Financial Reforms and Private Savings in Pakistan

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Abstract

This study investigates the influence of a few factors on private savings in Pakistan, in particular it examines the affect of financial reforms on savings. In this context the importance of reforms is assessed using the principal component method to construct an index of financial reforms using data for the period 1976-2008. The Auto Regressive Distributed Lag model and its Error Correction version is adopted to assess the determinants of private savings. It is found that private savings respond only positively to income. Uncertainty about future income, interest rate and financial reforms all seem to affect private savings negatively. The hypothesis that savings may increase substantially with financial reforms is not accepted in case of Pakistan. In fact despite a prolonged period of financial reforms there is no marked increase in private savings to GDP ratio.

Keywords: Financial reforms, private savings, interest rate.

1. Introduction

Like many developing countries the economy of Pakistan yielded to the pressure of financial sector reforms inspired by the Washington Consensus which led to a major shift in policies since1990s. The main intention behind the reforms was to develop a competitive and efficient financial sector and steer the economy on to a high and sustainable growth path.

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Theoretical underpinning of the financial reforms was based on the idea that a repressed financial sector is neither competitive nor efficient. It keeps the interest rate under the market clearing level which may depress savings below the optimal savings potential of an economy and hamper the growth process (Mc Kinnon (1973), Shaw (1973) and Levine (2004)).

This idea of a chain of causation running from financial reforms to interest rate, savings, investment and growth has come to be increasingly questioned. It not only implies that interest rate is the only channel through which financial reforms impact savings but also undermines the potential influence of financial reforms on savings through other dimensions including capital flows, credit channels and control of public expenditures etc.

The influence of financial liberalization on private savings has been studied in both developed and developing countries, however their results are inconclusive. The experience of many developing countries having adopted financial reforms, suggest that the response of savings to reforms is weak and may even be negative. Bandiera, et al, (2000) and Chowdhury (2001) It means financial reforms may be a necessary condition for mobilization of savings but not a sufficient condition.

The case of Pakistan is not different and after two decades of financial reforms private savings have remained on average 12 to 13 percent of GDP. Low savings ratio has led to increased borrowings and disruptive growth cycles which pose a challenge to economic management of the country. Although Pakistan's alliance with the international agenda for war against terrorism favoured large amount of fund flow from the US but could not compensate for the low savings as well as low tax to GDP ratios of the country.

It is believed that the primary causes of low savings ratio are large interest rate spread and low return to bank deposits. To correct the interest rate distortion, in June 2008 the State Bank of Pakistan aptly intervened and a minimum rate of return of 5 percent rate was fixed on saving deposits.

Despite policy intervention the estimates of national, private and financial savings continued to be low in 2009.[1]

While establishing an association between private savings and interest rate, the relationship is not only theoretically unclear it is also found to be empirically inconclusive. So far as the practical aspect of changes in interest rate is concerned permanent changes in interest rate are rare and most often changes in interest rate are temporary. It implies the dynamic influence of financial reforms being spread over decades may vary from its short term impact on savings via the interest rate channel and may also depend on other channels through which it operates.

Given the above mentioned concerns, it is worthwhile to assess the overall affect of financial reforms on private savings in Pakistan. Although majority of the studies evaluating the impact of financial reforms on savings are based on a group of specific countries, this approach may not be deemed appropriate as the extent of financial repression may vary from country to country. Studies based on individual country analysis for developing countries are few. Also studies regarding the affect of financial reforms on private savings in Pakistan are limited to the earlier period of 1990s lacking the assessment of some dynamic aspects of reforms on savings.

The purpose of this paper is to specify the long and short term determinants of private savings in Pakistan, more importantly the paper attempts at establishing a link between the various dimensions of financial reforms process and private savings. Apart from that the impact of other

[1] Domestic savings, measured as a sum of public and private savings, show that the contribution of public sector savings have mostly remained either low or negative, it was on average 1 percent of GDP in 1990s and is more or less the same in 2000s. Private savings measured as the sum of house hold and corporate savings was 11 percent in 2009. House holds account for almost 90 percent share in private savings. and the corporate savings have largely remained as low as 1.4 to 2.2 percent despite having more than 60 % share in loans of the banking system.

variables on private saving, including, interest rate, per capita income, public savings and uncertainty is also examined.

Plan of the paper is as follows:

There are five sections of this paper. The introduction of the research given in section 1 is followed by an overview of the response of some key financial variables to the reform process in section 2. A brief on model and measurement of variables including measurement of financial reforms index is presented in section 3. The econometric results are presented in section 4 while findings and conclusions are summed up in section 5.

2. Financial Reforms in Pakistan: An Overview

This section gives a brief overview of some distinct features of the financial sector of Pakistan during the pre reform period. The financial markets were mainly characterized with the ownership of large public owned banks and financial institutions. Despite controls on the lending and deposit rates the interest spread and banking spread were high. Besides that, the credit market was segmented and subsidized credit was provided to priority sectors which led to the multiplicity of interest rates. These factors were believed to have led to a process of dis-intermediation and depressed savings below the optimal savings potential of the economy and therefore the promotion of economic growth. Janjua (2004).

Financial reforms initiated since 1989 aimed to promote a market oriented financial sector for which a series of reforms were undertaken in seven main dimensions of the financial sector involving banking reforms, monetary management, public debt management, exchange rate liberalization, payment reforms, prudential regulations and the capital market reforms. In a reformed financial system, financial stability, depth and outreach was to increase substantially through increased role of private owned financial institutions. Financial reforms also meant prevalence of market determined interest rates and reduced interest rate spread, through removal of controls on the lending and deposit rates. Moreover, the reform

process was to remove credit ceilings and increase access to credit by the private sector. Subsequently, all these developments were to be reflected in increased saving, investment and growth opportunities.

Data reported in Appendix 1 (Table 1 and Table 2) shed some light on the response of some key financial variables, to the financial reforms process overtime.

