Trade Liberalisation, Financial Sector Reforms, and Growth

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1. INTRODUCTION

The relationship between trade liberalisation, financial reforms and economic growth has been well-documented in the economic literature. A considerable body of literature suggests a strong and positive link between trade liberalisation, financial development and economic growth. It has been argued that trade and financial liberalisation policies reduce the inefficiency in the production process and positively influence economic growth. This argument is strengthened by the fact that countries with more open trade and financial policies may grow faster than those with restricted trade and financial policies. An increasing openness is expected to have positive impacts on economic growth [Jin (2000); Fry (1995, 1997); Darrat (1999); Levine (1997); Mckinnon (1973); Shaw (1973) and World Bank (1989)]. There is growing consensus among the researchers that both liberalisation policies are expected to exert positive impacts on economic growth.

Shumpeter (1911) argued that services provided by financial intermediaries are essential for economic development. Financial liberalisation deepens financial markets and thereby promotes economic growth [Mckinnon (1973) and Shaw (1973)]. Steps towards financial and trade liberalisation were taken by many developing countries including Pakistan to achieve higher level of growth. Thus, an empirical research is needed to determine the effectiveness of financial and trade liberalisation policies with regard to growth in a developing country like Pakistan. Examining the impacts of both liberalisation policies is so important for Pakistan because Pakistan followed restrictive policies till early 1990s. The costs of these restrictive policies have been enormous and reflected in the form of low financial savings, investment and economic growth.

The positive relationship between financial and trade variables and economic growth is explained by incorporating efficiency effects which mainly results from the reduction of rent-seeking and from the gains in internal and external economies of scale due to financial and trade liberalisation [Bhagwati (1988); Lee (1993); Krueger (1998); Fry (1995, 1997)]. This efficiency effect considered as a major source of long-run

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growth. The endogenous growth theory predicts that both financial and trade liberalisation along with investment in physical and human capital enhance economic growth [Romer (1986); Lucas (1988); Rivera-Batiz and Romer (1991); and King and Levine (1993a,b)]. Research suggests that financial deepening effectively channels savings to productive investment opportunities, improves corporate governance, reduces transaction and information costs, and enhances specialisation, and so forth [Bencivenga and Smith (1991); De Gregorio and Guidotti (1995); Greenwood and Jovanovic (1990); Levine (2004)].

Financial development can affect growth through three main channels [Aziz and Duenwald (2002)]: (i) it can increase the marginal productivity of capital by collecting information to evaluate alternative investment projects and by risk sharing; (ii) it can raise the proportion of savings channeled to investment via financial development—by reducing the resources absorbed by financial intermediaries and thus increasing the efficiency of financial intermediation; and (iii) it can raise the private saving rate. Ansari (2002) has noted that financial development contribute to economic growth in the following ways: (i) financial markets enable small savers to pool funds, (ii) savers have a wider range of instruments stimulating savings, (iii) efficient allocation of capital is achieved as the proportion of financial saving in total wealth rises, (iv) more wealth is created as financial intermediaries redirect savings from the individuals and the slow-growing sectors to the fast-growing sectors, (v) financial intermediaries partially overcome the problem of adverse selection in the credit market, and (vi) financial markets encourages specialisation in production, development of entrepreneurship, and adoption of new technology.

Similarly, removal of trade restrictions help to stabilise the development process by improving efficiency and return economies from distorted factor prices to production frontiers. Moreover, trade openness will improve domestic technology, production process will be more efficient, and hence productivity will rise [Jin (2000)]. Trade liberalisation and growth relations may occur through investment, and trade openness may provide greater access to investment goods [Levine and Renelt (1992)]. Countries that liberalise their external sector and reduce impediments to international trade can experience relatively higher economic growth. It is generally agreed that an open trade regime is crucial for economic growth and development [Sukar and Ramakrishna (2002)].

The objective of both liberalisation policies is to increase productivity through reducing inefficiency in investment. The existing literature examines the impact of financial[1] and trade liberalisation[2] separately despite their shared importance in increasing efficiency of investment. The empirical evidence related to the joint impact of financial and trade variable on economic growth is underdeveloped. The joint impact of both variables was highlighted by Roubini and Sala-i-Martin (1991) and Barro (1991). The inclusion of both variable by Roubini and Sala-i-Martin (1991) highlighted the importance of both financial and trade variables in the economic growth. Thus our testable hypothesis is that *both financial development and trade liberalisation jointly increase economic growth*.

[1]Khan, *et al.* (2005).
[2]Din, *et al.* (2003).

This paper makes *three* main contributions to the empirical literature on trade, finance and growth. *First*, it examines the joint impact of trade liberalisation and financial development on growth in Pakistan. *Second*, unlike previous studies instead of using different indicators of financial development separately, we used financial development index as a proxy for government financial policy to assess its impact on real GDP. *Thirdly*, it applies recent econometric techniques of cointegration namely, the bound testing approach to cointegration developed by Pesaran, *et al.* (2001) to examine the relationship between trade, finance and growth. This modeling technique does not require any precise identification of the order of integration of the underlying data. Furthermore, ARDL estimation is applicable even the explanatory variables are endogenous, and the existence of a long run relationship is independent of whether the explanatory variables are I (0), or I (1).

The rest of the paper is organised as follows: Section 2 deals with the brief overview of the financial and trade policies being pursued by Pakistan. Section 3 explains the model specification, data issues and econometric methodology. Empirical findings are discussed in Section 4, while some concluding remarks are given in the final section.

