enrolments with the sum of respective age groups. Inflation rate series has been constructed on the basis of Consumer Price Index (CPI) at constant prices of 1999-2000. Actual capital stock data are not available from the secondary sources; a common practice is to use gross fixed capital formation as a proxy for capital stock. However, we have constructed the actual series for capital stock (K_t) utilizing the information on gross fixed capital formation (I_t). The capital stock series is computed using the following formula.

$$K_t = K_{t-1} (1-d) + I_t \quad (2)$$

To get an initial estimate of capital stock, we followed Burney (1986), to derive the capital-output ratio for 1959-60. This capital output ratio was 2.75 in 1959-60. The depreciation rate was taken as 4 percent. Utilizing this information, and putting the values in the above formula, we have subsequently generated a complete series of capital stock from 1960 till 2010. For the purpose of our study, series from 1972-2010 is then utilized. The data sources for dependent and control variables are International Financial Statistics, Pakistan Economic Survey, Various issues and Handbook of Statistics on Pakistan Economy (2010). To estimate the relationship specified in Equation (1), the time series data covering the period (1972-2010) is used.

4. Measurement of *de Jure* Variable

Here we explain the methodology regarding the measurement of de Jure variable which is used in empirical model in Equ (1) to examine the impact of external financial openness on economic growth. The traditional approach to measure financial openness is through capital account openness, to look at legal restrictions on cross border capital flows. The IMF's AREAER provides significant information regarding this measure of financial openness and is used to construct binary measure (0/1 dummy variables) of capital account openness. "These de Jure measures are quality-based measures of financial liberalization, which concentrate on events such as changing regulations and the response of the monetary authorities to financial flows" (Ozdemir and Erbil (2008)). Utilizing the summary information provided in AREARS, some researchers construct the share measure which reflects the proportion of years in which a country was having an open capital account. (Grilli and Milesi-Ferretti, 1995; Rodrik, 1998). Narrative description in AREARS is used by Quinn (1997) to construct a quantitative measure of capital account openness.

For the measurement of external financial liberalization through de jure measure for the empirical model used in this study, we constructed a quantitative measure. This measure resembles the one constructed by Quinn (1997), who has also developed a scale showing fully restricted capital account to a free capital account. Before going into the discussion

regarding the construction of scale of de jure measure, it is worth mentioning here the novelty and importance of the scale. The scale is novel in nature that no one has ever attempted to construct such a quantitative measure in case of Pakistan for the measurement of capital account openness. Besides, it is very informative and important on account of the fact that it captures the gradual development in the external financial sector of Pakistan under the most important dimensions of capital account liberalization.

The quantitative measure of capital account liberalization is based on a scale. Capital account transactions are scaled in terms of three dimensions of capital account openness namely exchange rate system, restrictions on capital inflow and restrictions on capital outflow. We assign a score on the scale showing liberalization of capital account from 0 to 5, with 0 showing complete restriction and 5 indicating fully liberalized. Between these extreme numbers, 1 refers to highly restricted, 2 represent moderately restricted, while 3 or 4 is for weakly restricted. The detailed construction of scale and coding for each year is presented in Appendix.

The data set constructed according to these codes provides a much better measure of magnitude and timing of different actions taken during capital account liberalization in Pakistan. Identification of various policy changes/reforms on the basis of which scores have been assigned have been made through a thorough investigation of financial reforms undertaken during the late 1980s till 2010 or any other relevant policy change before that period. For this purpose, various sources such as The IMF's AREAER Report, History of State Bank of Pakistan

(1988-2003) by Asraf Janjua, Financial sector Assessment Report 1990-2000 of SBP, SBP quarterly bulletins, SBP annual reports, various economic surveys and other relevant material from different articles have been utilized. A detailed analysis of all these reform is presented in chapter 2 (External Financial Reforms in Pakistan).

