

# A Comparative Analysis of Pre and Post Privatization Efficiency of Pakistani Banks

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## Abstract

In this study, we present estimates of changes in productivity and efficiencies of privatized banks in Pakistan during the period 1987-2014. We measure the performance of banks by cost-effectiveness and technical efficiency of five leading banks of Pakistan. All estimated results are statistically significant and support the general hypotheses that increase the efficiency and productivity after privatization.

## Introduction

History of privatization is dated from prehistoric Greece, when governments constricted out the majority of possessions to the private sector from public sector. The objective of privatization is supported by both theoretical and empirical analysis in order to gain the existing facts and it has been found that meager performance of SOEs is the result of the lack of a suitable motivation structure in state-owned industries wherein bureaucrats run the firms and the short of competition that exists in regulated markets with a leading state-owned firm.

Out of huge body of theoretical literature that deals with the consequences of privatization, the most extensive review is the World Bank study (see Galal et al. (1994)) who analyzed the post-privatization performance of 12 companies in the regulated industry in Britain, Chile, Malaysia and Mexico. Instead, Megginson et al. (1994) compared pre-and post-privatization financial and operating results of 61 companies from 18 countries and 32 industries that experienced either total or partial privatization through public share offering during the period 1961-1990. While taking an international perspective (see also Megginson et al. (1996)), the emphasis has been placed on privatization programs in developed countries, while, Boubakri and Cosset (1998) studied the financial and operating efficiency of newly privatized firms in developing countries. Despite these differences from other studies, they also found that business performance showed significant improvement after privatization. Nevertheless, there is a differing view articulated by a well-known economic historian, Gershenkron, who argues that in the countries with belated development, the public sector has to play a vital role in accelerating the pace of economic growth. In developing countries, the private sector is not equipped to embark on rapid industrialization. Pakistan along with other developing countries followed the activist role for the state in industrialization and the rate of industrial growth in Pakistan has been very high.

Since 1990, the banking industry in Pakistan has experienced broader change in various aspects, especially after nationalization of the entire banking and insurance sector happened in early seventies. Moreover, constraints on opening of private banks, the NCBs kept on expanding their financial networks blindly. The powers of State Bank of Pakistan (the central bank) were curtailed due to the supervisory role of Pakistan Banking Council on NCBs. Subsidized credit attracted political beneficiaries into which dismantled the efficiency of the banking sector in the country.

Consistent with the approach of Megginson et al. (1994), we first analyze accounting time series 1987-2009 data for five Banks using the data to evaluate their performance before and after privatization. Further, we attempted to investigate the effects of privatization and liberalization on the performance of the banking sector in Pakistan measuring cost efficiency of banks using data envelopment analysis (DEA). We applied the variance method framework of financial indicators to determine the effects of privatization and liberalization policies in late eighties using bank level data from 1987 to 2014. Recent studies indicate that substantial efficiency gains can be achieved by transferring ownership of banks from public sector to private hands.

## Main Objectives of Study:

- 1 – To analyzing the impact of privatization on performance.
- 2 – To determine whether privatization leads to improved bank efficiency or not?

## Variables and Data

We have taken time serious data form 1987-2014 periods for four scheduled banks Habib Bank Limited, Muslim Commercial Bank, and Allied Bank Limited. The data obtained from Banking Statistics of Pakistan various issues. Data on number of employees are taken from the State Bank of Pakistan. Two alternative approaches, the

intermediation and the production approach, compete with each other on the definition of banking costs, inputs and outputs.<sup>1</sup> However, we adopted the intermediation approach in this study by following many recent studies in banking literature.<sup>2</sup> The outputs we defined are: (i) loans and advances and (ii) investments, while four inputs defined are: (i) labour, (ii) physical capital, (iii) operating cost, and (iv) financial capital. We attempted to investigate the effect of privatization on the performance and productive efficiencies of the four private banks in Pakistan.