2. OVERVIEW OF THE FINANCIAL AND TRADE POLICIES IN PAKISTAN

Economic growth of developing countries is heavily dependent on the credit allocation. The overall financial development is necessary for economic growth at the macro-level [Andersen and Tarp (2003); Khan and Senhadji (2000); Levine (2002)]. A more advanced intermediation enables firms to raise and manage large amount of funds more effectively, resulting in a rapid economic development. Particularly, the development of financial sector is an important for developing countries because bank-based system has greater impact on growth at the early stage than does a market-oriented system [Fase and Abma (2003); Tadesse (2002); Iimi (2004)]. This section briefly reviews the financial and trade liberalisation policies pursued by the government of Pakistan to enhance growth.

2.1. Financial Sector Reforms

In Pakistan, the banking sector reforms were initiated under broader macroeconomic structural adjustment programmes in the early 1990s. Through these reforms, the government has been aiming to make the financial industry more competitive and transparent by privatising formerly nationalised commercial banks, liberalising interest rates and credit ceilings, strengthening the supervisory capacity of central bank and standardised accounting and auditing systems [Iimi (2004)].

Prior to the 1990s, the financial sector in Pakistan remained heavily controlled.[3] Interest rates were set administratively and were usually remained negative in real terms. Monetary policy was conducted primarily through direct allocation of credit. Money market was under-developed, and bond and equity markets were almost nonexistent. Commercial banks often had to lend priority sectors with little concern for the borrowing

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[3]All commercial banks were nationalised in January, 1974, with the aim at making credit availability to highly priority sectors of the economy which previously had limited access to investable funds [see Haque and Kardar (1993) for detailed account].

firm's profitability. Despite the opening of non-bank financial sector for private investment in mid-1980s, state-owned financial institutions hold almost 93.8 percent of the total assets of the entire financial sector at the end of 1980s. Moreover, the status of financial institutions were precarious due to, *inter alia*, high intermediation costs resulting from overstaffing, large number of loss-incurring branches, poor governance with low quality banking services, accumulation of non-performing loans and inadequate market capitalisation. These inefficiencies and distortions caused severe macroeconomic difficulties in the late 1970s and 1980s. In order to remove these distortions and spur economic growth, the government of Pakistan undertook a wide range of reforms in the early 1990s to strengthen its financial system and to provide an adequate macroeconomic environment.

The objectives of these reforms were to prepare industrial conditions for market competition, strengthening corporate governance and supervision, and adopting a market-based indirect system of monetary, exchange and credit management. In the *first phase* of financial reforms,[4] the government liberalises the market entry of private and foreign banks[5] in order to gain efficiency and enhance competition within the financial sector. *Secondly*, small nationalised banks, such as MCB and ABL, were partially privatised. *Thirdly*, major state-owned commercial banks and DFIs were downsized in terms of branches and employees. *Fourthly*, credit ceiling as an instrument of credit control was abolished, credit-deposit ratio (CDR) was also abolished and open market operation is now instrument of monetary policy and SBP at regular intervals conducted auctions of government securities. *Fifthly*, loan recovery process was strengthened by establishing banking courts and standardising loan classification and accounting rules. *Finally*, State Bank of Pakistan (SBP) was granted full autonomy.

Despite these efforts of financial liberalisation, financial markets segmentation continued owning continuing controls on interest rates on government debts and to specialised credit programmes. As a result, the *second phase* of banking sector reforms[6] was introduced in 1997. These reforms addressed the fundamental causes of crisis and corruption and strengthen the corporate governance and financial discipline. In this regard, the cost structure of banks was *firstly* restructured through capital maintenance and increased by public funds. *Secondly*, partially privatised commercial banks were privatised completely. *Third*, bank branches were fully liberalised and allow private banks to grow faster and increase their market share. *Fourthly*, loan collateral foreclosure was facilitated and strengthened to reduce default costs and to expand lending to lower tier markets, including consumer banking. *Fifthly*, national savings schemes were reformed so as to integrate with the financial market. *Sixthly*, mandatory placement of foreign currency deposits was withdrawn. *Lastly*, Strengthened SBP to play more effective role as regulator and guardian of the banking sector and phase out the direct and concessional credit programmes to promote market integration.

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[4]The early phase of financial reforms started in the late 1980s to earlier 1990s.

[5]10 new private banks started their operations in 1991 and 23 private domestic banks operating in the country including HBL, ABL, MCB and UBL. The process of liberalisation started in the early 1990s and except NBP more than 50 percent shares of the public sector have been privatised. There are about 14 foreign banks have been operating in the country.

[6]The second phase of banking sector reforms started from 1997 to 2001.

To promote intermediation and to attract funds held abroad by Pakistani nationals, the resident Pakistanis were allowed to open foreign currency accounts (FCAs), which were freely transferable abroad. These accounts were exempted from income and wealth tax, and no question was to be asked about the source of foreign exchange. Persons holding FCAs could also obtain rupee loans against such accounts. To facilitate the flow of sufficient short-term liquidity at variable rate it was necessary to expand the money market potential by making it accessible to new operators. Particularly, to those who were experiencing an excess of liquidity, such as insurance companies, microfinance institutions, SME bank as well as investment banks. This widening the range of operators on the money market by the creation of new financial products, such as deposit certificates, treasury bills and bonds, which are naturally negotiable.