In the first place, it is observed that both the national and private savings have remained highly unimpressive. More importantly private savings being 90 percent of domestic savings increased on average from 9.6 percent of GDP to 12.5 percent during the period of 1970s and 1980s, thereafter it remained stagnant at 12.26 percent in 1990s and increased slightly to an average of 14.79 percent in 2000s. This may indicate that financial reforms could not exert substantial influence on private savings, in the short as well as the long time period.

Second, financial savings ratio as part of national savings has been declining continuously; the flow of financial savings was on average 9.35 percent of GDP in 1990s and declined to 6.6 percent in the decade of 2000s. Of the three main components of financial savings, bank deposits are observed to be the most preferred form of financial savings followed by the National Savings Schemes (NSS) and the currency in circulation (CIC). However, the percentage share of bank deposits in financial savings has remained between 4.8 percent of GDP to 4.3 percent in the last two decades which shows that banks have also played no significant role in the promotion of savings.

Limited role of banking system in mobilizing deposits is also evident from the low financial inclusion. For example, of the total population hardly 12 percent of the people are reported to have bank accounts whereas less than 4 percent are borrowers. The rural-urban distribution of financial services also indicates that access to financial services is concentrated in big cities. It is reported that over 75 percent of the bank branches are located in big urban cities which means that almost 75 percent of the bank account holders belong

to the top few big cities. In other words the share of top two to five big cities in overall bank deposits has been as high as 48 percent to 69 percent respectively. (BSR 2006, 2008)

Similarly, percentage share of the other two components of financial savings, the NSS and CIC have also remained low. The share of NSS flows fluctuated around 1 percent of GDP during the two decades of 1990s and 2000s. And despite considerable improvement in the payments system, as part of the financial reforms process the share of CIC in financial savings seem to have changed only fractionally overtime.

Third, the extent of financial intermediation calculated as the ratio of currency to deposits (CC/D), also confirms that preference for cash transactions remain to be high. It is shown that though the ratio declined from 47 percent in the decade of 1980s to 43 percent in 1990s and 30 percent in 2000s, it remains to be the highest in South Asia. (Financial Sector Assessment (FSA) 2006) Main factors responsible for low financial intermediation may include, tax evasion, withholding tax on transactions through banks, existence of a large informal sector, weak documentation practices and political uncertainty etc.

Fourth, financial depth commonly measured by M2 to GDP ratio is also reported. It is shown that the ratio remained almost stagnant overtime, though it records slight increase from 39.2 percent in 1980s to 43.5 percent in 1990s and 43 percent in 2000s. It is reported to be significantly below the financial deepening ratios of some of the developing countries of the region. (FSA. 2006) In other words financial reforms did not strengthen and develop the financial sector and a large part of the economic transactions continue to be non-monetized in nature.

Fifth, contrary to the assertions of the proponents of financial reforms, banking spread has widened on average from 3.5 percent in 1980s to 7.5 percent in 1990s and is still as high as 8.0 percent in 2000s. High banking spread can either be associated with high cost of banking operations or it is quite possible that the top few banks having dominant share in total deposits

do not share the profits earned with their customers who are a prime source of their cheap funds. (FSR, 2007-08) Apart from banking spread, the interest rate spread is also found to have increased causing profitability of banks to increase by more than 33 percent in 2010.[2]

Finally, though the distribution of private credit has remained in favour of the manufacturing and corporate sectors, the impact of financial reforms is witnessed by a marked positive change in the share of consumer credit overtime. The positive response of the credit constrained house holds, to consumer finance policy of the banking sector led to increased share of consumer finance in private credit from 5.07 percent in 1989 to 13.8 percent in 2007 which has now declined to 9.5 percent in 2009.[3] Although it is commonly suggested that consumer finance has led to increased demand for consumer durables and regular monthly payments are a form of forced savings, this view point is open to debate and it is argued that the phenomena of consumer finance may have negative implications for private savings at least in the short term[4]. The experience of East Asian economies also shows

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[2] Compared to the banking spread interest rate spread is a better measure as it includes all the interest earnings (i.e interest earned on investment) as well as all interest paid (including interest paid for borrowings). More precisely, interest rate spread equals (Interest income / earning assets) – (interest expense / interest paying liabilities). Whereas banking spread is the difference between weighted average lending and weighted average deposit rates. (FSA. 2000)

[3] Although, personal loans were available for bank customers in a limited manner, the financial reforms process and privatization of banks also led to the provision of credit to the credit constrained individuals. In mid 1990s private foreign banks initiated credit cards to their salaried customers and business men. Later inflow of liquidity in the banking sector and easy monetary policy in 2000s led to the launching of consumer finance which included personal loans, credit cards, auto loans, mortgage loans etc.

[4] Besides consumer finance the number of credit cards issued increased greatly in the decade of 2000s, from a small number of 217 thousand credit cards to almost 1.5 million during 2000- 2006 and the policy of allowing various credit , debit and ATM cards to be used interchangeably ATM cards to be used interchangeably could have also led to increased consumption and decline in savings. Empirical findings suggest that debt rises substantially with increase in credit limit. Gross and Souleles (2002)

that despite having high saving rates these economies had restricted the growth of consumer credit and mortgage markets. (World Bank, 1993) A recent rise in the ratio of Non Performing Loans (NPLs) from 0.9 percent in 2004 to 9.1 percent in 2009 of the consumer finance segment of the banking sector of Pakistan also supports the viewpoint that consumer finance may impact private savings negatively.

Capital flows and easy access to credit led by liberalization of foreign exchange markets also seem to have negatively influenced private savings in the developed and developing countries, through the credit and wealth effect channels (stemming from the increase in house and real estate prices). However, empirical evidence is mixed in this regard. Buiter (2008), Slacalek (2009) and Aron et al (2010).

