

**Impact of Financial Development on Economic Growth  
in Pakistan (1974-2007)**

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This study empirically investigates the association and causality of financial development and economic growth in Pakistan. To ascertain the impact of financial development on economic growth time series data from 1974 to 2007 are used. Three alternative proxies for financial development are selected; ADF, OLS and Granger Causality tests are used to analyze the data. The results suggest that the ratio of broad money to gross domestic product and ratio of market capitalization to gross domestic product have significant positive marked degree of association and ratio of private sector credit to gross domestic product has significant negative low degree of association in relation to per capita income as a proxy for economic growth. The results provide evidence of bi-directional causality running between financial development and economic growth.

**Keywords:** Financial Development, Economic Growth, Association and Causality.

Over the past few decades, a substantial volume of research has been devoted towards verifying and understanding the existence of relationship between the financial development and economic growth. The debate has traditionally evolved around two issues. The first relates to association (in terms of nature of direction & strength of relationship) and the second relates to of causality (cause and effect relationship of variables) between financial development and economic growth.

Two opposing views have emerged from the theoretical and empirical literature. Some researchers argued that financial development is an important and critical element for economic growth and a well-developed financial system has a positive impact on economic performance by enhancing intermediation efficiency through reduced information, transaction and monitoring costs. The efficient financial intermediation positively regulates the allocation of resources towards effective use and users. Economists and business professionals now take it for granted that a well-developed, market-oriented financial sector contributes to economic growth (Schumpeter, 1911; Goldsmith, 1969; McKinnon, 1973; Shaw, 1973; King & Levine, 1993 a, b; Levine, 1997; Hasan & Zhou, 2006; Singh, 2007). On the other hand, Lucas (1988) dismisses finance as an over-stressed determinant of economic growth. Specifically, the rapid growth of

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many Asian economies in the 1970s and 1980s was executed despite domestic financial sectors that could not be regarded as developed. Over the same period in China the real GDP growth averaged at 9.4 percent (Robinson, 1952; Stern, 1989; Arestis & Demetriades, 1997; Shan, 2005).

The second issue is causality between the financial development and economic growth. The first dimension of the hypothesis contends that financial development pushes real economic growth. The introduction of financial institutions and their services create demand for these and in turn the accessibility of financial services stimulates the demand for these services (Ansari, 2002; Al-Awad & Harb, 2005; Habibullah & Eng, 2006; Halicioglu, 2007). The second dimension of hypothesis needs evidence of unidirectional causality from growth to finance, indicating that when an economy grows, more financial institutions, financial products and services emerge in the markets in response to higher demand of these services (Ang & McKibbin, 2005; Guryay et. al., 2007). The third dimension is the bi-directional causality between financial development and economic growth as the supply-leading and demand-following hypotheses. The argument is that causation is running from financial development to economic growth during early stages of development while the opposite direction is relevant in later development phases (Bencivenga et. al, 1991; Luintel & Khan, 1999).

Many empirical studies have been conducted aimed at testing the contradictory theoretical and empirical developments presented above using different models and techniques. These empirical investigations can be classified into two major groups. The first group consists of those that used cross-countries growth regression methods in which the average growth rate of per capita output over some period is regressed on some measure of financial development and used a set of control variables (Jung, 1986; Demetriades & Hussein, 1996; Levine & Zervos, 1998; Luintel & Khan, 1999). The second group recognized of the methodological weaknesses of the cross-country regression analysis and relied on time series data of individual-country to investigate the association and causal links between financial development and economic growth (Ang & McKibbin, 2005; Singh, 2007).

The aim of the study is to empirically investigate these issues in the context of Pakistan. Three financial development indicators (FDIs) and one economic growth indicator (PCI) have been selected from literature and association and causality between financial development and economic growth is econometrically estimated by using Augmented Dickey Fuller (ADF), Ordinary Least Square Estimation Method (OLS) and Granger Causality (GC). The paper has been divided into seven sections including introduction; theoretical background; methodology; measures of financial development; measures of economic growth; empirical analysis; and conclusions and recommendations.

### Theoretical Background

The theoretical relationship between financial development and economic growth in 20<sup>th</sup> century goes back to the study of Schumpeter (1911) that pointed out the role of financial intermediaries in mobilizing funds, appraising and selecting projects, managing risk, monitoring entrepreneurs and helping transactions as the critical elements in fostering technical innovation and economic growth, under the assumption that the size of a financial system is positively correlated with the supply and quality of financial services.<sup>1</sup> Goldsmith (1969) carefully compiled data on 35 countries over the period 1860 to 1963 on the value of financial intermediaries contributing to economic output. He found evidence of a relationship between economic growth and financial development over long periods. These periods of speedy economic growth have often been accompanied by an above-average rate of financial development.<sup>2</sup> King & Levine (1993a) conduct a cross-country analysis using data averaged over the period 1960-1989 and a pooled cross-country time series using data averaged over the periods 1960s, 1970s and 1980s. They concluded that Schumpeter was right to suggest that financial intermediaries promote economic growth.<sup>3</sup> Levine (1997) after reviewing many studies both cross-country comparisons and individual country studies pointed out that the functioning of financial systems is crucial for economic growth of a country. According to the survey results, countries with larger banks and more dynamic stock markets grow faster over subsequent decades even after controlling for many other elements underlying economic growth.

Waqabaca (2004) empirically examines the link between financial development and economic growth in Fiji using unit root and cointegration techniques within a bi-variate vector autoregressive framework, results show a positive relationship between these two. Hassan et. al. (2007) using a panel regression argued that different policy should be adopted to achieve the target of economic growth due to the distinct stage of financial development across geographic regions and income groups. For example, the strong linkages found between two in high-income countries. On the contrary, Lucas (1988:6) argues that economists tend to "badly over-emphasize" the role of financial factors in the Growth process.<sup>4</sup> Al-Tamimi et al. (2002) establish that there is no clear grounds that financial development affects or is affected by economic growth.