2.1.1. Impact of Financial Reforms

The object of the financial and operational reform policies were to strengthened the microeconomic foundations of the banking system. However, the pace of deposit mobilisation remained slow and the reforms were partially effective [Khan (2003)]. After liberalisation, the price of financial services was intended to be determined by the banks on competitive basis, with little intervention from the SBP. To achieve the twin objectives of reducing government cost of borrowing on domestic debt and encouraging private sector credit expansion, the SBP has been pursuing a relatively easy monetary policy since July 1995 to July 2000. The weighted average lending rate gradually come down from 15.6 percent in 1998 to 8.81[7] percent in June 2005, but the real interest rate has increased from 3.6 percent in 1996 to 10.9 percent in 2000 and then following the declining trend and reached to –0.49 percent in June 2005 (see Table 1). This reduction in lending rate indicates a little improvement in the profitability of the banks but purely *ad*

Table 1

Interest Rate Behaviour in Pakistan

Year	Inflation Rate	Weighted Average Lending Rate		Weighted Average Deposit Rate		Interest Rate Spread	
		Nominal	Real	Nominal	Real	Nominal	Real
1990-95	10.57	12.55	1.98	6.53	-4.05	6.02	5.95
1996	10.8	14.4	3.6	6.4	-4.4	8.00	8.00
1997	11.8	14.6	2.8	6.8	-5.0	7.8	7.8
1998	7.8	15.6	7.8	6.8	-1.0	8.8	8.8
1999	5.7	14.8	9.1	6.5	0.8	8.3	8.3
2000	3.6	13.52	10.9	5.47	1.9	8.05	9.00
2001	4.4	13.61	9.21	5.27	0.87	8.34	8.34
2002	3.5	13.19	9.69	3.61	0.11	9.58	9.58
2003	3.1	9.40	6.3	1.61	-1.49	7.79	7.79
2004	4.6	7.28	2.68	0.95	-3.65	6.33	6.33
2005	9.3	8.81	-0.49	1.37	-7.93	7.44	7.44

Source: SBP Annual Reports (Various Issues).

[7]Although in 2004 the rate fell to 7.28 percent.

hoc and not in the lines of the liberalisation. Similarly, the weighted average deposit rate reduced from 6.8 percent in 1998 to 1.37 percent in June 2005; the real deposit rate remained negative except for the period 1999–2002. This reduction in the deposit rate will reduce the savings even further.

The interest rate spread[8] is an important indicator for the financial sector's competitiveness and profitability. Spread typically declined when competition among banks increases to access the financial market to increase their customer's base. But in Pakistan, the high lending rate and low deposit rate have generated large spread[9] nearing 7.44 percent in June 2005 as against 6.33 percent in 2004. The high lending rate will increase the cost of borrowing and hence discourage investment. The low deposit rates discourage both consumption and savings, resulting high debt/GDP ratio, deterioration of banks balance sheet, lowering economic growth, and increase in poverty. Furthermore, the large spread also reflects perceived sovereign risk [Khan (2003)]. Hence, measures should be taken to bring down the interest rate spread close to zero in order to enhance both savings, investment in the country.

To measure the improvement in the financial sector following the financial reforms process, the standard indicators used in this study include the ratios of M2/GDP, BDL/GDP, MCH/GDP, PSC/GDP, SMC/GDP, CC/M2 and CC/GDP.[10] Table 2 represents the entire situation regarding the financial sector of Pakistan.

Table 2 shows that the ratio of M_2/GDP increased steadily. It should be noted that a large ratio of M_2/GDP represents a more developed and efficient financial sector. In 1990 the average monetary assets were around 32.27 percent of GDP, while it was reached to 49.4 percent of the GDP in 2004 and slightly come down to 48.6 percent of the GDP in 2005 because the other instruments outside the M_2 become available.[11] Since M_2 is more saving-investment oriented and the steady growth in M_2/GDP caused positive impact on economic growth. However, M_2/GDP recorded gradual growth, showing an improvement in the financial sector. The ratio of bank deposit liabilities to GDP assesses the degree of monetisation in the economy. A steady growth in this ratio over the period of study also indicates an improvement in the financial sector. Similarly the amount of money clears by banks through cheques relative to GDP increases gradually also showing an improvement of financial services offered of financial institutions. Figure 1 depicted the trend behaviour of each indicator.

The ratio of private sector credit to GDP indicates an efficient allocation of funds by the banking sector. Even though this ratio has been increasing gradually over the years, there is ample room for further growth given the recent privatisation of the large public sector commercial enterprises. The other tools of financial development include currency to M2 ratio and currency to GDP ratio reflecting the increase in total deposits relative to currency in circulation and degree of monetisation in the economy which was

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[8]Interest Rate Spread = (Average Lending Rate – Average Deposit Rate).

[9]High interest rate spread is generated by factors such as high administrative costs, overstaffing and unavoidable burden of non-performing loans (for further detail, SBP's financial sector assessment 2003-2004).

[10]BDL, MCH, PSC, SMC are respectively bank deposit liabilities, money cleared through clearing house, private sector credit and stock market capitalisation.

[11]This is due to the lack of access to the banking system, the use of credit as means of payments etc. As financial liberalisation began and other financial instruments were developed, this ratio tends to decline [Khan (2003)].