In sum, despite several reform measures major weaknesses persist in the financial sector of Pakistan. The savings potential of the economy is not fully realized and financial inclusion continues to be largely limited to urban areas. The extent of financial intermediation and depth is limited to a large extent and preference for holding cash persists. The interest rate and banking spread remain to be high though a liberal consumer finance policy led to increased spending of credit constrained individuals. The combined impact of all these factors, seem to be reflected in a fragile link between the financial reforms process and savings in Pakistan in the short term and a significant negative link in the long period.

3. Model Specification and Measurement of Variables

Based on the above mentioned considerations, a model expressing private savings ratio as a function of per capita real income, real interest rate, index of financial reforms, public savings and uncertainty is estimated. All the variables included are measured in natural logarithms, the measurement of variables and theoretical justification for the included independent variables is given as below. This study is based on annual data that covers the

period 1976-2008 and the data source mostly include statistical bulletins and reports of the State Bank of Pakistan[5].

The model for private savings can be specified as such:

$$PS_t = \beta_0 + \beta_1 RPC_t + \beta_2 RIR_t + \beta_3 PUBS_t + \beta 4F1_t + \beta_5 UC_t + u_t \qquad (1)$$

Where:

Private Saving (PS_t): is the dependent variable and is taken as a percentage of GDP. Savings data in Pakistan is reported in terms of national and domestic savings. While domestic savings include public and private savings, domestic savings less public savings is termed as private savings inclusive of house hold and corporate savings.

Real Per-Capita Income (RPC_t): Real per capita income is the independent variable and is measured as the ratio of GDP to population and the consumer price. Empirically many of the cross country studies testing for the savings income relationship suggest that income and savings are positively linked although the sensitivity of savings to increase in income varies across countries. For instance Haque and Montiel (1989), and Corbo and Schmidt-Hebbel (1991) suggest that the response of savings to income is substantially high in developing countries, as the life style and consumption patterns of a vast majority of the individuals in developing countries are sensitive to their current income. It is also shown that if the economic and demographic changes associated with the process of development are taken into account the positive association between savings and income tend to weaken. (Loayza et al (2000)).

[5] The accuracy of data on private savings being a residual, rely on the accuracy of data regarding external accounts and gross Investment. Although both these factors could be a source of inaccuracy of savings data, the gross investment data ignores investment of informal sector and its estimate is based on various assumptions regarding asset valuation and method of estimation.

Real Interest Rate (RIR_t): Literature on financial reforms suggest that one important channel through which financial reforms may impact savings is the interest rate channel i.e saving is highly sensitive to higher interest rates. To examine the independent influence of interest on private savings, interest rate measured as nominal deposit rate less inflation rate, is included as an independent variable[6].

The question that do private savings respond to increase in interest rate, has been debated at length. For example, in a two period model with given wealth, savings from labor income may increase with increase in interest rate if the income effect is less than the substitution effect and the elasticity of substitution is greater than one. Otherwise low elasticity of substitution implies the elasticity of savings with respect to interest is small or possibly negative. Summers (1981), suggests that in a model of life time labor income, the interest elasticity of aggregate wealth may be positive even with low elasticity of substitution. This idea, though not supported by most studies, may be led by the assumption of a permanent change in interest rate which may not be realistic. Since most changes are temporary therefore the short term elasticity of substitution is small and the impact of higher interest rate on savings may be initially negative and possibly turn positive in the long run. However empirical evidence suggests that a higher level of interest rate may at best exert a weak positive influence on private savings. Sirinivasan (1993).

Uncertainty (UC_t): From the theory of consumer behaviour we know that besides income, consumption and saving decisions of individuals also depend on their sentiments and expectations related to the future economic growth prospects of the economy. The problem of choice between consumption and savings analysed first by Samuelson (1969) and Merton (1969) and later by Kimball and Mankiv (1990), explain that higher

[6] Although it would be appropriate to take interest rate net of taxes, for consumption and saving decisions, the non availability of data regarding tax deductions on savings restrict us to use a measure of real return to savings as nominal deposit rate less the rate of inflation.

uncertainty and insecurity about, the future labor income or return on assets and even cost of living, lowers the consumption level for a given level of income and wealth. In fact house holds and individuals would rather show prudence and save a part of their income as a precautionary measure. Leland (1968), and Dreze and Modigiliani (1972). To assess the influence of uncertainty on private savings most studies have taken inflation rate measured as the log difference of CPI as a measure of uncertainty about the future income and cost of living. Loayza et, al (2000) This study takes the log difference of CPI as a measure of uncertainty with 2000-01 as the base year.

Empirical evidence reveals that the direction of association between uncertainty and private savings is not certain and it may vary from positive to negative depending upon the overall response of individuals. If uncertainty and inflation persist then individuals may prefer present consumption against future consumption or will have to spend more to maintain the present living standards causing a reduction in present savings. On the contrary rising prices may influence savings positively as uncertainty about future real income; wealth and cost of living may persuade individuals to save more e.g; empirical studies while examining the impact of uncertainty in rural income arising from unfavourable weather conditions on savings suggest that rural households may save more as a precautionary measure to deal with such uncertainties in their incomes. Chowdhury (2001).

Nevertheless, besides uncertainty in rural incomes, uncertainty in future income may stem from two other factors in case of Pakistan. Firstly, the shortfall of critical inputs like energy supply may affect the employment, productivity, export earnings and overall growth prospects of the country. Secondly, uncertainty in future income may arise from prolonged political stress and war on terrorism which may have altered the saving and investment behaviour of the private sector. Apart from these two factors uncertainty about the length of life may also influence savings as life expectancy in case of Pakistan has increased from 55 to 65 years between 1980s to 2009.