<sup>1</sup> "Can only become an entrepreneur by previously becoming a debtor....What [the entrepreneur] first wants is credit. Before he requires any goods whatever, he requires purchasing power. He is the typical debtor in capitalist society", (Schumpeter, 1911:102).

<sup>2</sup> "The financial superstructure accelerates growth and improves economic performance to the extent that it facilitates the migration of funds to the best user, i.e. to the place in the economic system where the funds will yield the highest social return", (Goldsmith, 1969:400).

<sup>3</sup> "Higher levels of financial development are significantly and robustly correlated with faster current and future rates of economic growth, physical capital accumulation and economic efficiency improvements", (Levine, 1993a:717).

<sup>4</sup> Robinson is of the view that, "it seems to be the case that where enterprise leads finance follows. The same impulses within an economy which set enterprise on foot make owners of wealth venturesome, and when a strong impulse to invest is fettered by lack of finance, devices are invented to release it . . . and habits and institutions are developed", (Robinson, 1952:86).

One of the controversial questions is whether this association between financial development and economic growth indicates causation. The difficulty of founding the direction of causality between financial development and economic growth was first identified by Lewis (1955) and Patrick (1966) and further developed by McKinnon (1973).<sup>5</sup> Mavrotas & Son (2004) using panel data analysis empirically examined this links covering the period 1960-1999 and by using a new approach to measure financial sector development. Empirical results seem to suggest that financial development has a significant positive relationship towards economic growth. Results suggest that (i) higher financial development drives faster economic growth, and (ii) the impact of financial sector development on growth will be stronger in developing countries as compared to industrial countries. Evidence founds that financial sector development can accelerate growth by improving the allocation of resources. Halicioglu (2007) investigates the validity of the demand-following and the supply-leading hypotheses using annual time series data from 1968 to 2005 for Turkey. The empirical findings suggest unidirectional causation from financial development to economic growth. Ang & McKibbin (2005) examine the small open economy of Malaysia by using time series data from 1960 to 2001 by taking saving, investment, trade and real interest rate into account. The findings support the view that growth causes financial development in the long-run. Guryay et al (2007) results show that there is negligible positive association between financial development and economic growth and empirical evidence does not support the opinion that financial development promotes economic growth in Northern Cyprus. However, there is casual relationship between economic growth indicators and finance development indicators, which means that economic growth causes financial development and not vice versa.

The bi-directional causality between financial development and economic growth was postulated by Lewis (1955), that is financial markets develop as a consequence of economic growth and then act as a stimulant to economic growth. This view is supported by Patrick (1966) identifying two possible causal relationships between two supply leading and demand following<sup>6</sup> (see also Boulila & Trabelsi, 2002). Hondroyannis et al. (2004) provide empirical evidence on financial intermediation employing monthly data for the period 1986- 1999. They argued that the long run real economic activity in Greece should be considered endogenous, affected by changes in stock market

<sup>5</sup> "Although a higher rate of financial growth is positively correlated with successful real growth, Patrick's (1966) problem remains unresolved: What is the cause and what is the effect? Is finance a leading sector in economic development, or does it simply follow growth in real output which is generated elsewhere?". (McKinnon, 1973:390)

<sup>6</sup> "In actual practice, there is likely to be an interaction of supply-leading and demand following phenomena. Nevertheless, the following sequence may be postulated. Before sustained modern industrial growth gets underway, supply-leading may be able to induce real innovation-type investment. As the process of real growth occurs, the supply-leading impetus gradually becomes less important, and the demand-following financial response becomes dominant. This sequential process is also likely to occur within and among specific industries or sectors", (Patrick, 1966:177).

relationship between real economic activity and stock market capitalization and also between real economic activity and bank credit Singh (2007) by using impulse response and the decomposition analyses provide similar evidence of bi-directional Granger-Causality.

For Pakistan, Khan, Qayyum and Sheikh (2005) tested the relationship between financial development and economic growth over the period 1971-2005. The results of the study suggest that in the long run financial depth and real interest rate exerted positive impact on economic growth. However, the relationship between two is though positive but remain insignificant in the short run. The results also suggested that economic growth is an outcome of financial development

In summary, one can conclude that despite the significant positive relationship often found between financial development and economic growth, the findings are still non-conclusive regarding several aspects, which continue to give a new dimension to the debate. The controversy first concerns the measure of the extent of financial development Each of the proxies (real interest rates, several monetary aggregates, credit granted to the private sector) poses a serious problem of interpretation linked to the nature of the variable. The second point of debate is also indecisive regarding the causal relationship between financial development and economic growth; the effect is running from financial development to economic growth, the opposite or both ways.

#### **Objectives**

In the light of the literature cited above the objective of study are as follow:

- To assess the development performance of financial sector of Pakistan using financial indicators.
- To determine the economic growth of Pakistan taking per capita income as an economic indicator.
- To explore the association and causality between financial development and economic growth.

#### **Hypotheses**

Based on objectives the following hypotheses are formulated for empirical testing:

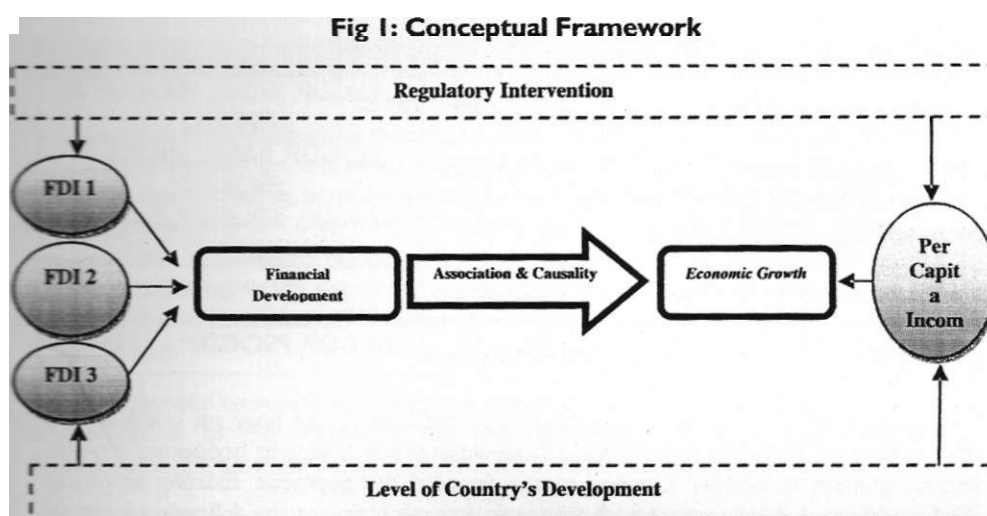
- There exists an association between financial development and economic growth.
- Financial development does cause economic growth or vice versa.