Table 2

Fig. 1. Financial Development Indicator Relative to GDP
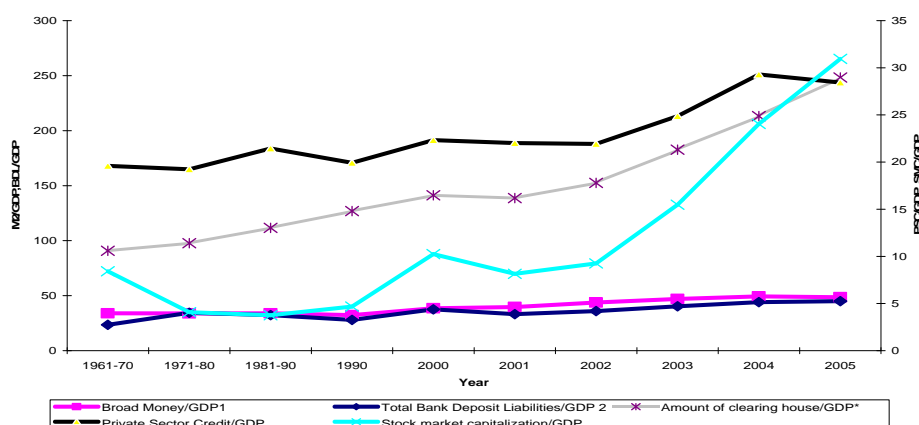
23 percent and 11.18 percent of the GDP in 2005 respectively. The stock market capitalisation, which was 4.68 percent of GDP in 1990, is now 30.95 percent of GDP in 2005.

2.2. Trade Liberalisation Policy

Pakistan has pursued a mixed economy approach to development following import substitution industrialisation policies in order to: (i) strengthen the industrial base (ii) achieve self reliance, (iii) protect domestic infant industries, (iv) insulate the domestic economy into external shocks stemming from international capital markets, and (v) reduce the chronic balance of payments deficits and use scarce foreign exchange resources.

To achieve these objectives, the government imposed various quantitative and qualitative restrictions on trade to protect domestic industries. During the 1960s a more liberal policies being opted by the government where the private sector was encourage to play a greater role.[12] Consequently, both industrial production and exports registered a reasonable increase during this period. However, this trend was reversed during 1970s because of nationalisation of industries, financial institutions and an increasing domination of public sector in the economic activities. Although, the government took various measures such as, devaluation of Pak-rupee *vis-à-vis* US-dollar, elimination of export bonus scheme and discontinuation of restrictive import licensing scheme to boost exports. But these steps do not register any significant impacts on exports.

In the late 1980s, Pakistan was faced with high macroeconomic imbalances as a result of the growing inefficiency and losses in the public sector. To restore the business confidence and to reduce inefficiency and losses in the public sector, the government implemented a wide range of structural and institutional reforms in the early 1990s. The most specific measure undertaken by the government includes: (i) reduction of maximum

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[12]Although highly protected trade regime remained effective in this period. However, some additional policies such as, an overvalued exchange rate, export bonuses, preferential credit access to industries with export potential and automatic renewal of import licenses, were introduced to encourage exports [Yasmin, *et al.* 2006).

tariff rate on imports from 225 percent in 1986-87 to 25 percent in 2005 [Husain (2005); Kemal (2001) and Anwar (2002)]. The average tariff rate has come down to 11 percent as compared to 65 percent a decade earlier [Husain (2005)]. Similarly, the number of custom duty slabs was reduced from 13 in 1996-97 to 4, (ii) quantitative import restrictions were lifted except those relating to security, health, and public morals, religious and cultural related, and (iii) all para-tariffs have been merged in to the statutory tariff regime, and import duties on 4000 items were reduced.

These measures have brought down effective rate of protection, eliminate the anti-export bias and promote competitive and efficient industries. A number of laws[13] were also been promulgated to bring the trade regime in line with WTO regulations.

Despite the substantial reduction in tariff rate, removal of all non-tariff barriers and successive devaluation of the currency,[14] the growth in exports in the 1990s was only 5.6 percent per annum as compared to 14.97 percent in the 1970s and 8.5 percent in the 1980s (see Table 3 and Figure 3). However, the overall trade to GDP ratio has risen from 26.31 percent in 1970s to 37.65 percent today in Pakistan. This gives an indication of higher level of trade integration

Table 3

Growth Rates of Exports and Imports and the Degree of Openness (%)

Year	1961-70	1971-80	1981-90	1991-00	2001	2002	2003	2004	2005
Exports ($)	6.07	14.97	8.52	5.61	9.07	2.32	19.14	13.84	15.93
Imports ($)	8.35	18.78	4.54	3.22	6.25	-7.53	20.13	20.04	37.64
(X+M)/GDP	18.28	26.31	29.93	32.90	28.91	28.68	29.89	32.99	37.65

Source: State Bank of Pakistan (*Handbook of Pakistan Economy, 2005*).