Public Savings ($PUBS_t$): An important feature of financial reforms is the control of public expenditure, growth of long term saving instruments, effective utilization of funds and privatization of state owned enterprises & financial institutions. In most developing countries public saving is either low or negative and all such measure are aimed at increasing public savings substantially. Therefore public savings measured as a ratio of DP is included as a separate variable to assess the independent response of private savings to changes in public savings.

The Ricardian equivalence hypothesis suggests that private savings respond to government budgetary policies and a higher budget deficit with negative public savings will be offset by higher private savings and vice versa. Barro (1974) Empirically, public saving is found to have limited influence on private savings and it is the borrowing constraint, rather than the Ricardian equivalence hypothesis that holds in case of developing countries, (Pesaran, et al (2000)).

Financial Reforms Index (Flt): Although, the variable measuring the impact of financial reforms is generally believed to be positively associated with private savings, empirical evidence is found to be mixed in this regard. A number of studies suggest that the impact of financial reforms on saving may be conditional upon the extent of the financial repression in the pre reform period of those countries and no firm generalizations can be made if country specific differences in the degree of severity of financial repression environment are ignored. For example, savings did not decline in the less repressed East Asian economies Gupta (1987) while the results are inconclusive in severely repressed developing countries Bandiera et al (2000). Similarly, private saving is reported to be negatively associated to financial liberalization in India and Bangladesh, but saving when adjusted for the purchase of durables goods seem to be not negatively linked to financial reforms in India. Loayza and Shankar (2000) and Chowdhury (2001)

Most studies examining the influence of financial reforms on saving have taken M2 to GDP ratio, a linear trend measuring the gradual impact of reforms and proxy variables like ratio of consumer credit to private credit.

Others have used dummy variables by assigning the value of one for the post reform period and zero for the pre reform era. Jappelli and Pagano (1989, 1994) To avoid the degrees of freedom problem a more rigorous approach of principal components has been adopted by a few studies Chowdhury (2001) and Bandiera (2000). This paper, also use the principal component method to estimate a financial reform index which represents the financial reforms variable. A reform matrix indicating date wise notification of important policy changes in the seven main areas, believed to have significant positive influence on savings is used to develop a matrix of dummy variables. The value of one is assigned to the year in which the reform was actually implemented and zero otherwise. Using the principal component technique the main components of the matrix were derived that provided most of the information. This study takes the weighted average of two largest principal components representing about 90 percent of the variation in the main aspects of the reforms matrix (i.e the banking reforms and the exchange rate liberalization) and estimate the financial reforms index from the weighted average of these two principal components.

3.1. Estimation Methodology:

3.1.1 Auto Regressive Distributed Lag and Error Correction Models

This study adopts the ARDL bounds test of co integration and ECM to determine the presence of long term and short-term relationship between the variables specified in the model. This approach is considered as appropriate for small samples and can be applied even if the variables are I(0) or I(1) or both. (Pesaran et al, (2001) The conditional error correction version of ARDL for saving function of equation (1) can be written as:

$$\Delta Ln(PS_t) = \beta_0 + \beta_1 Ln(PS_{t-1}) + \beta_2 Ln(RPC)_{t-1} + \beta_3 Ln(RIR)_{t-1} + \beta_4 Ln(PUBS)_{t-1} + \beta_5 Ln(F1)_{t-1} + \tag{2}$$
$$\beta_6 Ln(UC)_{t-1} + \sum_{j=0}^{p} \phi_j \Delta Ln(RPC)_{t-j} + \sum_{j=0}^{p} \gamma_j \Delta Ln(RIR)_{t-j} + \sum_{j=0}^{p} \chi_j \Delta Ln(PUBS)_{t-j} + \sum_{j=0}^{p} \lambda_j \Delta Ln(F1)_{t-j}$$
$$+ \sum_{j=0}^{p} \vartheta_j \Delta Ln(UC)_{t-j} + \sum_{j=1}^{p} \varphi_j \Delta Ln(PS)_{t-j} + \nu_t$$

Where the coefficients $\beta 1$ to $\beta 6$ represent the long run coefficients, and the short term dynamics are expressed by taking the current and lag values of the variables included. All the variables are in first difference and *p* is the optimal lag length.

Before we proceed with the ARDL approach it is appropriate to perform the unit root test and determine the order of co-integration of each variable included in the model. The ARDL approach on which our analysis is based is carried out in two steps. In the first place F test is used to confirm the presence of long run relation among the variables. The null hypothesis of no co-integration among the variables of equation (2) is

Ho: $\beta 1 = \beta 2 = \beta 3 = \beta 4 = \beta 5 = \beta 6 = 0$

whereas the alternative hypothesis is

H_1: $\beta_1 \neq \beta_2 \neq \beta_3 \neq \beta_4 \neq \beta_5 \neq \beta_6 \neq 0$

The F test has a non standard distribution which depends on the consideration whether the variables of the model are I(0) or I(1) or both. The bounds approach is used to obtain two critical values of the F test associated with the lower and upper bounds. The critical values critical values for the lower bound are related to I(0) and the upper bound critical values are associated with I(1). Given the two critical values, the null hypothesis is rejected if the estimated F statistic is greater than the upper bound critical values. Alternatively, the null hypothesis cannot be rejected if the calculated F statistics is less than the lower bound critical values. Lastly, it is suggested that if the calculated F value lies between the two bounds the result may be inconclusive. However, as referred in the literature the ECM version of ARDL model is an effective method to determine the presence of long run relationship among the variables of the model. (Kremers et al in Bahmani-Oskooee, M and Wing (2002))

Second, after having confirmed the presence of co integration among the specified variables, the lag order of the variables is selected using AIC or SBC so as to estimate the long run model of equation (3) and(4).