5. Estimation Methodology and Results

The empirical testing of Equ (1) will be carried in three steps. In the first step, we will check the stationary of the variables through unit root testing. In the second step, multivariate co-integration test will be carried out followed by error correction model. In the final step, we will perform some diagnostics to check the stability of the model. The starting point for the examination of time series properties of any data is to check for the presence of unit root or stationarity/non-stationarity in the data. We apply unit root on the logarithm of variables because log variables gives us elasticities and reduce the impact of outliers and smoothes out the timer series (Maddala, 1992). To check the presence of unit root, we employ Augmented Dickey-Fuller (ADF) (1979 and 1981) test on all the variables in Equ (1). Table 1 report the unit root test for all variables in Equ (1). With the exception of inflation rate which is stationary even at level, all other variables are integrated of order 1.

Table 1. Unit Root testing by ADF test statistics.

Series	Specification	Level	1st difference	Decision
Real GDP	Intercept	-2.61(0)	-4.47(0)*	I(1)
Capital account liberalization (<i>de Jure</i>)	Intercept	-0.63(0)	-4.79(0)*	I(1)
Employed labor force	Intercept and trend	-1.40(0)	-6.88(0)*	I(1)
Capital Stock	Intercept	-2.49(1)	-3.47(0)**	I(1)
Enrolment ratio	Intercept	-1.35(0)*	-6.38(0)*	I(1)
Inflation rate	Intercept	-4.36(9)*		I(0)

* implies significance at 1% level, ** implies significance at 5% level, *** implies significance at 10 %level

Note: number in parenthesis indicate number of lags.

Table 1 reports specification with only intercept for all series except employed labor force because trend appears to be significant in employed labor force series. Given the non-stationary nature of all series of Equ (1), which are all integrated of same order I(1), except inflation rate which is I(0), we employ Johansen Co-integration analysis to examine the long-run relationship between economic growth, external financial openness through de Jure measure, and other conventional determinants of growth. Following Johansen (1988) and Johansen and Juselius (1990), the co-integrating equation or Vector Error Correction Model (VECM) can be represented as,

$$\Delta Z_t = \mu + \sum_{i=1}^{k-1} \Gamma_i \Delta Z_{t-i} + \Pi Z_{t-1} + \varepsilon_t \quad (3)$$

where μ is the deterministic component and represents intercept (no trend) in both Cointegrating Equation (CE) and

Vector Auto Regressive (VAR). The Π matrix is the long-run co-integrating matrix and it contains the information regarding the long run relationships. It contains all the relevant information regarding the number of co-integrating relationships among the variables. The Π matrix can be decomposed into $\Pi = \alpha\beta'$ where β' is the long run matrix of co-efficient, while α represents the speed of adjustment toward state of equilibrium and it contains the equilibrium error correction term. The expected sign of the error correction coefficient is negative. The term Γ shows the coefficients of VAR or the short run coefficients explaining the short run relationships between the variables of the model. In Equ (3), k indicates the optimal lag length of VAR model.

Before conducting co-integration analysis, we determine the appropriate lag length of the model. The results of different lag length selection processes are reported in Table 2, according to which AIC is minimum at 2 lags, so we test

our model for co-integration up to 2 lags.

Table 2. Lag Length according to different Criterion.

Lag	LogL	LR	FPE	AIC	SC	HQ
0	51.78108	NA	5.49E-08	-2.528707	-2.311015	-2.451961
1	267.8486	362.0591	1.82E-12	-12.85668	-11.55053	-12.3962
2	313.9654	64.81279*	6.29e-13*	-13.99813*	-11.60352*	-13.15392*

* indicates lag order selected by the criterion, LR: sequential modified LR test statistic (each test at 5% level), FPE: Final prediction error, AIC: Akaike information criterion, SC: Schwarz information criterion, and HQ: Hannan-Quinn information criterion.

After the selection of appropriate lag length of the model, we now investigate the co-integration relationship between the variables in Equ(1) using maximum eigen value test and trace tests. In both these tests, if the calculated statistics is greater than critical value, we reject the null hypothesis. Thus the first

row tests Ho: $r = 0$ against H1: $r = 1$

If this Ho is rejected only, then we proceed to next row and so on.

The results from the Johansen co-integration test are presented in Tables 3 and 4 respectively.

Table 3. Results of Trace Test.