## METHOD

The selection of key indicators to represent the level of financial development achieved in an economy and how to measure the extent and efficiency of financial intermediation are the major problems in an empirical study of this nature. Construction of financial development proxies is an extremely difficult task due to the diversity of financial services catered for in the financial systems. Furthermore, there is a diverse array of institutions and agents involved in the financial intermediation activities. Despite all efforts made by researchers to refine and improve the existing measures, the financial development proxies used are still far from satisfactory (Ang & McKibbin, 2005). In most cases, these variables are highly correlated and yet there is no uniform argument as to which proxies are most appropriate for measuring financial development. We use logarithm of liquid liabilities (M2) to nominal GDP as FDI 1, which gives an indication of the absolute size of the financial sector (Goldsmith, 1969; King & Levine, 1993a, 1993b; Wood, 1993; Beck et al., 1999). This indicator is meant to capture the overall size of the financial sector and its ability to provide broad transaction services (Favara, 2006). A major weakness of above mention ratio serving as proxy of financial development is that it is likely to measure the extent to which transactions are monetized rather than the functions of the financial system such as savings mobilization and efficient allocation of investments.

In contrast logarithm of private sector credit (PSC) to nominal GDP is FDI 2 that represents an accurate indicator of the functioning of financial development because it is a measure of the quantity and quality of investment (De Gregorio & Guidotti, 1995; Demetriades & Hussein, 1996; Levine, 2004). FDI 2 is probably a better proxy for financial development since it only accounts for credit granted to the private sector, as opposed to credit issued to government and other non private institutions (Beck et al., 1999; Favara, 2006). Shortfall of FDI 2 is that it is a narrow measure of financial development because it does not include financial developments that occur outside the debt market like the development of equity market. We use logarithm of market capitalization (MC) divided by nominal GDP as FDI 3 as a measure of the size of the stock market. In the case of time-series analysis, this measure is preferred to other market liquidity measures used mainly in cross-section studies (Arestis et al, 2001). Economic growth is measure by per capita income (PCI), as an indicator of growth and standard of living (Ang & Mckibbin, 2005). All variables are in logarithmic form as used by Kar & Errar (2000). These financial variables can capture different aspects of the financial development process.

Figure 1 shows conceptual framework for financial development and economic growth with arrows suggesting association and causality between two.



On the basis of conceptual framework and within the boundaries of objectives following methodology has been designed to find the association and causality between financial development and economic growth on the basis of selected measures for both major variables. Hamilton (1781) suggested that banks were the happiest engines that ever were invented for driving economic growth'. In the above statement it is clear that economic growth is dependent variable while, financial development is independent variable with intervening effect of regulators, in order to measure the relationship between financial development and economic growth, level of country's development is also an important concern.

The annual time series data for the Pakistan's economy for the period 1974-2007 constitute thirty four (34) observations. All relevant data published by state bank of Pakistan and ministry of finance serve as sources of data. FDI 1 gives an indication of the absolute size of the financial sector (King & Levine, 1993a, 1993b; Wood, 1993; Beck et al., 1999); FDI 2 measures the activity of financial intermediaries (Odedokun, 1989); and FDI 3 measures the size of the stock market (Hondroyannis et al, 2004). Table 1 indicates selected studies' sample size and financial development indicators used to assess relationship between financial development and economic growth.

" Q^JctEd from Hammond (1991: 36).

**Table I: Selected Studies**

King & Levine(1993)	1960-1989	M2/GDP, BANK, PSC/GDP & PSC/DC
Levine(1997)	1960-1989	M2/GDP, BANK, PSC/Dc & PSC/GDP
Kar and Eric. Pentecost(2000)	1963-1995	M2 /GDP, BDL/GDP, DC/GDP, PSC/GDP & PSC/DC
Hondroyiannis et al. (2004)	1986-1999	PSC/GDP & MC/GDP
Jean-Claude Maswana (2005)	1980-2002	M3/ GDP, PSC/GDP & DC/GDP

Based on the previous discussion of growth and finance, we now set out a simple model to test the hypothesis that financial development is linked to economic growth. Economic growth is a linear function of the financial development Existing empirical studies on financial development and economic growth estimate the following function (Halicioglu, 2007).

$$\text{Economic Growth} = f(\text{Financial Development})$$

As given in equation 1 all variables are subject to transformation in natural logarithm form, where E stands for error term. B, stands for the intercept indicating the value of economic growth when financial development is zero. B<sub>1</sub> to B<sub>4</sub> stands for the slope that measures the rate of change in economic growth for a unit change in financial development

$$PCI = B_0 + B_1FDI + B_2FD2 + B_3FD3 + E \quad (1)$$

Before estimation of above function by Ordinary Least Square OLS and Granger Causality (GC) for association and causality, both dependent and independent variables should be separately subjected to some statistical tests such as Unit Root Test This is to check whether the time series variables are stationary or non-stationary<sup>6</sup>.

The problem of this study and the literature on finance and growth in general is the lack of a complete database on the economic and finance statistics for developing countries. Secondly, the lack of accurate empirical proxies for financial development is a problem, because these are difficult to construct

#### Measures of Financial Development

The financial system is offering financial products and services to individuals business and government units by different channels like wholesale, retail and informal institutions in an economy. Its structure consists of banks, non-banking financial

<sup>6</sup> A series is said to be stationery if its mean and variance are constant over time period.