$$Ln(PS_t) = \beta_0 + \sum_{j=1}^{p} \varphi_j Ln(PS)_{t-j} + \sum_{j=0}^{p} \phi_j Ln(RPC)_{t-j} + \sum_{j=0}^{p} \gamma_j Ln(RIR)_{t-j} +$$

$$\sum_{j=0}^{p} \chi_j Ln(PUBS)_{t-j} + \sum_{j=0}^{p} \lambda_j Ln(F1)_{t-j} + \sum_{j=0}^{p} \vartheta_j Ln(UC)_{t-j} + u_t \quad (3)$$

Equation (4) is specified as the difference of variables and lagged residuals ECM, all the coefficients of equation (4) represent the short term dynamics of the model and its convergence to equilibrium, where ψ is related to the speed of adjustment.

$$\Delta Ln(PS_t) = \beta_0 + \sum_{j=1}^{p} \varphi_j \Delta Ln(PS)_{t-j} + \sum_{j=0}^{p} \phi_j \Delta Ln(RPC)_{t-j} + \sum_{j=0}^{p} \gamma_j \Delta Ln(RIR)_{t-j} +$$

$$\sum_{j=0}^{p} \chi_j \Delta Ln(PUBS)_{t-j} + \sum_{j=0}^{p} \lambda_j \Delta Ln(F1)_{t-j} + \sum_{j=0}^{p} \vartheta_j \Delta Ln(UC)_{t-j} + \psi(ECM)_{t-1} + \omega_t$$

Where ECM is the error term defined as:

$$(ECM)_t = Ln(PS_t) - \beta_0 - \sum_{j=1}^{p} \varphi_j Ln(PS)_{t-j} - \sum_{j=0}^{p} \phi_j Ln(RPC)_{t-j} - \sum_{j=0}^{p} \gamma_j Ln(RIR)_{t-j} -$$

$$\sum_{j=0}^{p} \chi_j Ln(PUBS)_{t-j} - \sum_{j=0}^{p} \lambda_j Ln(F1)_{t-j} - \sum_{j=0}^{p} \vartheta_j Ln(UC)_{t-j}$$

Finally, to determine the stability of the model, stability tests including CUSUM and CUSUMSQ of recursive residuals are also carried out.

4. Results

Before applying the ARDL co integration test, the unit root test was applied to confirm the order of co-integration of the variables included. Appendix 1 (Table 3) report the unit root test results based on Augmented Dickey Fuller (ADF) and the Phillips-Perron (PP) test, at levels as well as for first differences. Our results indicate both I(0) and I(1) in the variables i.e the per capita series and the financial reforms variable are stationary at the first

difference of log transformation of the series and not at the level. After having established that the variables are I(0) and I(1) the ARDL approach is deemed to be the proper estimation method.

The result of F statistics of bounds test for lag 1 are reported below in Table (1) below. It is shown that the calculated F value (F = 4.2742) lie above the upper bound critical value at 5 percent significance level. It means long run relationship exist among the variables and the null hypothesis of no co-integration is not accepted.

Table 1 Result of F – test with lag "1''

Test Statistic	Value	df	Probability
F-statistic	4.2742	(6, 14)	0.0255
Chi-square	20.89644	6	0.0019

F-statistics of Bound Tests, 10% CV [2.425, 3.574], 5% CV [2.850, 4.049], 1% CV [3.817, 5.122]

As discussed above, the selection of lag length for equation (2) is based on the minimum value of AIC. Given the small sample size, this study takes the lag length one. The AIC lag specification for equation (2) is reported in Table 2 below. The ARDL model estimates along with some diagnostic tests including serial correlation, functional form, normality, hetroscedasticity and structural stability of the model are reported in Appendix 1 Table 4. There is no evidence of autocorrelation and the error term is normally distributed. Also the adjusted R square of .63 indicates that more than sixty percent of change in private savings can be explained by the specified variables of the model.

Table 2 Result of Lag Length Criteria

VAR Lag Order Selection Criteria

Lag	Log L	LR	FPE	AIC	SC	HQ
0	-351.5901	NA	204.8419	22.3493	22.6242	22.4404
1	-256.2121	149.0281*	5.2284*	18.6382*	20.5620*	19.2759*
2	-221.8505	40.80432	7.476294	18.74066	22.31339	19.92492

* indicates lag order selected by the criterion

Table 3 Long Run Coefficient Estimates
ARDL(1,1,0,0,1,1) Using AIC of Selection
Dependent variable is PS

Regressor	Coefficient	T-Ratio	[Prob]
RIR	-0.2918	-3.1832	[.004]
UC	-0.2254	-2.0811	[.048]
RPC	1.9316	15.4491	[.000]
PUBS	-0.2392	-1.2927	[.208]
F1	-0.9114	-3.9979	[.001]

Results of the long term coefficient estimates for ARDL reported in Table 3 above suggest that except for the public savings variable rest of the variables are significant at 5 percent significance level. Discussion of results for each variable is provided as below.

As shown in Table 3 per capita income exerts a significant positive influence on private savings. Empirical evidence also suggests that the positive impact of income on saving is mostly high in developing countries. However, this positive link decrease at high income levels and may also decline overtime. It implies that the direct long term impact of income on savings may be modest.

It is worthwhile to mention that the pattern of income distribution and the prevailing income inequalities in developing countries may undermine the influence of per capita income on private savings. Economic policies that tend to increase income inequalities have negative implications for private savings which tend to be lower the higher the income inequality. The rich in Pakistan may have large amount of savings but they live a luxurious life and are usually found to be shifting or investing their savings abroad. Savings of the very poor group are also low as a significant portion of the people in Pakistan live at income close to subsistence level. It means that of the total population, savings rate is usually highest in the middle income group. Moreover, it implies that development expenditure must increase from 3 percent of GDP to at least 8 percent of GDP to sustain increase in real

income of low and middle income groups which may indirectly increase private saving.

Our results also show that real interest rate is negatively associated with savings at 5 percent significance level. Given the fact that the return on savings is low, it may indicate that the elasticity of substitution and wealth effect arising from higher interest rate are low. It also means that if the return on savings is absolutely negative households may save for reasons other than interest rate. The negative return on savings may be led by high interest and banking spread and also by high financial intermediation cost.