Null Hypothesis	Alternative Hypothesis	Eigen value	Test Statistics with adj d.f	0.05 Critical Value
$r = 0$	$r \geq 1$	0.831895	93.06241282	69.81889
$r = 1$	$r \geq 2$	0.542415	45.32845744	47.85613
$r = 2$	$r \geq 3$	0.364804	24.40048846	29.79707
$r = 3$	$r \geq 4$	0.261839	12.25203154	15.49471
$r = 4$	$r \geq 5$	0.142811	4.12505741	3.841466

Trace test after adjusting the degrees of freedom indicates 1 cointegrating eqn(s) at the 0.05 level

Table 4. Results of Maximum Eigen Value Test.

Null Hypothesis	Alternative Hypothesis	Eigen value	Test Statistics with adj d.f	0.05 Critical Value
$r = 0$	$r \geq 1$	0.831895	47.73392564	33.87687
$r = 1$	$r \geq 2$	0.542415	20.92796897	27.58434
$r = 2$	$r \geq 3$	0.364804	12.14845692	21.13162
$r = 3$	$r \geq 4$	0.261839	8.126974872	14.2646
$r = 4$	$r \geq 5$	0.142811	4.12505741	3.841466

Maximum eigen value test after adjusting the degrees of freedom indicates 1 cointegrating eqn(s) at the 0.05 level

The likelihood ratio statistics from trace test as well as maximum eigen value test indicate the presence of 1 co-integrating vector at 5 percent level of significance after adjusting the degrees of freedom. Since our sample size is relatively small for examining a long run relationship under co-integration, so we follow Reinsel and Ahn (1988, 1992) method to adjust degrees of freedom by factor $T-KL/T$. Where, T shows the number of observations and K represents number of variables and L is for the selected lag length of the model. The value coming out of this formula is multiplied with the trace and eigen value statistics and then compared with the critical value. The empirical result suggests that there exists a unique long-run relationship among economic growth, external financial liberalization through *de jure* measure, and other determinants of growth. The long run normalized co-efficient of the estimated co-integrated vector are reported in Table 5.

Table 5. Normalized Co-efficient of Co integrating Vectors on LR GDP.

Variable	Coefficient	Standard Error	t-Value
CAL	0.03168***	-0.01921	-1.64914107
LKS	1.468612**	-0.11987	-12.25170601
LELF	-0.995356**	-0.26961	3.69183636
LENRR	-0.613617**	-0.09415	6.51744025

* implies significance at 1% level, ** implies significance at 5% level, *** implies significance at 10% level

The results of the co-integration analysis (Table 5) indicate that the estimated long run coefficient of external financial liberalization through *de jure* measure (CAL) is 0.03, which shows that external financial liberalization positively affects economic growth in the long run. This positive coefficient is, however, significant at 10 percent and it implies that 1 percent increase in external financial liberalization through *de jure* measure increase the growth by 0.03 percent. The coefficient is not only small in terms of magnitude but its significance level is also low. The empirical weak significance of such a low coefficient thus does not imply that capital account liberalization has been a significant contributor to growth. The weak significance and low magnitude of this variable is attributed not only to dismal performance of Pakistan's international investment position but to a number of other factors. If we refer to Pakistan's international investment position, part of inflow which is considered to be a positive contributor to growth (FDI) appears to be very less as compared to foreign loan or debt liability. (International Financial Statistics)

Another important factor for effectiveness of capital account liberalization is sequencing of reforms. Contrary to the usual sequencing of convertibility of current account before undertaking capital account liberalization, Pakistan

initiated capital account liberalization before the convertibility of current account. The opening of capital account has also proved to be costly to Pakistan in terms of tax evasion. Since Foreign Currency Accounts (FCA) scheme introduced in 1991 was costly not only in terms of tax forgone on interest payments to depositors, but was also exempted from any kind of question regarding the source of that income. In a country like Pakistan that has a very low tax to GDP ratio and which need the assistance from both external sources or from internal one to finance its expenditure, this kind of policy has serious detrimental effects on revenue generation and resultantly on economic growth.