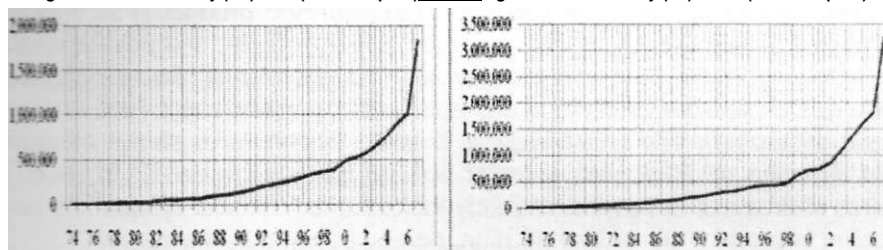
institutions (NBFIs), central directorate of national saving (CDNS), stock exchanges, insurance companies and traditional moneylenders all performing various functions in

A well-developed financial system promotes efficiency and competition by reducing — *izz-* transaction, and monitoring costs (Levine, 1997). A modern financial system — — -vestment by identifying and funding good business opportunities; mobilizing **savings**; monitoring the performance of managers; enabling the trading & hedging; and **faoBcaong** the exchange of goods and services in an economy. These functions result in *IT* allocation of resources and a rapid accumulation of physical and human **capital**, \*m<sub>kh</sub> in turn feed economic growth (King & Levine, 1993a,b; Khan, Qayyum & Sheidv 2005).

The financial structure of Pakistan is composed of a variety of financial institutions and products. In the literature, the most commonly used measures of financial development are describe below and grouped as depth and credit measures'

**Depth Measures:** Depth measures reflect financial conditions of an economy in monetary terms. It consists of MO; MI; M<sub>2</sub>; M<sub>2</sub>/GDP; MC/GDP.

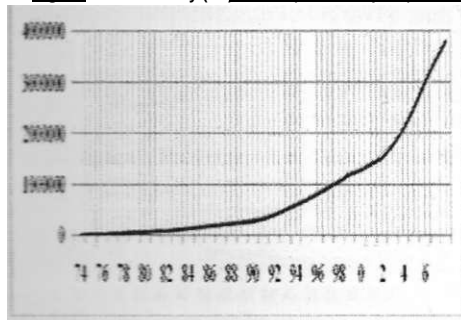
Figure 2: Reserve Uoney (MO) (Million Rupees) \_\_\_\_\_ Figure 3: Narrow Money (M1) (Million Rupees)



(Date Source: [www.sbp.org.pk](http://www.sbp.org.pk))

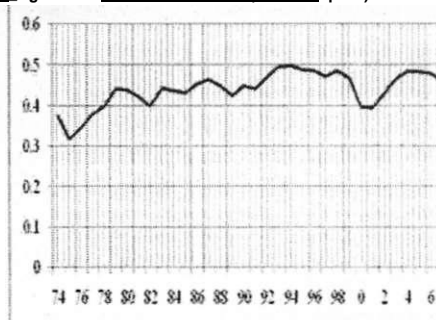
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Figure\* Broad Money (M2) (Million Rupees)



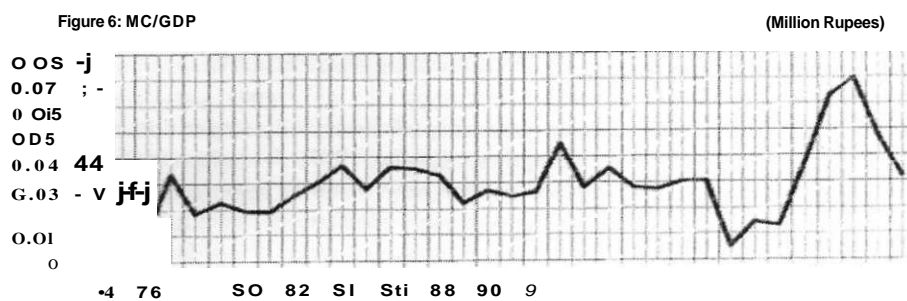
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Rfigure 5: M2/GDP (Million Rupees)



(Data Source: [www.sbp.org.pk](http://www.sbp.org.pk))

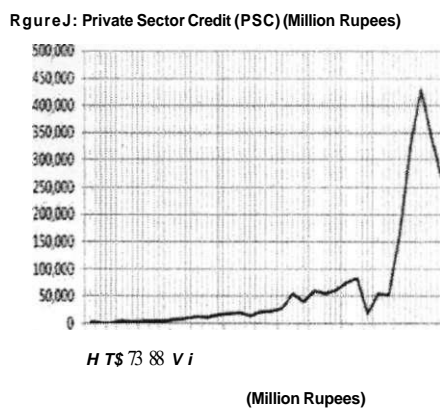
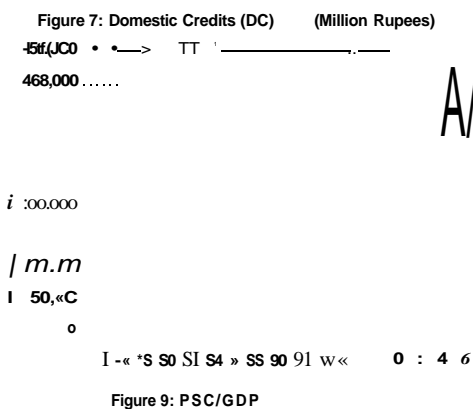
\* For Selected financial Indicators see Annex A, and for Financial Statistics see Annex B.