Fig. 3. Exports, Imports, and Degree of Openness (%)
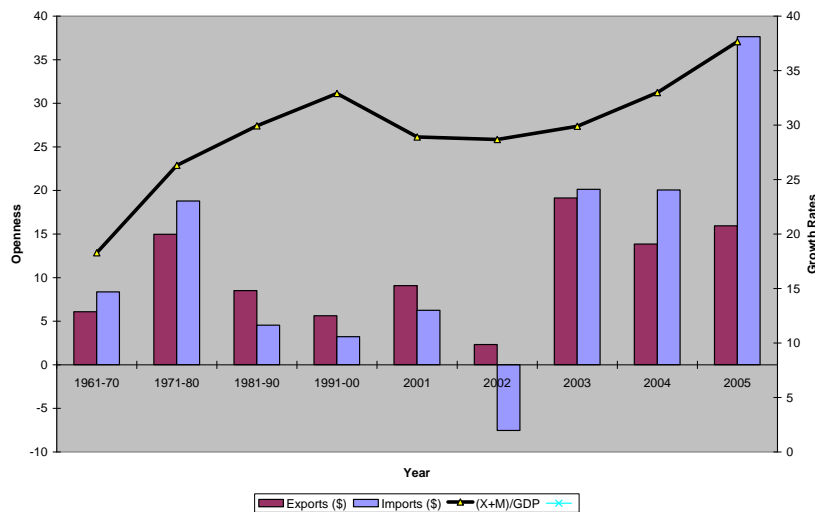
[13]Such as anti-dumping, countervailing measures and intellectual property rights.
[14]The average annual depreciation of exchange rate was about 10 percent in the 1990s (i.e. Rs 24 in 1990 to Rs 60 in 2000).

In order to encourage foreign direct investment, restrictions on capital inflows and outflows were gradually lifted. Investors were also allowed to purchase up to 100 percent of the equity in industrial companies on repatriable basis without any prior approval. Furthermore, investment shares issued to non-residents could be exported and remittance of dividend and disinvestments proceeds was permissible without any prior permission of SBP. In 1994, restrictions on some capital transactions were partially relaxed, and foreign borrowing and certain outward investments were allowed to some extent. Full convertibility of the Pak-rupee was established on current international transactions. The establishment of an interbank foreign exchange market also marked an important step towards decentralising the management of foreign exchange and allowing market forces to play a greater role in exchange rate determination [SBP (2000)].

3. MODEL SPECIFICATION, METHODOLOGY, AND DATA ISSUES

Theoretical literature predicts that real income, financial development and real interest rate are positively correlated. The positive relationship between the level of output and financial development resulted from the complemetarity between money and capital [Mckinnon (1973)]. Furthermore, the removal of ceilings on deposit rate results in positive real interest rate, which increase savings and hence economic growth. King and Levine (1993a, b) predict a positive relationship between real income, financial development and real interest rate.

Based on these theoretical postulates, the relationship between real output and financial development can be specified as:

$$LRGDP_t \;=\; \alpha_0 + \alpha_1 LFSD_t + \alpha_2 RDR_t + \varepsilon_t \qquad \ldots \qquad \ldots \qquad \ldots \quad (1)$$

Where *RGDP* is real output, *FSD* is the financial sector development, *RDR* is the real deposit rate and ε is an error term. Except real deposit rate, all the variables are expressed in logarithmic form.

Theoretical and empirical research indicates a strong and positive correlation between trade liberalisation and economic growth over long period of time. Sachs and Warner (1995) has pointed out that open economies has grown about 2.5 percent faster than closed economies and the difference is larger among developing countries. Jin (2000) argued that trade liberalisation and openness has provided an important base of economic activity. Thus, an increasing openness is expected to have a positive impact on economic growth.[15] Barro (1991) provided evidence that increasing openness had a positive effect on GDP growth per capita. Edwards (1992) also found a positive and significant effect of openness on GDP growth. It can be argued that through the openness countries are able to benefit from information spillovers such as scientific advances and improvements. Sukar and Ramakrishna (2002) argued that countries that liberalise their external sector and reduce impediments to international trade can experience relatively

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[15]More recent studies after the Asian Economic Crisis of 1997-99, have challenged some of these findings. Rodriguez and Rodrik (1999) have raised question about measuring the degree of openness, and have identified many other factors that affect growth. They concluded that trade liberalisation does always leads to higher growth. Batra (1992), Batra and Slottje (1993) and Leamer (1995) concluded that freer trade is the primary source of economic downturns.

higher economic growth. Thus, we extend Equation (1) by incorporating the variable TOPEN which capture the impact of trade liberalisation on real output. Now Equation (1) can be written as:

$$LRGDP_t = \alpha_0 + \alpha_1 LFSD_t + \alpha_2 RDR_t + \alpha_4 LTOPEN + \varepsilon_t \quad \dots \quad \dots \quad (2)$$

To examine the long run relationship between real GDP, trade liberalisation, financial development, and real deposit rate, we employ bound testing approach to cointegration within the framework of Autoregressive Distributed Lag (ARDL) developed by Pesaran, *et al.* (2001). There are several reasons for the use of bound test. *Firstly*, the bivariate cointegration test introduced by Engle and Granger (1987) and the multivariate cointegration technique proposed by Stock and Watson (1988), Johansen (1988, 1991) and Johansen and Juselius (1990) are more appropriate for large sample size. Hence, bound testing procedure of cointegration is more appropriate for a small sample size [Pesaran, *et al.* (2001); Tang (2001, 2002)]. *Secondly*, bound testing approach avoids the pre-testing of unit roots. *Thirdly*, the long run and short run parameters of the model are estimated simultaneously. *Fourth*, all the variables are assumed to be endogenous. *Finally*, this method does not require that the variables in a time series regression equation are integrated of order one. Bound test could be implemented regardless of whether the underlying variables are I (0), I (1), or fractionally integrated. The cointegration test based on the ARDL can be performed by the estimation of ARDL following unrestricted error-correction model:

$$\Delta LRGDP_t = \beta_0 + \beta_1 LRGDP_{t-1} + \beta_2 X_{t-1} + \sum_{i=1}^{k} \beta_{3i} \Delta LRGDP_{t-i} + \sum_{i=0}^{k} \beta_{4i} \Delta X_{t-i} + \varepsilon_t \dots (3)$$