### Estimation Procedure

We used a vector of input prices to specify and estimate the effectiveness of the total cost efficiency (CE) and technical efficiency (TE) for each bank in solving this wrapping form of linear programming problem by Following Fare et al. (1994).

$$\begin{aligned}
 & \text{Min } y_i x_i \\
 & \text{Subject to} \\
 & - w_i + w \geq 0 \\
 & x_i - x\lambda \geq 0 \\
 & \mathbf{N1}'\lambda = 1 \\
 & \lambda \geq 0
 \end{aligned} \tag{1}$$

where  $w_i$  and  $y_i$  represent prices of input and output levels for the  $i$  the units of decision making (DMU) and  $x_i$  is the cost minimizing vector of quantities of input. The cost-effectiveness of each observation shows the quantity by which cost of output is increased because of cost and technical inefficiency. Further, the effectiveness of the cost efficiency is the ratio of minimum cost to the observed cost which can be written as:

$$CE = y'_i x'_i / y'_i x'_i$$

To estimate the technical efficiency (TE), we stipulated input oriented linear programming problem and written as:

$$\begin{aligned}
 & \min_{\delta, \lambda} \delta \\
 & \text{Subject to} \\
 & - w_i + w\lambda \geq 0 \\
 & \delta x_i - x\lambda \geq 0 \\
 & \lambda \geq 0
 \end{aligned} \tag{2}$$

In this equation,  $\delta$  is a scalar;  $\lambda$  is  $\mathbf{n} \times \mathbf{1}$  vector of constants;  $X$  is the  $(k \times n)$  matrix of input quantities where  $n$  is the number of DMUs and  $Y$  is the  $(m \times n)$  is matrix of outputs. After the estimation of equations given above, the value of  $\delta$  will symbolize the score of efficiency for the  $i$ th DMU. To find the rate of  $\delta$  for each DMU, the problem of linear programming will be solved for  $n$  times.

### Results and Discussion

Applying linear programming we assume that the effectiveness of production technology is same within a year, but may vary over time. We estimate the cost efficiency (CE) and technical efficiency (TE) for all years. The results are reported in Table 1.

Result shows that mean value of CE over the whole period is 0.835 representing that if banks were fully cost efficient then they could have saved 0.165 percent. We also noted a great diversity in the banking industry during the time where the CE index ranges from highest efficiency of 0.923 in 1991 and 0.951 in 2014 to lowest efficiency 0.447 in 1996. The results also show the mean values of technical efficiency (TE). In terms of the average TE of banks was almost a constant trend from 1992 to 1995 with lower efficiency scores in 1996, which flattened most of them in the subsequent period.

A major cause of divergence of the efficient frontier by banks has been the use of bank resources. Private banks, on the other hand, led drive technical efficiency in the banking sector because they introduced modern technology, innovative and advanced banking services and support services for customer that were not available in state-owned banking sector in near past.

In the beginning, the technical efficiency (TE) was comparatively higher but faced a sharp drop in 1996. "This trend may possibly be explained by the surge rise in functioning costs in 1996, when a slowdown in deposit growth of private banks were forced to borrow money at higher interest rates to maintain a dynamic progress [State Bank of Pakistan (2004)]."

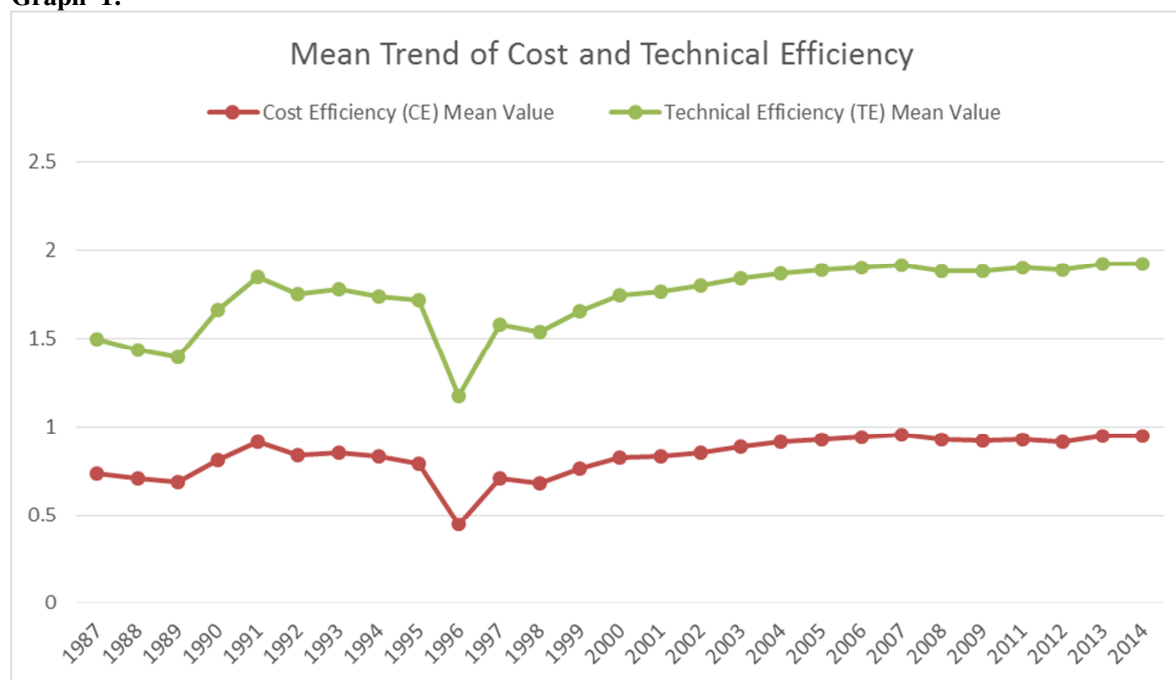
<sup>1</sup> See Berger and Humphrey (1997) for definitional issues,

