ISSN 0351-3564

INTERNATIONAL CENTER
FOR PUBLIC ENTERPRISES
IN DEVELOPING COUNTRIES

PUBLIC ENTERPRISE

Quarterly Journal

Vol. 14, Nos. 3-4

THEMATIC SECTIONS

STRATEGIC CONCERNS OF THE PUBLIC SECTOR IN INDIA

edited by Rasto Maćus

PUBLIC ENTERPRISE, vol. 14, nos. 3-4, pp. 181-467, Ljubljana, September-December 1994

Report Documentation Page

Form Approved
OMB No. 0704-0188

1. REPORT DATE	2. REPORT TYPE	3. DATES COVERED
1994		**00-00-1994 to 00-00-1994**

4. TITLE AND SUBTITLE	5a. CONTRACT NUMBER
Profiles of Regional Efficiency in Pakistan: Comparison of Public and Private Sector Manufacturing Firms	5b. GRANT NUMBER
	5c. PROGRAM ELEMENT NUMBER
6. AUTHOR(S)	5d. PROJECT NUMBER
	5e. TASK NUMBER
	5f. WORK UNIT NUMBER
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) **Naval Postgraduate School,Monterey ,CA**	8. PERFORMING ORGANIZATION REPORT NUMBER
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)	10. SPONSOR/MONITOR'S ACRONYM(S)
	11. SPONSOR/MONITOR'S REPORT NUMBER(S)

12. DISTRIBUTION/AVAILABILITY STATEMENT
Approved for public release; distribution unlimited

13. SUPPLEMENTARY NOTES

14. ABSTRACT

15. SUBJECT TERMS

16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT	18. NUMBER OF PAGES	19a. NAME OF RESPONSIBLE PERSON
a. REPORT	b. ABSTRACT	c. THIS PAGE			
unclassified	**unclassified**	**unclassified**	**Same as Report (SAR)**	**23**	

PROFILES OF REGIONAL EFFICIENCY IN PAKISTAN: COMPARISON OF PUBLIC AND PRIVATE SECTOR MANUFACTURING FIRMS

by Robert E. Looney

In an examination of the relative efficiency of public and private firms in Pakistan it was found that public firms are more efficient than their private counterparts. This conclusion holds across a number of definitions of efficiency. The same picture develops across different parts of the country. These findings suggest that privatization per se is no panacea for increasing the country's industrial output, particularly in the class of most efficient firms. While these findings do not imply a complete lack of opportunities for successful privatization in manufacturing, it appears that the process should proceed very carefully and on a case-by-case basis.

INTRODUCTION

Recent analysis of public and private firms in Pakistan (see Naqvi and Kemal, 1991) has suggested that, contrary to popular belief, public firms may be just as efficient as their private counterparts. This conclusion holds across a number of definitions of efficiency. These findings are tentative, and given the priority granted by the government to expanded privatization of industry the issue of differential efficiency in public and private sector enterprises should be explored in more detail.

In this vein the purpose of the analysis below is to examine the major sources in manufacturing efficiency. In particular: What factors distinguish efficient from inefficient plants? What role does ownership play in this regard? Do significant regional differences occur or are efficient firms in all parts of the country characterized as possessing similar characteristics?

The author is Professor, National Security Affairs, Naval Postgraduate School, Monterey, California.

METHODOLOGY

Differences between efficient and relatively inefficient firms may take many forms: variations in capital/labor ratios, size, efficiency of resource use, productivity of capital and the like. Unfortunately, little consensus exists on the most meaningful way to depict these differences. As it turns out, each measure provides a somewhat different picture.

Elements Distinguishing Efficient and Inefficient Firms

One way to get around this problem is to compile an extensive data set of the most widely used industrial statistics and measures

PUBLIC ENTERPRISE, 1994, vol. 14, nos. 3-4, pp. 446-467

of manufacturing output, costs, and performance. Clearly, many of these measures will overlap and thus be redundant. Using factor analysis however the main dimensions of firm diversity can be identified.