International literature on the impact of capital account liberalization on economic growth also reveals an important fact that countries in which external openness has proved to be fruitful in raising their growth rates are mostly the developed ones and those that are strong in terms of quality of institutions. (Klein, 2005; Mody and Murshid, 2005; Klein and Olivei, 2001; Eichengreen, Gullapalli, and Panizza, 2009) In case of Pakistan, the quality of institutions in spite of improving has deteriorated over time. Bad governance, high corruption, mismanagement, political interference have actually bring our institutions to the brink of collapse. The findings of our study are in line with Pakistani literature, e.g., Haque (2011), Janjua (2011). The international literature on the impact of external financial liberalization is mixed and a positive and significant relationship between external financial liberalization and growth is evident only in developed countries or countries with strong institutions. So our findings are also supported by international literature like Edison, Levine, Ricci and Slok (2002), Athukorala (2000), Eichengreen (2001), and Prasad, Rogoff, Kose and Wei, (2003).

The estimated long run coefficient of capital stock positively and significantly impacts the growth rate in the long run. The estimated coefficient for this variable is 1.46 which implies, that a 1 percent increase in capital stock increases economic growth by 1.46 percent. This strong and significant impact of capital stock is consistent with existing growth theories such as Cobb-Douglas Production function and Solow Growth Model and empirical literature (Siddiqui (2004), Burney (1986), Ahmed (1994), and IMF (2005), and Das and Paul (2011)). This result highlights the importance of this primary factor of production in output generation or economic development of the economy.

Employed labor force negatively and significantly impacts the growth rate in the long run. This result is again contradictory to most of the literature on the impact of labor force on economic growth, however, it is in line with the findings of Awan *et al.*, (2011) in case of Pakistan and Banam (2010) in case of Iran. This negative impact is attributed to dearth of qualified human resource according to the emerging needs of the economy along with a massive supply of labor force which can not be absorbed into productive employment. Enrolment ratio negatively and significantly impacts the growth rate in the long run with a coefficient of 0.61. The result contradictory to majority of the studies exploring the relationship between human capital and

economic growth is, however, in line with few studies. (Awan *et al.*, (2011), Spiegel (1994), Lan *et al.*, (1991), Dasgupta and Weale (1992), Pritchett (2001). The negative impact of human capital on growth is on account of the fact that not only a mere increase in quantity but rather an increase in quality is important in promotion of growth through human capital. Besides this, a fragmented education system in Pakistan along with a mismatch between the supply and demand of the educated labor force is also the cause of a negative relationship between human capital and economic growth.

After discussing the results under co-integration for long run relationships, now we present the results obtained under error correction model showing the short run relationship between variables along with error correction term. Excluding the insignificant variables from the short run error correction model, we are left with the following significant variables in the error correction model.

$$\Delta LR GDP_t = c_0 + c_6 \Delta LKS_t + c_8 \Delta LKS_{t-2} + c_{17} INF_{t-2} + c_{18} EC_{t-1} \quad (4)$$

The short run dynamics of the model are reported in Table 6.

Table 6. Short Run Co-efficient along with Error Correction Term.

Variable	Coefficient	Standard Error	t-Value
C	0.168288**	0.06806	2.472653
D(LKS)	0.12409**	0.03494	3.551541
D(LKS(-2))	0.065821***	0.045089	1.459809
INF(-2)	-0.000877***	0.000554	-1.582229
EC(-1)	-0.051483**	0.029605	-1.738979

* implies significance at 1% level, ** implies significance at 5% level, *** implies significance at 10 %level

Capital stock contributes positively and significantly to economic growth even in the short run. This result is again consistent with the positive contribution of capital to economic growth in the long run. Inflation has a negative effect on economic growth in the short run, however a negligible size of the coefficient along with a low significance makes the interpretation of this variable meaningless. Finally, the error correction term reported in Table 6 shows the speed of adjustment which comes out to be -0.05 and is significant at 5 percent level of significance. The system is converging in this model and the previous period disequilibria are corrected here with an adjustment speed of 5 percent.

The results of the diagnostic tests to determine the appropriateness of the model are reported in Table 7 while the results of the stability tests are presented in Figure. 1 and 2.

Table 7. Diagnostic Test Results.

Serial Correlation LM-Test	
Obs*R-squared	0.964692(0.61)
ARCH Test	
Obs*R-squared	1.745211(0.18)
Normality Test	
Jarque Bera	0.51124(0.77)

Note: Values in parenthesis are the respective probabilities.