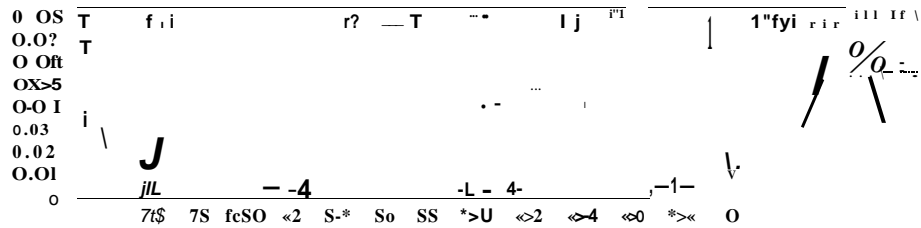


(Data Source: Hand Book of Statistics on Pakistan Economy 2005, [www.sbp.org.pk](http://www.sbp.org.pk))

From the above diagrammatic analysis of depth measures, it is quite clear that monetary curves have upward trend. The growth or pace is normal before 1990 and has strong upward direction in late 90s and still continue till 2007. These measures suggest monetization in the economy caused by expanded economic activity in the country.

**Credit Measures:** Credit measures are domestic credit (DC), private sector credit (PSC) and private sector credit / gross domestic product (PSC / GDP). These measures show the dispersion of credit between public and private sector. Credit measures indicate the efficiency and functioning of financial system because it is a measure of the quantity and quality of investment (see Annex C for credit measures). The credit analysis is taken by measures shows abnormal upward direction till 2002 than a major upward jump is observed. In short all measures of financial development clearly indicate that financial system has been developing in modern era of liberalization, deregulation and privatization.





(Data Source: Hand Book of Statistics on Pakistan Economy 2005, [www.sbp.org.pk](http://www.sbp.org.pk))

### Measures of Economic Growth

Pakistan experienced persistent uneven development ever since its independence. Its economic performance was very poor in the first decade. The 1960s witnessed a sharp favorable turn for the better when economic growth approached 6 percent. Since then the country has been experiencing fair economic growth, though with cyclical downturns. Gross national product (GNP) and Gross domestic product (GDP) are usually considered measures of economic growth. Since growth can come in many ways these are not particularly good measures. There are a number of measures which have been used to estimate the economic growth of a country. Some common measures are PCI, GDP and GNP (see Annex D for growth measures).

Figure 10: PCI (Million Rupees)

Figure 11: GDP (Million Rupees)

50 000

10,000

10,000

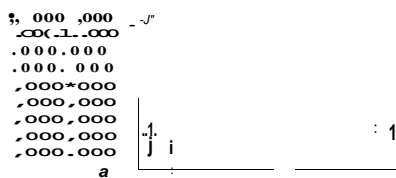
10,000

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Figure 12: GNP

(Million Rupees)



(Data Source: Hand Book of Statistics on Pakistan Economy 2005, [www.sbp.org.pk](http://www.sbp.org.pk))

We used per capita income at factor cost (PCI), gross domestic product (GDP) at factor cost and gross national product (GNP) at factor cost all showing upward trend. Specifically, after 1999 to 2002 there is a jump, which reflect that economic activity and

demand for the product has been expanded in the country responding 7 percent average GDP growth rate of last five years.

#### Empirical Analysis

Before using regression analysis, stationery and autocorrelation test as given in Table 2 and Table 3 are produced by EViews.<sup>19</sup> The unit root test for PCI fail to reject that series has unit root with intercept and 5 percent significant level, then test has been performed by intercept & trend and test for unit is 2<sup>nd</sup> difference, so series now reject that series has unit root Know series is stationary with maximum lag length 8. Durbin-Watson statistics (1.77) is favorable with significant F statistics.

Table 2: Unit Root Test

Augmented *Dickey-Fuller (ADF)*

Lag Length: (Automatic based on SIC, MAX LAG = 8)

Indicators for FD and EG	ADF Test Statistic	
	t-statistics	Prob.*
		<b>0.05</b>
( Exogenous: Constant, Linear Trend)		
(Exogenous: Constant)		
●		0.0117
(Exogenous: Constant)		
FDI 3 has a unit root	-5.53707	0.0004
( Exogenous: Constant, Linear Trend)		

\* MacKinnon (1996) one-sided p-values

<sup>19</sup> All dependent and independent variables are put into the stationary test separately (Dickey and Fuller, 1981). Null hypothesis is the series has unit root. If test reject null hypothesis, this means variable is stationary. In case the test with an intercept fail to reject that a series has unit root, than perform a test with an intercept and trend. However, if the test fail to rejects that a series has unit root at the 5 percent significance level, so concluded that the variable has a unit root and thereafter needs to be differenced (Alrayes, 2005).

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Unit root test for FDI 1 reject that series has unit root with intercept at 5 percent significant level. Durbin-Watson statistics (1.96) is favorable. Unit root test for FDI 2 reject that series has unit root with intercept at 5 percent significant level. Durbin-Watson statistics (1.97) is favorable. Unit root test for FDI 3 fail to reject that series has unit root with intercept at 5 percent significant level, than test has been performed by intercept & trend, Durbin-Watson statistics (2.003) is favorable.

Table 3: Autocorrelation Test

Variables for FD and EG	Durbin-Watson	
	Statistics	Prob.
PCI	1.770929	0.000000
FDI 1	1.966935	0.002415
FDI 2	1.979469	0.009817
FDI 3	2.003535	0.000026

**Link between Financial Development and Economic Growth:** In light of recent empirical studies ordinary regression log per capita income (PCI) on the variables FDI 1, the logarithm of FDI 2 and the logarithm of FDI 3. Table 4 summarizes the results of coefficients for three financial development indicators. The results suggest that all variables are statistically significant; FDI 1 and FDI 3 have positive marked degree of association with PCI and FDI 2 has negative low degree of association with PCI taken as dependent variable. The coefficient of determination is 0.73. It indicates that 73 percent of variation in the PCI might be considered as being associated with the variables in the FDI 1, FDI 2 and FDI 3. Not only all the coefficients are statistically significant, the magnitude of coefficients implies that the link between financial development and economic growth may be economically important.