Where *X* is a vector of explanatory variables (i.e. *LFSD, RDR, LTOPRN*), and ε is error term. For the presence of a long run relationship amongst the variables of Equation (2) is tested by means of bounds testing procedure proposed by Pesaran, *et al.* (2001). The bounds testing procedure is based on the *F*-stat (or Wald statistics) for cointegration analysis. The asymptotic distribution of the *F*-statistic is non-standard under the null hypothesis of no cointegration between the examined variables, irrespective of whether the explanatory variables are purely I (0) or I (1). To implement the bound test, the null hypothesis is tested by considering the unrestricted error correction model (UECM) for real GDP in equation (2) and a joint significance test was performed as:

$$H_0 : \beta_0 = \beta_1 = \beta_2 = 0,$$
$$H_1 : \beta_0 \neq \beta_1 \neq \beta_2 \neq 0.$$

Pesaran, *et al.* computed two sets of critical values for a given significance level. One set assumes that all variables are I (0) and other set assumes that they are all I (1). If the computed *F*-statistic exceeds the upper critical bounds value, then the H_0 is rejected. If the *F*-statistic falls into the bounds then the test becomes inconclusive. If the *F*-statistic lies below the lower critical bounds value, it implies no cointegration.[16]

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[16]This is similar to the Johansen and Juselius multivariate cointegration procedure, which has five alternative cases for long run.

Once the long-run relationship is identified, then the long-run and short-run estimates can be obtained by implementing ARDL method. At this stage Equation 2 is estimated using the following ARDL (*m, n, p*) model.

$$LRGDP_t = a_0 + \sum_{i=1}^{m} \alpha_i LFSD_{t-i} + \sum_{i=1}^{n} \beta_i RDR_{t-i} + \sum_{i=1}^{p} \gamma_i LTOPEN_{t-i} + u_t \qquad \dots \quad (4)$$

The parameter stability test can also be performed on the estimates of the Equation 4. The short-run dynamics based on the long-run estimates obtained by the estimation of Equation 2 can be formulated as follows:

$$\Delta LRGDP_t = \beta_0 + \sum_{i=1}^{k} \beta_{1i} \Delta LRGDP_{t-i} + \sum_{i=0}^{k} \beta_{2i} \Delta LFSD_{t-i} + \sum_{i=0}^{k} \beta_{3i} \Delta RDR_{t-i}$$
$$+ \sum_{i=0}^{k} \beta_{4i} \Delta LTOPEN_{t-i} + \lambda EC_{t-1} + \eta_t \qquad \dots \qquad \dots \qquad \dots \quad (5)$$

Where λ is the speed of adjustment parameter and *EC* is the residuals that are obtained from the estimated cointegration model of Equation (2).

3.1. Data Description

The present study is based on the annual data covering the period from 1961–2005. The recent literature on financial development suggests several indicators used as proxy for the ability of financial intermediation. But in this study we basically calculated four financial development (FD) indicators related to banking and stock market. *Firstly*, total bank deposit liabilities relative to GDP which is calculated by taking the difference between liquid liabilities of the financial system minus currency in circulation divided by GDP.[17] This considered the broadest measure of the financial intermediation. *Secondly*, ratio of private sector credit to GDP, which measures how much intermediation, is performed by the banking system. *Third*, amount of money cleared through clearing house relative to GDP. *Lastly*, ratio of stock market capitalisation to GDP.

But the problem is that each indicator of financial development exerted different impact on real GDP and the derived coefficients may be biased. To avoid this problem, and following Kelly and Mavrotas (2003) we use total bank deposit liabilities ratio, value of clearing house ratio, credit allocation to private sector ratio and stock market capitalisation ratio, to construct financial sector development index (FSDI). We used FSDI as a proxy of government financial policy.

Real GDP is obtained as a ratio of nominal GDP[18] to consumer price index (CPI 2000=100). Data on these variables are taken from IFS CD-ROM. The variable TOPEN is calculated by taking the ratio of sum of exports and imports to GDP. Data on exports, imports and deposit rate (DR) are taken from *Handbook of Pakistan's Economy* published by State Bank of Pakistan (2005). Inflation is calculated as a percentage by

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[17]The standard measure of financial development is the ratio of M2 to GDP [World Bank (1989)]. However, this ratio measures the extent of monetisation rather than financial development. In developing countries, monetisation can be increasing without financial development; therefore, M2/GDP is not a satisfactory indicator of financial development. Therefore, we define ratio total bank deposit liabilities to GDP as proxy of financial development.

[18]Nominal GDP is adjusted for 1999-00 base.

taking the log-difference of CPI, while real deposit rate is calculated by taking the difference between deposit rate and inflation rate.