Plot of CUSUM and CUSUMSQ (Stability Tests)

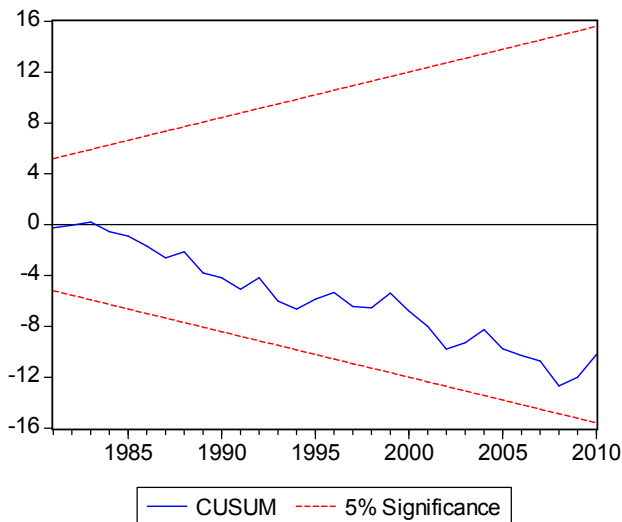


Figure 1. Plot of Cumulative Sum of Recursive Residuals.

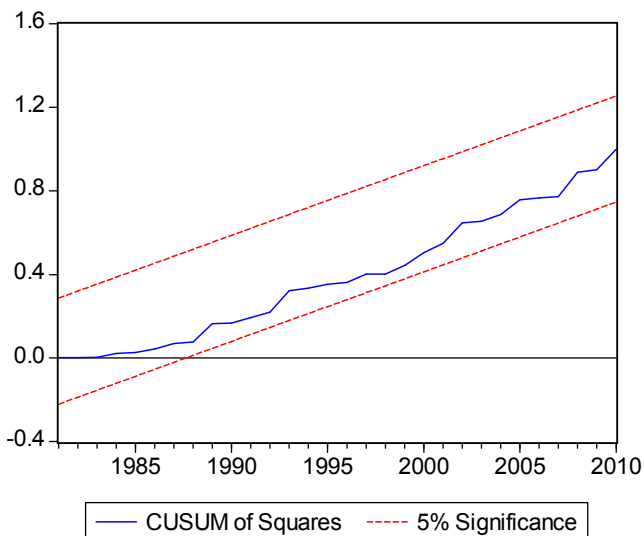


Figure 2. Plot of Cumulative Sum of Squares of Recursive Residuals.

According to the results of diagnostic tests, the selected model does not suffer from any kind of serial correlation or hetetskheadasticity problem. The figures for stability tests show that plot of CUSUM and CUSUMSQ statistic lies within the critical bounds, implying that all the co-efficient in the estimated model are stable.

6. Conclusion

The external financial openness and its relationship with economic growth has received considerable attention among the researchers, policy makers and other stake holders both in the developed and developing countries. Significant literature is available in case of external financial openness for developed countries/developing ones. However, no significant work to date exists that has examined the impact of external financial openness on economic growth in Pakistan. The present study was an attempt to examine the impact of capital account liberalization using de Jure measure

of external financial openness on economic growth of Pakistan using the time series data from 1972-2010.

To quantify the external financial liberalization through *de jure* measure, a quantitative measure based on the study of Quinn (1997) was constructed. The quantitative measure of capital account liberalization is based on a scale in which capital account transactions are scaled in terms of three dimensions of capital account openness namely exchange rate system, restrictions on capital inflow and restrictions on capital outflow. This quantitative measure is very informative and important on account of the fact that it captures the gradual development in the external financial sector of Pakistan under the most important dimensions of capital account liberalization.

The empirical results show a positive impact of capital account liberalization on economic growth in the long run. However, not only that magnitude of capital account liberalization variable is small but its significance level is also low. The empirical weak significance of such a low coefficient thus does not imply that capital account liberalization has been a significant contributor to growth in case of Pakistan. The weak significance and low magnitude of this variable is attributed not only to dismal performance of Pakistan's international investment position but to a number of other factors like sequencing of reforms, weak institutions and bad governance. The international literature also provides significant positive contribution of external financial liberalization on growth only in developed countries or countries with strong institutions. (Klein, 2005; Mody and Murshid, 2005; Klein and Olivei, 2001; Eichengreen, Gullapalli, and Panizza, 2009) Among the control variables, capital stock emerges out as a significant contributor to growth, while employed labor force and enrolment ratio negatively impacts the growth.