Table 4: Ordinary Least Square

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	12.14208	0.915725	13.25953	0.0000
LOG(FDI1)	4.612251	1.441255	3.200164	0.0032
LOG(FDI2)	-0.650295	0.264627	-2.457400	0.0200
LOG(FDI3)	0.708780	0.124403	5.697475	0.0000
			F-statistic	27.12249

Table 5 presents correlation results where each cell of the matrix contains 3 numbers. The first number in the cell is the Pearson co-efficient of correlation between the column variable and the row variable. The second number is the significance probability. The final number is number of items used in this process. Correlation matrix suggests a marked degree of positive association (0.63) between PCI and FDI 1. PCI with FDI 3 has also marked degree of positive association (0.80). The cut off criterion used for significance probability is less than 5 percent (0.05). Significance probability for PCI in respect to FDI1 and FDI 2 is 0.001, and .001 that is less than (0.05). There is a low positive insignificant association between PCI with FDI. This shows that FDI 1 and FDI 3 have statistically significant positive association with PCI; and insignificant positive weak association of FDI 2 (supports King, & Levine, 1993a).

Table 5: Correlation

<b>PCI</b>	<i>Pearson Correlation</i>	<i>I</i>	.629**	.244	.795**
	<i>Sig. (2-tailed)</i>		.001	.165	.001
	<i>N</i>	34	34	34	34
<b>FDI 1</b>	<i>Pearson Correlation</i>	.629**	1	.640**	.576**
	<i>Sig. (2-tailed)</i>	.000		.000	.000
	<i>N</i>	34	34	34	34
<b>FDI 2</b>	<i>Pearson Correlation</i>	.244	.640**	1	.399*
	<i>Sig. (2-tailed)</i>	.165	.000	.	.020

	N	34	34	34	34
<b>FD*3</b>	<b>Hmuun</b>	<b>Correlation</b>	.795**	.576**	.399*
			.000	.000	.020
	N	34	34	34	34

Between Financial Development and Economic Growth: This research is to examine the casual relationship between financial development and economic growth. In this analysis, F tests are used to test for causality between financial development and economic growth. The results are presented in Tables 6.

**Table 6: Granger Causality**  
Lags: 2

NcJ Hypothesis:	Observation	Probability	Accept/Reject	
-Z FDI1 does not Granger Cause PCI	32	1.27702 0.22966	0.29518 0.79634	Accept Accept
PQ does not Granger Cause FDI2		0.87829	0.42703	Accept
FOG does not Granger Cause PCI	32	0.25942	0.77340	Accept
FDI1 does not Granger Cause FDI2	32	0.02447 1.55361	0.97585 0.22980	Accept Accept
FDI1 does not Granger Cause FDI3	32	0.87583 0.13534	0.42802 0.87401	Accept Accept
FDI2 does not Granger Cause FDI3	32	0.02143 7.21056	0.97881 0.10310	Accept Accept

The F statistics are reported in third columns and probability in last column used for test outcome. Highlighted rows show that test reject hypothesis at 5 percent level. The test results show that FDI 2 Granger causes PCI and PCI Granger causes FDI 3 at 5 percent significance level. It suggests that there is bi-directional relationship between PCI and FDIs in case of Pakistan. Results are consistent with studies like Calderon & Liu (2003); Hondroyannis et. at (2004) and Singh (2007).

#### **Conclusions and Recommendations**

Pakistan's economic success based on financial liberalization and deregulation path that the country has followed in early 1990s after financial repression imposed on 1970s is unique in nature. It is interesting to investigate the association and causality between financial development and economic growth over this period. This paper reviews financial development since 1974 to 2007, and empirically examines the impact of financial development on economic growth. Three indicators, FDI 1, FDI 2 and FDI 3 are used to capture the association and causality of financial development to per capita income as an economic growth indicator.

All dependent and independent variables are put into the stationary test separately before estimating OLS and Granger Causality. All Series are evaluated with maximum lag length 8. Durbin-Watson statistics are favorable with significant F statistics for all series. Ordinary least square (OLS) used regress log PCI on the logarithm FDI 1, FDI 2 and FDI 3. Results suggest that FDI 1 and FDI 3 have positive marked degree of association and FDI 2 has negative low degree of association in relation to PCI. In addition to this, 73 percent of the variation in PCI might be considered as being associated with the variation in the FDIs. In case of correlation broad money to GDP and market capitalization to GDP has strong correlation. Private sector credit to GDP has weak positive correlation with per capita income of the country. Granger causality tests have been carried out in the context of OLS and ADF. The empirical results show that the direction of causality between financial development and economic growth is bi-directional; it seems sensitive to the choice of financial development and economic growth proxies. It suggests that if more proxies are included for both variables and if intervening affect of regulators are controlled more valid conclusions can be drawn.

The results of the study suggest that financial liberalization results in financial sector development that boosts economic growth. If policy-makers attempt to promote growth, the attention should be focused on long run policies, such as creation of modern financial institutions in the banking sector and in the stock markets. Secondly, the financial system must be properly modified before undertaking any liberalization program.



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## Selected Financial Indicators

Period	M2 / GDP	PSC / GDP	MC / GDP
1974	0.375553923	0.034422818	0.043408006
1975	0.319379665	0.011713356	0.045414603
1976	0.347856952	0.011024253	0.039119396
1977	0.380734215	0.033732406	0.03838008
1978	0.398267017	0.018562312	0.039126627
1979	0.442027845	0.022727784	0.042042464
1980	0.439584691	0.019619221	0.031871127
1981	0.422146543	0.019299442	0.026562456
1982	0.39879789	0.025411343	0.032106465
1983	0.44463966	0.030218141	0.040580125
1984	0.436135798	0.036722417	0.052483111
1985	0.432652495	0.027835808	0.051648693
1986	0.452717989	0.036174807	0.052371874
1987	0.465676298	0.035310255	0.061340897
1988	0.448423942	0.032790649	0.063476561
1989	0.425180564	0.022468374	0.064313506
1990	0.449102521	0.02709347	0.063994125
1991	0.441056217	0.025084382	0.075342315
1992	0.469014045	0.026361393	0.202568789
1993	0.496104589	0.045243432	0.178671477
1994	0.497854706	0.028220064	0.28635392
1995	0.488548275	0.03529586	0.173758538
1996	0.486390416	0.028368974	0.19079533
1997	0.473025896	0.027443433	0.210904616
1998	0.486246816	0.03043154	0.104513318
1999	0.468047545	0.030620189	0.104614867
2000	0.396852112	0.005175174	0.111028943
2001	0.393712123	0.014411653	0.087525122
2002	0.430104927	0.012934624	0.099540195
2003	0.463851779	0.03742639	0.166562533
2004	0.483521014	0.063239289	0.26396713
2005	0.483816447	0.069954712	0.332260412
2006	0.479226281	0.047678842	3.880421366
2007	0.461072334	0.032021846	0.483896024