3.2. Construction of Financial Development Index

Measuring financial development is very complex and complicated process because there is no clear-cut definition as to what financial development is. Bandiera, *et al.* (2000) argued that an ideal index of financial sector development should include various aspects of regulatory and institutional reforms. However, measuring this aspect of government policy is very difficult if not possible task [Kelly and Mavrotas (2003)]. Inclusion all the policy variables separately in the same model cause serious estimation problems such as, multicolinearity etc. In order of avoid these problems, we use four different types of financial development indicators to construct the financial sector development index by using principal component method.[19] These indicators include the ratio of total bank deposit liabilities to GDP which give an indication of the absolute size of the financial institutions, the ratio of clearing house amount to GDP which indicate the wide spread provision of financial services, the ratio of the private credit to GDP which measures the activities of the financial intermediaries and the ratio of the stock market capitalisation to GDP. The index represents a particular government financial policy variable. The financial development index also indicates a steady improvement in the financial sector (see Table 4 and Figure 4).
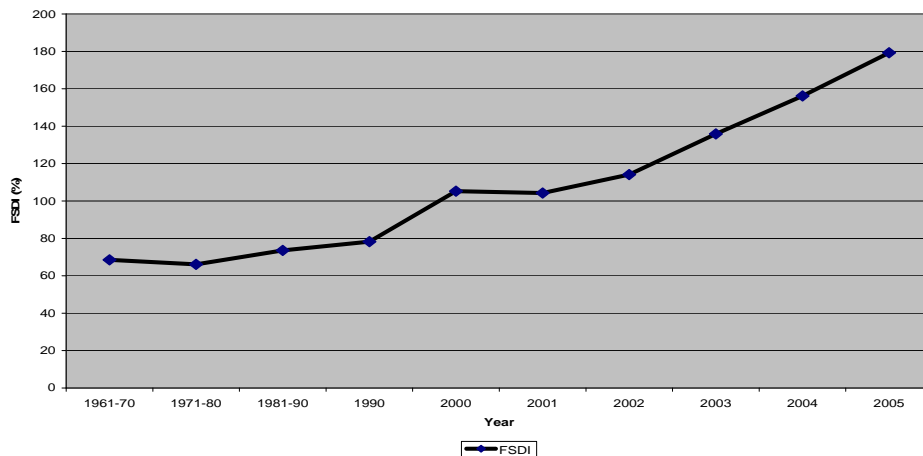
Table 4

Financial Sector Development Index (FSDI)

Year	1961-70	1971-80	1981-90	1990	2000	2001	2002	2003	2004	2005
FSDI	68.57	66.14	73.55	78.29	105.29	104.28	114.11	135.87	156.17	179.23

Source: Author's calculation based on IFS and State Bank of Pakistan's data.

Fig. 4. Financial Sector Development Index

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[19]The method of principal components is discussed in detail in Theil (1971).

4. EMPIRICAL RESULTS

Two-step ARDL cointegration procedure is implemented in estimation of Equation (2) for Pakistan using annual observations over the period 1961–2005. In the first stage, the order of lags on the first-differenced variables for Equation (3) is obtained from UECM by mean of Schwarz Bayesian Criterion (SBC).[20] The SBC gives a more parsimonious number of lags than other criteria such as Akaike Information Criterion (AIC).[21] Given the limited number of observations, we experimented up to 2 lags on the first-difference of each variable and computed *F*-statistics for the joint significance of lagged levels of variables in Equation (3). The computed *F*-test statistic for each order of lags is presented in Table 5.

Table 5

Statistics for Selecting Lag Order and the Existence of Long-run Relationship

No. of Lag	AIC	SBC	$CHSQ_{SC(1)}$	*F*-statistic
1	97.6794	87.9928	0.2184	28.2522*
2	97.3983	86.9723	0.0811	31.4732*

* Significant at the 1 percent level of significance.

Based on the minimum value of SBC, the lag length of order 2 is selected. When 2 lags are imposed, there is strong evidence of cointegration because the calculated *F*-statistic is 31.2522, which is greater than the critical value of the upper level of the bound (i.e. 5.83) at the 5 percent level of significance. This result gives strong indication for the existence of a long run relationship among the variables included in Equation (2).[22]

Given the existence of a long run relationship, in the next step we used the ARDL cointegration method to estimate the parameters of Equation (4) with maximum order of lag set to 2 based on SBC. The static long run results of the corresponding ARDL (1, 1, 1, 0) are reported in panel A of Table 6. The diagnostic test results based on short-run estimates of Equation (4) are displayed in panel B of Table 6.

The empirical results presented in Table 6 indicate that the estimates possessed expected signs and are statistically significant at the 1 percent level of significance. The overall results are in accordance with the prediction that trade and financial policies have a positive impact on real GDP. These results also imply that liberalisation policies enhance economic growth rather than growth inducing liberalisation. The contribution of financial policy is more than the trade policy to development, which is consistent with the fact that financial liberalisation facilitates trade liberalisation.

The study also found a positive and significant impact of FSDI and RDR on real GDP. This positive impact supports the prediction of Mckinnon and Shaw hypothesis. An increase in real interest rate facilitates financial savings and real income. Moreover, an acceleration of financial development raises the capacity of financial intermediaries to supply funds which help to enhance investment and economic growth. Since the

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[20]Bahmani-Oskooee and Bohl (2000), and Bahmani-Oskooee and Ng (2002) argued that the results of this stage are sensitive to the order of VAR.

[21]See Bernstein (2000).

[22]At lag 2, the residuals are white noise as indicated by the Lagrange Multiplier test of serial correlation. i.e. $CHSQ_{SC(1)}$.