Besides that given the structure of financial savings and bank deposits it would be difficult to establish a positive link between private saving and interest rate. In case of Pakistan not all components of financial savings respond to interest rate changes, with the exception of a small percentage of savings, majority of the private savings are insensitive to interest rate changes.[7] It implies the scope and operations of Islamic banking can be widened , which has increased from 0.4 percent deposit share of banking industry to 6.5 percent between 2003 and 2010, to fully realize the savings potential of the economy.

Our results further indicate that public saving have no significant impact on private savings. However, the link between public savings and private savings can be gauged from the increased government reliance on NSS based

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[7] A mixed result emerges from the analysis of financial savings. The deposit structure of the banking system suggests that saving deposits are almost 33 percent of total deposits of which 90 percent accounts are PLS accounts based on Islamic principles of banking the returns of which are uncertain and are based on the declaration of profits of the banks. Besides the PLS accounts 25.3 percent of the total deposits are non remunerative. In other words only one third of the total deposits are fixed accounts that may be responsive to interest rates.

In case of NSS, though its share in financial savings is low, its potential to attract deposits imply that a segment of the population do respond to high interest rate particularly when return on savings is indexed to the prevailing inflation rate.

domestic borrowings, particularly when ever there is a ceiling or restriction on government borrowings from the State Bank of Pakistan under the IMF programs. Of the total domestic debt, the share of unfunded debt increased from 18.6 percent in 1980s to 36.6 percent in 1990s and 42.55 percent in the first half of 2000s and has declined to 35 percent in the second half of 2000s. Thus private savings if respond to the decline in public savings it is not so because of the finite horizons and Ricardian equivalence hypotheses, private saving rather respond to the risk free NSS and in particular to those schemes that offer free encashment facility or charge no withholding tax on returns to specific financial instruments.

A significant negative impact of financial reforms index on savings is not all that unexpected. Unlike theoretical assertions there is no evidence of a substantial increase in savings led by financial reforms. Perhaps the first decade of reforms was focused more on restructuring of banks rather than increasing financial intermediation, reducing intermediation cost and increasing financial depth to mobilize savings. Whereas, during the second decade of financial reforms the consumption led growth strategy increased access to credit by credit constrained households may have impacted savings adversely. This confirms that although financial reforms may be a necessary but not a sufficient condition for improving financial intermediation and depth so as to mobilize savings. Our results are similar to those reported for some of the developing countries like Indonesia, Mexico and Bangladesh. Bandiera, et, al (2000) and Chowdhury (2001)

The variable measuring uncertainty is significant and has negative influence on private savings. It means that prolonged uncertainty and high inflationary pressure has led to the preference for present consumption. High inflation erodes the purchasing power of individuals and often cause a reduction in private savings. The hypothesis that uncertainty about future income and cost of living my persuade individuals to save more is not true in case of Pakistan because of the low purchasing power of the individuals.

4.1 Error Correction Model

The results of error correction model are reported below in Table (4). As shown only the income and uncertainty variable are found to have a significant impact on savings. More importantly, the financial reforms variable display no significant influence on private savings and the public savings variable hardly bear any impact on private savings. The interest rate variable consistently show negative influence on saving but is significant at 10 percent significance level. Uncertainty measured as an increase in prices, seem to have eroded the purchasing power of house holds causing savings to decline. The error correction variable ECM (-1) represent the lag value of the error term is calculated from the long-run relationship. As expected it is statistically significant and the negative sign confirm the presence of a stable long run relationship among the variables and reaffirm the existence of co integration relationship. However, the coefficient of error correction term ECM (-1) being -0.3146 indicates short run disequilibrium is corrected or convergence towards the long run equilibrium is at the rate of 31.46 percent per annum.

Table: 4 Results of Error Correction Model
ARDL(1,1,0,0,1,1) Using AIC of Selection

Regressor	Coefficient	Standard Error	T-Ratio	[Prob]
dRIR	-0.2262	0.1280	-1.7677	[.088]
dUC	-0.2963	0.1503	-1.9703	[.059]
dRPC	2.5391	0.3568	7.1151	[.000]
dPUBS	-0.0235	0.1928	-0.1223	[.904]
dF1	0.8444	0.8862	0.9527	[.349]
ecm(-1)	-0.3146	0.1547	-2.0331	[.053]

Finally, the stability of short term and long term coefficients is examined by applying cumulative recursive sum (CUSUM) and cumulative recursive sum of squares (CUSUMSQ) tests. As shown in Figure 1 and 2 the two statistics show that both remain within the critical bounds of 5 percent significance level. It confirms that all the coefficients of the private saving function are stable in the long run and the model is structurally stable.

Fig. 1 Plot of Cumulative Sum of Recursive Residuals

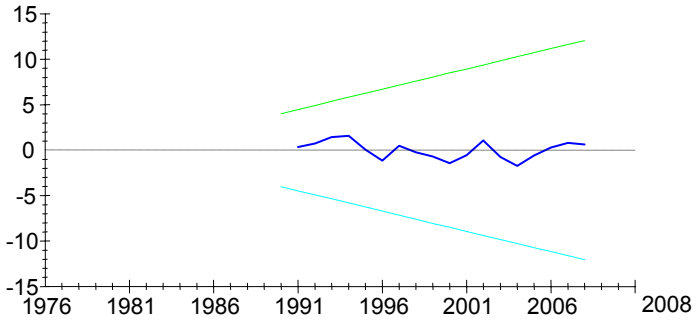
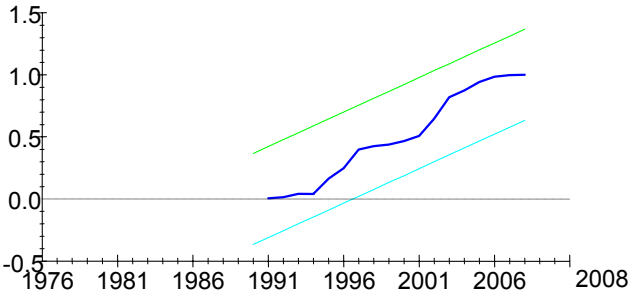