More specifically, the basic assumption of factor analysis is that a limited number or underlying dimensions (factors) can be used to explain complex phenomena. The resulting data reduction produces a limited number of independent (uncorrelated) composite measures. In the current example, measures such as value added per unit of capital, value added per laborer, value added per firm and so on could provide a composite index of productivity or relative efficiency in factor usage. One advantage of indexes formed in this manner is that it avoids the problem of selecting one measure of efficiency, say value added per worker, over just as logical alternatives.

Factor Analysis

Formally as an initial step in exploratory data analysis factor analysis has three objectives (see Frane and Hill, 1987): to study the correlations of a large number of variables by clustering the variables into factors such that variables within each factor are highly correlated; to interpret each factor according to the variables belonging to it; and to summarize many variables by a few factors.

The usual factor analysis model expresses each variable as a function of the factors common to several variables and a factor unique to the variable:

$$z_j = a_{j1}F_1 + a_{j2}F_2 + \ldots\ldots + a_{jm}F_m + U_j$$

Where

z_j = the jth standardized variable

m = the number of factors **common** to all the variables

U_j = the factor unique to variable z_j

a_{ji} = **factor loadings**

The number of factors, m, should be small and the contribution of the unique factors should also be small. The individual factor loadings, a_{ji}, for each variable should be either very large or very small so each variable is associated with a minimal number of factors.

To the extent that this factor analysis model is appropriate for the problem at hand, the objectives noted above can be achieved. Variables with high loadings on a factor tend to be highly correlated with each other, and variables that do not have the same loading patterns tend to be less highly correlated. Each factor is interpreted according to the magnitudes of the loadings associated with it.

Perhaps more importantly for the problem at hand, the original variables can be replaced by the factors with little loss of information. Each case (firm) receives a score for each factor; these **factor scores** can be computed as:

$$F_i = b_{i1}z_1 + b_{i2}z_2 + \ldots b_{ip}z_p$$

where b_{ij} are the **factor score coefficients.** Factor scores are in turn used in the discriminant analysis that follows. In general these factor scores have less error, and are therefore more reliable measures, than the original variables. The scores express the degree to which each case possesses the quality or property that the factor describes. The factor scores have a mean of zero and standard deviation of one.

Operationally, the computations of factors and factor scores for each industry were performed using a principle components procedure.[1]

The data used in the analysis was taken from the annual *Census of Manufacturing Industries for 1985-86 and 1986-87*. The raw data by industry consists of:

(1) Number of reporting establishments;

(2) Value of fixed assets at the end of the year;

(3) Changes in stocks;

(4) Average daily persons engaged;

(5) Average daily employment including contract labor - number;

(6) Average daily employment including contract labor - cost;

(7) Industrial cost during the year;

(8) Value of production during the year; and

(9) Value added during the year.

For use in comparing firms across industries, several of these variables were transformed. In total, thirteen variables were created: (a) value added per cost of labor, (b) value added per unit of capital, (c) value added per industrial costs, (d) value added per worker, (e) value added per firm, (f) labor costs per firm, (g) workers per firm, (h) capital per firm, (i) industrial costs per worker, (j) industrial costs per firm, (k) industrial costs per unit of capital, (l) capital per labor costs, and (m) capital per worker.

Each of these variables is identified by region: (a) Total Country, (b) Punjab, (c) Sindh, (d) NWFP and (e) Baluchistan, and by ownership pattern: (a) individual ownership, (b) partnership, (c) private limited company, (d) public limited company, (e) cooperative society, (f) federal ownership, (g) corporation by act of National/Provisional assembly, (h) provincial government establishment, (i) and local government body establishment. Individual ownership, partnership and private limited company were aggregated to obtain total private firms. The remaining firms were classified as public sector entities.

The industrial groups are:

Food Beverages and Tobacco
Food manufacturing
Beverage industry
Tobacco manufacturing

Textile, Apparel and Leather
Manufacture of textiles
Wearing apparel
Leather and leather products
Footwear except rubber or plastic
Ginning and bailing of fibers

Wood, Wood Products and Furniture
Wood, wood and cork products
Furniture and fixtures, not metal

Paper, Printing and Publishing
Paper and paper products
Printing and publishing

Chemicals, Rubber and Plastics
Drugs and pharmaceutical products
Industrial chemicals
Other chemical products
Petroleum refining

[1] A description of this technique and the computational methods used is given in *BMDP Statistical Software Manual*, 1990, pp. 311- 337. The actual computations were made using SPSS version 5.0 with the BMDP results providing a double check accuracy.