The result of the paper points to the fact that Pakistan has been unable to materialize the benefits of external financial liberalization brought through the broad based reforms in the external financial sector. In order to get the maximum benefits out of this liberalization process, Pakistan needs to improve its international investment position in terms of longer terms growth promoting inflows like FDI and decrease its reliance on external borrowing. Furthermore, the country needs to integrate more with the international financial markets in order to get the benefit from opening of capital account. However, we also need to deal carefully with any further opening of capital account because of costs attached to full liberalization of capital account/external financial liberalization. The real cost of unhindered capital flows can be enormous and detrimental in the absence of strong macroeconomic environment, strong institutions and political stability.

Appendix

CODING RULES/ SCALE TO CONSTRUCT DATA SET OF EXTERNAL FINANCIAL LIBERALIZATION THROUGH DE JURE MEASURE

The coding rules and scale for the measurement of capital

account liberalization are constructed following Quinn (1997), keeping in mind the special features of capital account liberalization process in Pakistan. External financial liberalization data set through De Jure measure has been constructed on the basis of measurement of capital account liberalization. Three important dimensions of capital account liberalization namely exchange rate system, restrictions on capital inflow and restrictions on capital outflow are scaled in terms of fully restricted to a completely free capital account. We assign a score on the scale showing liberalization of capital account from 0 to 5, with 0 showing complete restriction and 5 indicating fully liberalized. Between these extreme numbers, 1 refers to highly restricted, 2 represent moderately restricted, while 3 or 4 is for weakly restricted. The assigning of different codes and calculation of final score is explained in the following.

Capital account liberalization is scaled in terms of three dimensions of capital account openness namely exchange rate system, restriction on capital inflow and restriction on capital outflow.

Completely restricted=[0], Strongly restricted=[1], moderate restrictions=[2], weakly restricted=[3,4], Fully liberalized=[5]

Exchange Rate Regime

0= when a special exchange rate regime such as fixed exchange rate for either capital or current account transactions exist

1=when the exchange rate is managed float

2= when exchange rate is freely floating or unified.

Restrictions on Capital Inflow

0= when significant restrictions in terms of foreign direct investment, portfolio investment on capital inflows exists.

1= when significant restrictions in terms of foreign direct investment, portfolio investment on capital inflows does not exist.

Restriction on Capital Outflows

0= when capital outflow is fully restricted

1=when capital outflow regarding FDI are not fully restricted, capital is allowed to flow freely or with minimal approval restrictions.

2= when capital outflow regarding portfolio investment are not fully restricted, capital is allowed to flow freely or with minimal approval restrictions.

The above three dimensions of capital account liberalization are summed and scaled as follows

Completely restricted= [0], highly restricted= [1], moderately restricted=[2], weakly restricted=[3,4], fully liberalized=[5]

This summed up scale for each year is coded as follows.

Completely restricted= [0], highly restricted= [1], moderately restricted [2], weakly restricted= [3, 4], fully liberalized= [5]

Table 8. Data Set of External Financial Liberalization through De Jure Measure.

Year	Summed up scale	Final Coding
1972	0	0
1973	0	0
1974	0	0
1975	0	0
1976	0	0
1977	0	0
1978	0	0
1979	0	0
1980	0	0
1981	0	0
1982	1	1
1983	1	1
1984	1	1
1985	1	1
1986	1	1
1987	1	1
1988	1	1
1989	1	1
1990	1	1
1991	2	2
1992	2	2
1993	2	2
1994	2	2
1995	2	2
1996	2	2
1997	2	2
1998	1	1
1999	1	1
2000	2	2
2001	4	4
2002	4	4
2003	4	4
2004	4	4
2005	4	4
2006	4	4
2007	4	4
2008	4	4
2009	4	4
2010	4	4

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