Table 6

Long-run Estimates of Trade, Finance, and Real Output

Dependent Variable: LRGDP		
Regressor	Coefficient	*t*-values
LFSDI	1.0291	3.4511*
RDR	0.0329	3.0555*
LTOPEN	0.3715	8.3371*
Constant	9.9908	33.5708*
$\chi^2_{SC(1)}$	0.16400	
$\chi^2_{FF(1)}$	2.9289	
$\chi^2_{SC(2)}$	1.6418	
$\chi^2_{Het(1)}$	1.6413	

The full tables of the short run estimates are available from the author. χ^2_{SC}, χ^2_{FF}, χ^2_{NO}, and χ^2_{Het} are Lagrange multiplier statistics for test of residual correlation, functional from mis-specification, non-normal errors and heteorskedasticity, respectively. These statistics are distributed as Chi-square values with degree of freedom in parentheses.

magnitude of financial policy (financial development) is higher than that of real interest rate which support the argument that in a developing country like Pakistan the availability of funds rather the cost of funds is an important to raise real income. The low coefficient of real interest rate implies that an increase in interest rate alone is unable to expedite economic growth. These findings are consistent with earlier findings derived by Khan (2005).

We also find a positive and significant impact of trade liberalisation policy on real GDP. This result imply that trade liberalisation allows market forces to channel resources towards relatively productive sectors and hence leads to a rise in efficiency. It also increases markets for new products and generates economies of scale. These results confirmed the earlier findings of Din, *et al.* (2003). The results of error-correction model is given in Table 7.

The estimated lagged error correction term ECM_{t-1} is negative and highly significant. This result supports the cointegration among the variables represented by Equation (2). The feedback coefficient is –0.09, suggesting a slow adjustment process. Nearly 9 percent of the disequilibria of the previous period's shock adjust back to the long run equilibrium in the current year. The results further suggest that in the short-run financial sector development index exerted negative and insignificant impact on the economic growth.

This result implies that economic growth is long run process not short-run. The short- run response of real deposit rate is significant but very small, suggesting that there is a need for further liberalisation of interest rate. Furthermore, the changes in the trade policy exerted positive and significant impact on economic growth in the short run. However, the impact of trade policy changes is so small in the short run.

To assess the structural stability of the estimated model, we also performed the CUSUMSQ test of stability. Figure 5 plots the CUSUMSQ.
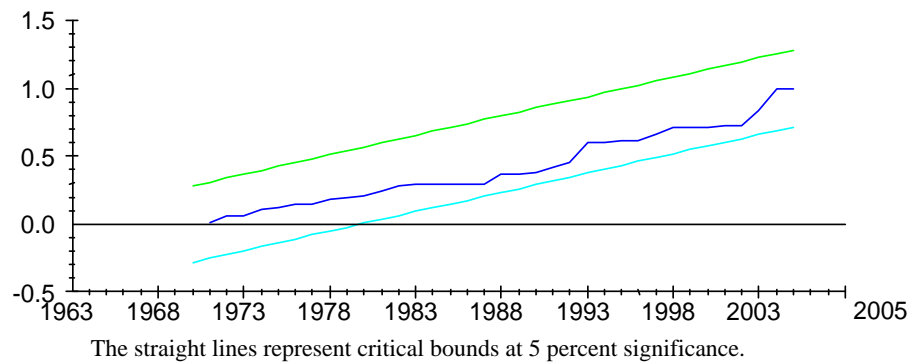
Table 7

Short-run Dynamics of Trade, Finance, and Growth

Dependent Variable: ΔLRGDP		
Regressor	Coefficient	*t*-values
ΔLFSDI	−0.0806	−1.7654
ΔRDR	0.0057	4.2958*
ΔLTOPEN	0.0334	2.6122**
Constant	0.8974	3.3162*
EC_{t-1}	−0.0898	−3.0555*
R^2	0.36	
R^2_{adj}	0.25	
F-stat	5.066	
AIC	97.4013	
SBC	91.2371	
S.E Regression	0.02	
R.S.S	0.20	
Equation-LL	104.4013	
DW-stat	2.12	

Note: ARDL (1, 1, 1, 0) selected on the basis of SBC. R.S.S, LL, AIC and DW are respectively residual sum of
squares, log likelihood, Schwarz Bayesian Criteria and Durbin Watson stat.

$$EC = LRGDP_t - 1.0291LFSDI_t - 0.0329RDR_t - 0.3715LTOPEN_t - 9.9908$$

Fig. 5. Plot of Cumulative Sum of Squares of

The straight lines represent critical bounds at 5 percent significance.

It can be seen respectively from the Figure 5 that the plots of CUSUMSQ statistic is well within the critical bounds implying that all the coefficients in the estimated model are stable.

5. CONCLUSIONS

This paper examines the impact of trade and financial policies and real interest rate on real GDP in Pakistan over the period 1961–2005. The study utilised bound testing approach of cointegration advanced by Pesaran, *et al.* (2001). Empirical results reveal the presence of a long-run relationship between real GDP, trade liberalisation, financial

development and real interest rate. The results further show that in the long-run FSDI, RDR and LTOPEN exerted positive impact on real GDP. However, in the short-run FSDI exerted negative association with economic growth, but remain statistically insignificant. The study also found a positive impact of trade openness on economic growth both in the long as well as in the short-run. This result highlighted the importance of trade liberalisation in order to enhance economic growth. However, financial liberalisation has relatively higher impact of real GDP than does trade liberalisation in the long-run. The low effectiveness of real interest rate indicates that interest rates alone are unlikely to expedite economic growth. The feed back coefficient is negative and significant, but the speed of adjustment is rather slow. Based on these findings, the study suggests that Pakistan should go more of trade and financial liberalisation to enhance more economic growth. Further, the continuation of such policies with strong commitment is also recommended in order to promote economic growth.

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