Fig.2:Plot of Cumulative Sum of Squares of Recursive Residuals



The straight lines represent critical bounds at 5% significance level

5. Conclusion and Recommendations

This study evaluates the impact of financial reforms process on private savings in Pakistan for the period 1977-2008, using the ARDL and ECM models. It is found that private savings respond more to income and uncertainty about future income rather than to interest rate , financial reforms and even to public savings. It implies that per capita income and uncertainty about future income are critical and significant in determining private savings.

Despite a long period of reforms and several changes, financial reforms did not influence private saving positively, on the contrary financial reforms seem to have a negative impact on private savings. The low level of private savings is an indication of the weak role of financial reforms in terms of deposit mobilization. Our results are similar to the studies that cast doubt on the effectiveness of financial reforms in increasing savings in particular the financial savings.

The reform process also laid emphasis on the removal of controls on lending and deposit rates and decline in interest rate spread. Banking spread continued to be high which may be attributed to the dominance of a few large banks having a high degree of market power and access to cheap low cost funds in the form of deposits. However, private saving do not seem to have responded positively to the interest rate changes. It could be that the clients depend on the banking and financial institutions more for safety reasons and hardly for the low returns to deposits. The existence of a dual banking system may also suggest that return to these deposits are largely independent of interest rates and are based on declaration of profits by banks.

Our findings indicate that focus of financial reforms on, restructuring of the system, privatization of the nationalized banks, consolidation of smaller banks, nonperforming loans, corporate culture and internal/external controls, reduction of tax burden on the banking industry, technological change and up-gradation etc has yet to be reflected in higher rate of return, increased financial inclusion and deposit mobilization.

Given the results, it is suggested that we need to have confidence in our indigenous reform policies and address the key distortions and constraints of weak resource mobilization that are most critical and vital. Private savings may increase if income is raised above the subsistence level, real return on savings is positive, inflation is brought down to a single digit level and uncertainty about future economic and political environment be reduced immediately.

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Appendix 1:

Table 1: Flows of Financial Savings as % GDP

	1980s	1990s	2000s	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Deposits of schedule banks	-	-	-	6.4	6.0	5.5	6.5	6.4	5.4	4.6	4.2	2.1	0.9	3.1	3.3	5.4	5.4	6.6	4.8	6.2	3.8	0.7
Deposits of NBFIs	-	-	-	0.6	0.7	1.3	0.9	0.4	0.6	1.4	-0.7	-0.2	-0.5	-0.3	-0.9	0.0	0.1	0.0	0.2	-0.1	-0.1	-0.2
NSS	-	-	-	2.2	0.6	1.8	3.3	2.4	2.8	2.8	4.3	5.6	3.0	1.1	1.9	2.8	0	-0.7	-0.1	1.1	1.4	1.3
Currency in circulation	-	-	--	2.1	1.2	1.1	1.1	1.6	0.9	0.4	1.1	0.5	2.1	0.5	1.3	1.3	1.5	1.3	1.0	1.1	1.4	1.3
Financial savings	-	-	-	11.3	8.5	9.7	11.8	10.8	9.7	9.3	8.9	8.0	5.5	4.4	5.9	10.0	7.8	7.6	6.6	9.1	6.3	3.0
Private savings	13.0	12.4	14.7	12.7	11.9	13.6	12.4	10.2	9.8	14.4	10.8	14.1	13.9	15.5	19.7	13.2	14.1	15.4	16.6	15.1	13.2	11.2
National Savings	14.8	13.4	17.2	14.2	17.1	13.6	15.7	14.3	11.8	11.8	14.7	11.7	13.8	16.5	18.6	20.8	17.9	17.5	18.2	17.8	13.9	14.3

NBFIs: Non Bank Financial Institutions. NSS: National Saving Schemes

Source: Financial Sector Assessment 1990-2000 and 2005 State Bank of Pakistan, Karachi.

Banking System Reviews (2006 and 2008), State Bank of Pakistan, Karachi.

Financial Stability Review (2006, 2007 and 2008), State Bank of Pakistan, Karachi.

Table 2 Financial Indicators of Pakistan (1989-2009)