<sup>2</sup> See, for instance, Isik and Hassan (2002), Mukerjee et al. (2001), Berger and Mester (1997).

**Table 1: Mean Values and Standard Deviation of Efficiency Estimates of all Banks**

Years	Cost Efficiency (CE)		Technical Efficiency (TE)	
	Mean Value	Standard Deviation	Mean Value	Standard Deviation
1987	0.735	(0.120)	0.761	(0.052)
1988	0.713	(0.181)	0.723	(0.100)
1989	0.691	(0.151)	0.704	(0.132)
1990	0.813	(0.131)	0.852	(0.182)
1991	0.914	(0.011)	0.931	(0.128)
1992	0.841	(0.172)	0.910	(0.123)
1993	0.857	(0.119)	0.924	(0.113)
1994	0.833	(0.152)	0.907	(0.131)
1995	0.791	(0.163)	0.924	(0.114)
1996	0.447	(0.233)	0.732	(0.221)
1997	0.708	(0.139)	0.871	(0.113)
1998	0.683	(0.187)	0.855	(0.187)
1999	0.764	(0.168)	0.893	(0.126)
2000	0.829	(0.114)	0.919	(0.137)
2001	0.833	(0.123)	0.932	(0.117)
2002	0.851	(0.181)	0.950	(0.122)
2003	0.891	(0.182)	0.949	(0.132)
2004	0.913	(0.190)	0.954	(0.110)
2005	0.930	(0.129)	0.961	(0.166)
2006	0.943	(0.133)	0.959	(0.133)
2007	0.956	(0.187)	0.961	(0.143)
2008	0.932	(0.192)	0.953	(0.139)
2009	0.921	(0.178)	0.962	(0.146)
2011	0.933	(0.112)	0.971	(0.123)
2012	0.919	(0.173)	0.967	(0.131)
2013	0.948	(0.156)	0.973	(0.142)
2014	0.951	(0.162)	0.976	(0.151)

**Graph 1:**



### Conclusion and Recommendations

This paper estimated the changes in productive and efficiency of privatized banks in Pakistan during the period 1987-2014. The results significantly support the common hypotheses that change of the ownership increases the efficiency and productivity after privatization. The estimated finding indicates a considerable progress in profitability, efficiency of the banks under study over the period.

Further, the results also designate that there was initially a decline in efficiency level for all banks that was reversed after 1998-99, when anticipated of the accession and as a result of the completion of reforms in the country, productivity increased. These efficiency gains are due to technological progress. This evidence suggests that the banks have benefited from technological spillovers brought about by their foreign competitors and that the entry of foreign investors led to better financial and operational technology. The nonparametric DEA results show that bank efficiency has difference during the observation period from greater efficiency that is reported in 1987 and 2014 to lower efficiency shown in 1996. Finding the source of the average cost of inefficiency, we find that the inefficiency costs contribute more than technical inefficiency.

A possible justification for the poor effects of financial reforms on the efficiency of banking seems to be poor macro-economic environment prevailing in the country for most part of the 1990s. Although, the growth rate of GDP in the 1990s was much lower than those observed in the 1980s, crisis in the areas where mortgages banking and investments were concentrated also played a role in triggering the effects negatively on the banking sector in general.

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