## ANNEX B

## Financial Statistics

Monetary Statistics  
(Million Rupees)

Period	Currency in Circulation	Other Deposit with SBP	Currency in till of Scheduled Banks	Banks' Deposits with SBP	Reserve Money (Mo) (1+2+3+4)	Scheduled Banks' Demand Deposits	Narrow Money (MT) (1+2+6)	Scheduled Banks' Time Deposits	Resident Foreign Currency Deposits	5-Da: Money ft — 5
	1	2	3	4	5	6	7	8	9	10
19/4	9,295	795	729	1,424	12,243	11,455	21,545	9,134	0	30,679
1975	10,273	331	833	1,874	13,311	12,051	22,655	10,419	0	33,774
1976	12,603	210	1,012	2,252	16,077	14,868	27,681	13,970	0	41,651
1977	15,523	225	1,679	2,777	20,204	19,506	35,254	16,519	0	51,773
1978	18,310	277	1,654	3,467	23,708*	\$23,602 i	42,189	21,470	0	63,259
1979	23,745	330	2,060	4,371	30,506	28,917	52,992	25,620	0	78,612
1980	27,649	651	2,187	4,747	35,234	33,689	61,989	30,435	0	92,424
1981	34,750	571	2,515	4,539	42,375	38,239	73,260	31,061	0	104,621
1982	37,650	604	2,665	5,983	46,902	42,672	80,926	35,584	0	116,210
1983	45,767	547	3,020	6,707	56,041	50,228	96,242	49,483	0	146,025
1984	52,039	699	3,004	8,161	63,903	50,707	103,445	59,822	0	163,257
1985	56,447	742	4,087	8,719	69,995	61,779	118,968	64,937	0	183,905
1986	63,276	878	4,101	9,380	78,135	70,677	134,831	76,280	0	211,111
1987	74,703	1,102	4,623	19,729	100,157	83,821	159,626	80,398	0	240,024
1988	87,785	1,218	5,135	13,552	108,090	96,077	185,080	84,434	0	269,514
1989	97,508	3,132	4,984	15,846	121,470	105,719	206,359	84,098	0	290,457
1990	115,067	2,209	5,351	17,572	140,199	122,881	240,157	101,094	0	341,251
1991	136,967	3,114	7,339	22,427	169,847	125,060	265,141	126,016	9,487	400,644
1992	151,819	3,322	8,962	43,773	207,876	147,767	302,908	159,657	43,004	505,269
1993	166,864	4,449	11,301	41,243	223,857	156,509	327,822	206,294	61,274	595,390
1994	184,708	5,506	13,738	54,404	258,256	168,554	358,768	252,497	92,134	703,399
1995	215,579	5,055	16,363	45,855	282,852	202,505	423,139	296,521	105,073	824,733
1996	234,110	6,791	19,328	49,852	310,081	207,108	448,009	344,713	145,958	938,680
1997	244,141	7,135	17,821	77,949	347,046	192,275	443,551	386,801	222,882	1,053,234
1998	272,922	6,412	18,769	71,275	369,478	200,297	480,231	447,432	278,256	1,206,319
1999	287,716	6,212	18,870	85,185	397,983	349,115	643,043	516,586	120,917	1,280,346
2000	355,677	7,959	19,468	114,703	497,207	375,297	739,033	549,124	112,475	1,400,632
2001	375,465	11,292	19,178	127,266	533,201	374,675	761,432	610,458	154,154	1,526,044
! 2002	433,816	13,847	26,414	110,522	584,599	429,175	876,238	727,076	157,456	1,761,270
2003	494,577	3,499	30,415	140,990	669,481	608,170	1,106,246	846,321	126,138	2,078,705
•2004	578,116	2,116	36,432	156,204	772,268	791,413	1,271,845	969,217	145,694	2,486,556
2005	665,911	3,355	43,462	196,302	909,030	954,880	1,624,146	1,161,202	180,295	2,965,643
•2006	740,390	4,931	48,439	215,701	1,209,461	1,095,260	1,240,281	1,380,418	195,501	3,416,200
2007	834,524	5,595	740,390	255,331	1,235,840	2,416,604	3,256,723	3,358,823	200,484	3,793,030

Source: Hand Book of Statistics on Pakistan Economy 2005 &  
State Bank of Pakistan Annual Report 2006-2007 [www.sbp.org.pk](http://www.sbp.org.pk)

## ANNEX C

## Credit Measures

(Million Rupees)