Year	DR	LR	BS	S/GDP	PS/GDP	I/GDP	S-I	IF	RDR	CF	CC/D	M2/GDP	IR
1989	7.95	10.89	2.94	14.1	10.9	18.9	-4.8	10.4	-2.45	5.07	51.4	37.7	3.8
1990	8.23	10.59	2.36	14.2	13.2	18.6	-4.4	6	2.23	4.67	51.4	39.9	3.9
1991	6	10.77	4.77	14.2	12.7	19	-4.8	12.7	-6.7	9.8	54.6	39.3	4.2
1992	6.38	13.32	6.94	17.1	11.9	20.1	-3	10.6	-4.22	9.88	49.4	41.7	4.2
1993	6.09	13.33	7.23	13.6	13.1	20.7	-7.1	9.8	-3.71	10.05	46.0	44.4	4.6
1994	6.17	13.66	7.49	15.7	12.4	19.4	-3.7	11.3	-5.11	11.58	43.9	44.7	4.4
1995	6.25	13.76	7.49	14.3	10.2	18.4	-4.1	13	-6.75	13.50	35.7	43.8	5.0
1996	6.43	14.36	7.49	11.8	9.8	18.6	-6.8	10.8	-4.38	11.30	33.6	44.3	3.4
1997	6.8	14.55	7.75	11.8	14.4	17.9	-6.1	11.8	-5	7.544	30.4	42.9	5.0
1998	6.83	15.64	8.83	14.7	10.8	17.7	-3	7.8	-.99	8.44	29.4	45.1	5.3
1999	6.49	14.8	8.31	11.7	14.1	15.6	-3.9	5.7	0.79	8.29	29.2	43.6	5.6
2000	5.47	13.52	8.05	14.1	13.9	16	-1.9	3.6	1.87	8.6	34.3	44.9	5.5
2001	5.27	13.61	8.36	13.9	15.5	15.7	-1.8	4.4	0.87	8.2	33	37	5.5
2002	3.61	13.19	9.58	17	19.7	14.7	2.3	3.5	0.11	11	33	40	4.5
2003	1.61	9.4	7.79	19.4	13.7	15.5	3.9	3.1	-1.49	13	31	43	3.9
2004	0.95	7.28	6.33	17.9	14.1	16.6	-1.3	4.6	-3.65	10	30	45	3.5
2005	1.37	8.81	7.44	17.5	15.4	17.5		9.3	-8.0	12.6	29	46	5
2006	1.95	10.61	8.66	17.7	16.6	20.5	-0.3	7.9	-6.0	14.2	28	45	5.5
2007	2.60	11.55	8.95	17.8	15.1	20.9	-3.5	7.9	-5.3	14.5	20	47	5.8
2008	5.18	11.96	6.78	13.3	13.2	20.4	-7.0	12	-7.87	12.8	27	46	6
2009	6.50	14.02	7.521	14.3	11.2	18.1	-4.0	20.8	-16.40	9.5	28	39	6.5
Averages													
1991-05	7.82	13	6.8	14.8	12.06	19.5	-4.5	11.5	-3.6	10.9	41.2	42.8	5.5
1996-00	6.4	11.57	8.2	12.82	12.6	17.16	4.3	7.9	-1.5	8.83	31.4	44.2	5.0
2001-05	2.56	10.45	7.9	17.14	15.58	16	1.8	4.9	-2.4	10.95	32.	42.2	5.5
2006-09	3.28	12.22	8.0	15.77	13.87	19.97	3.7	12.2	-8.8	12.50	25.4	44.2	5.9

DR: Deposit Rate, LR: Lending Rate, BS: Banking Spread, S/GDP: Saving to GDP ratio, PS: Private savings, I: Investment, IF,: Inflation Rate, RDR: Real Deposit Rate, CF: Consumer Finance, CC/D : Currency Deposit Ratio, IR: Interest Rate Spread

Source: Hand book of Statistics on Pakistan's Economy 2005 and Various Annual Reports of State Bank of Pakistan. Karachi: State Bank of Pakistan.

Table 3 Results of Unit Root Test

Variables	Augmented Dickey Fuller Test (ADF)					Philip Perron Test (PP)			
	At level		At 1st difference			At Level		At first difference	
	Intercept	Intercept and trend	Intercept	Intercept and trend	Lag length	Intercept	Intercept and trend	Intercept	Intercept and trend
PS		-4.909221			0		-4.90924		
		(0.0020)*					(0.0020)*		
UC		-3.59560			0		-3.53138		
		(0.0457)**					(0.0523)**		
RIR	-3.272031	-3.09811			0	-3.21772	-3.00868		
	(0.0246)**	(0.1233)				(0.0278)**	(0.1451)		
RPC	-2.609609	-2.12413		-6.605052	0	-2.57760	-2.36829		-6.53214
	(0.1012)	(0.5140)		(0.0000)*		(0.1076)	(0.3882)		(0.0000)*
		-4.13135			0		-4.142835		
PUBS		(0.0137)**					(0.0133)*		
F1		-2.17556	-2.94894		2	-2.060360	-1.71999	-2.60478	-2.574430
		(0.4858)	(0.0512)**			(0.2611)	(0.7196)	(0.0109)**	(0.2935)

* at 5% significance level ** at 10% significance level

Table 4 Result of ARDL at lag '1'

Autoregressive Distributed Lag Estimates

ARDL(1,1,0,0,1,1) Using AIC of Selection

Regressor	Coefficient	Standard Error	T-Ratio	[Prob]
PS(-1)	-.3145	.1547	-2.0329	[.053]
RIR	-.2262	.1280	-1.7677	[.090]
RIR(-1)	-.1573	.0727	-2.1638	[.041]
UC	-.2963	.1503	-1.9703	[.060]
RPC	2.5391	.3568	7.1151	[.000]
PUBS	-.0235	.1928	-0.1223	[.904]
PUBS(-1)	.3381	.2061	1.6406	[.114]
F1	.8444	.8862	0.9527	[.350]
F1(-1)	-2.0426	.9855	-2.0724	[.049]

R-Squared	0.72355	R-Bar-Squared	0.63141
S.E. of Regression	1.3364	F-stat. F(8, 24)	7.8521[.000]
Mean of Dependent Variable	12.9000	S.D. of Dependent Variable	2.2011
DW-statistic	2.0425	Durbin's h-statistic	-0.26654[.790]

Diagnostic Tests

* Test Statistics *	LM Version	*	F Version	*
* A:Serial Correlation	*CHSQ(1) = 0.040791 [.840]		F(1, 23)= 0.028465 [.867]	
* B:Functional Form	*CHSQ(1) = 0.51636 [.472]		F(1, 23)= 0.36561 [.551]	
* C:Normality	*CHSQ(2) = 0.61571 [.735]		Not applicable	
* D:Heteroscedasticity	*CHSQ(1) = 0.29307 [.588]		F(1, 31)= 0.27777 [.602]	

A:Lagrange multiplier test of residual serial correlation

B:Ramsey's RESET test using the square of the fitted values

C:Based on a test of skewness and kurtosis of residuals

D:Based on the regression of squared residuals on squared fitted values