Period	Govt Sector Borrowing	Public Sector Enterprises	Private Sector Credit PSC	Other Financial Institutions	Non Govt. Sector (2+3+4)	Other Items (Net)	Domestic Credit DC (1+5+6)	Net Foreign Assets
	1	2	3	4	5	6	7	8
1974	1,364	0	2,812	41	2,853	fi 832	5,049	-1,438
1975	1,809	0	1,213	50	1,263	712	3,784	-1,389
1976	5,240	1,609	1,320	444	3,373	-103	8,510	170
1977	6,710	1,764	4,587	686	7,037	-824	12,923	-2,800
1978	4,858	2,081	2,967	514	5,562	-1,689	8,731	3,149
1979	9,114	2,695	4,042	-51	6,686	944	16,744	-1,855
1980	6,420	2,283	4,125	1,592	8,000	-3,023	11,397	2,415
1981	5,568	2,896	4,783	1,852	9,531	-1,623	13,476	-1,279
1982	6,756	3,026	7,424	1,562	12,012	-1,523	17,245	-5,356
1983	9,199	3,975	9,924	999	14,898	-4,592	19,505	10,010
1984	7,513	3,290	13,747	1,788	18,825	-6,221	20,117	-2,875
1985	18,273	-422	11,832	2^85	13,695	2,041	34,009	-17,472
1986	8,623	-840	16,869	2,486	18,515	-2,244	24,894	-2,119
1987	10,612	-528	18,200	3,052	20,724	-2,333	29,003	-1,384
1988	18,234	1,856	19,708	2,091	23,655	-9,199	32,690	-3,199
1989	15,910	1,494	15,349	2,834	19,677	-7,525	28,062	-7,120
1990	23,203	4,286	20,587	2,570	27,443	2,516	53,162	-2,366
1991	27,438	-3,394	22,786	2,310	21,702	4,540	53,680	5,712
1992	68,991	1,170	28,416	1,833	31,419	-4,464	95,946	8,979
1993	75,003	2,289	54,298	3,986	60,573	-11,741	123,835	-34,013
1994	28,266	-2,902	39,871	2,897	39,866	6,467	74,599	33,409
1995	53,086	5,806	59,584	4,148	69,538	-28,246	94,378	26,957
1996	68,527	6,100	54,749	2,579	63,428	20,988	152,943	-38,998
1997	80,933	2,774	61,105	-1,199	62,680	5,034	148,647	-33,289
1998	56,723	-1,880	75,497	-717	72^00	26,847	156,470	-13,897
1999	-74,455	-2,906	83,775	18,894	99,763	307	25,615	29,529
2000	78,049	7,600	18,265	361	26,226		118,709	
2001	-45,225	20,561	55,860	-7,734	68,687	14,434	54,373	1,375
2002	22,177	-19,496	52,970	-14,480	18,994	30,911	29,157	72,654
2003	-78,362	-11,586	167,723	-7,600	148,537	-12,014	8,451	206,168
2004	58,106	-2,917	325,215	-6,891	315,407	-61,724	364,325	308,946
2005	91,985	-12,689	428,800	-6,460	409,651	-9,188	425,318	43,526
2006	63,859	5,411	339,912	-1,306	344,017	-76,318	314,383	53,749
2007	185,496	10,173	263,429	381	273,983	-93,493	389,680	43,822
						-69,799		88,194

Source: Hand Book of Statistics on Pakistan Economy 2005 & State Bank of Pakistan Annual Report 2006-2007 [www.sbp.org.pk](http://www.sbp.org.pk)

## ANNEX D

## Growth Measures

(Million Rupees)

Period	Gross Domestic Product (fc) GOP			Total (1+2+3) 4	Gross National Product (fc) GNP 5	Population (in Million) 6	Per Capita Income (fc) in Rs. PCI (5/6) 7
	Agriculture	Industry	Services				
	1	2	3				
	28,084	18,494	35,112	81,690	82207	67.90	1212
1975	33,533	22,944	47,080	103,557	104,704	69.98	1,496
1976	38,338	27,232	54,166	119,736	122,728	72.12	1,702
1977	43,968	31,099	60,915	135,982	141,462	74.33	1,903
1978	50,567	36,400	72,873	159,240	171,279	76.60	2,245
1979	54,147	41,872	81,825	177,244	192,277	78.94	2,437
1980	62,164	52,234	95,855	210,253	228,237	81.36	2,809
1981	76,399	56,013	115,419	247,231	270,223	83.84	3,227
1982	92,216	65,020	134,917	292,153	317,202	86.44	3,673
1983	99,380	72,492	156,540	328,412	367,807	89.12	4,127
1984	104,550	84,983	184,816	374,249	413,244	91.88	4,505
1985	121,293	95,516	208,255	425,064	463,375	94.73	4,892
1986	128,801	108,853	228,665	466,219	507,678	97.67	5,198
1987	135,308	123,828	256,295	515,431	551,809	100.69	5,480
1988	156,375	146,527	298,123	601,025	630,120	103.82	6,069
1989	184,074	163,248	335,816	683,138	711,143	107.04	6,644
1990	197,441	191,254	371,156	759,251	796,751	110.36	7,220
1991	233,130	234,033	441,211	908,374	932,282	113.78	8,194
1992	282,374	274,318	521,251	1,077,943	1,090,480	117.31	9,296
1993	297,814	303,110	599,205	1,200,129	1,210,089	120.83	10,015
1994	357,924	351,909	703,025	1,412,858	1,416,846	124.45	11,385
1995	437,034	414,025	837,067	1,688,126	1,702,169	120.88	14,081
1996	491,791	466,219	971,781	1,929,891	1,922,755	123.87	15,222
1997	594,554	523,478	1,108,548	2,226,580	2,207,230	126.90	17,393
1998	677,531	590,504	1,212,849	2,480,284	2,456,520	129.97	18,901
1999	739,569	649,475	1,346,899	2,735,943	2,710,396	133.01	20,377
2000	923,609	798,190	1,807,546	3,529,345	3,481,389	137.90	25,246
2001	945,301	895,044	2,035,680	3,876,025	3,821,543	140.36	27,227
2002	968,291	938,394	2,188,527	4,095,212	4,118,877	143.17	28,769
2003	1,059,316	1,031,108	2,390,988	4,481,412	4,633,224	146.75	31,272
2004	1,149,129	1,282,054	2,711,427	5,142,610	5,267,088	149.65	35,196
2005	1,322,641	1,540,444	3,266,591	6,129,676	6,254,900	152.53	41,008
2006	1,282,664	1,939,165	3,807,266	7,129,195	7,279,086	155.37	46,250
2007	1,608,526	2,203,493	4,414,516	8,226,235	8,287,269	158.17	53,027

Source: Hand Book of Statistics on Pakistan Economy 2005 &  
State Bank of Pakistan Annual Report 2006-2007 [www.sbp.org.pk](http://www.sbp.org.pk)