Products of petroleum refining
Products of petroleum and coal
Rubber products
Plastics

Non-Metallic Mineral Products
Pottery, china and earthenware
Glass and glass products
Other non-metallic products

Basic Metal Industries
Iron and steel
Non-ferrous metal basic industries

Metal Products, Machinery, Equipment
Fabricated metal products
Non-electrical machinery
Electrical machinery and supplies
Transport equipment
Scientific and measuring instruments
Photographic and optical goods

Handicrafts, Sports and Others
Handicrafts
Sports and athletic goods
Other manufacturing

Identifying the main dimensions in the data set is a necessary first step in deriving a composite measure of efficiency. Hopefully a number of competing measures of efficiency are correlated sufficiently so that they form an individual factor. If this is the case, the relative efficiency of individual firms can then be assessed in terms of their factor scores on that specific dimension. For example, if a factor was formed from terms depicting value added per resource input that dimension could be interpreted as reflecting overall efficiency. Since factor scores have a mean of zero, firms with positive scores can be said to have above average levels of efficiency. Similarly, firms with negative factor scores would be considered relatively inefficient. Those firms with the highest positive (negative) factor scores would be classified as the most efficient (inefficient).

Discriminant and Logistic Regression Analysis

If our hypothesis is correct, i.e., that each group of firms - those relatively efficient and those relatively inefficient - has a combination of distinct structural and ownership characteristics, we should be able to form a composite profile of each group. In turn, and based on its characteristics, we should be able to classify each firm with a high probability of being a member of that group - efficient or inefficient. Operationally these profiles can be computed by using discriminant analysis.

The discriminant procedure introduces (in a step-wise manner) the factor scores of each of the main dimensions in the data set, together with other variables such as private/public ownership. These variables are introduced in a manner so that the variable providing the highest differentiating power is selected first. This procedure is continued until it is impossible for an additional variable to make a statistically significant (based on an F statistic) improvement in the group delineation.

As a cross check on the discriminant analysis a logistic regression analysis was also undertaken. This procedure is similar to that of discriminant analysis. It is however more flexible as to its underlying statistical requirements. Logistic analysis has the added advantage of providing estimates (based on the size of the regression coefficient) of the

[2] A good summary of this model is given in "Logistic regression analysis" in *SPSS/PC+ Professional Statistics*, 1992, pp. 1-34.

relative strength variables entering the predictive (classification) model.[2]

In summary the methodology used here was:

- **Factor Analysis**. A factor analysis was performed on the combined sample of public and private enterprises. The purpose of this analysis is largely to derive a measure of relative efficiency. Operationally efficiency is defined in terms of the factor scores on the factor that is best able to depict value added per factor input. This factor is interpreted as a composite measure of efficiency. Again, the resulting factor scores of firms can be used to rank each enterprise from the most efficient to the least efficient.
- **Discriminant Analysis**. Based on the factor score of the efficiency (value added) factor, an initial grouping of firms was made. Next, a discriminant analysis was performed to determine the unique characteristic of each group. To get an idea of the robustness of our results three efficiency groupings were formed: (a) very efficient - firms with value added factor scores greater than 0.5 (with less efficient firms grouped as those with scores less than 0.5, (b) efficient - those firms with value added factor scores greater than zero (with less efficient firms grouped on the basis of factor scores less than zero), and (c) moderately efficient - firms with factor efficiency scores greater than -0.25 (and again with less efficient firms defined in terms of factor scores less than -0.25). The resulting discriminate analysis for each definition of efficiency should provide insights about how effective the discriminating variables are in providing a unique profile to each group of firms - probabilities of correct placement are generated together with a listing of the variables that provide for separation of firms into the two efficiency groups.
- **Logistic Regression Analysis**. Logistic regression analysis was performed on the same groupings of efficient and inefficient firms used in the discriminate analysis. As noted, results should be roughly similar - that is the same variables being significant in profiling efficient (and inefficient) firms. In addition the probabilities of correct placement of firms into the correct efficiency group should be comparable.

Results

While the factor analysis was undertaken largely as a means of deriving a composite measure of firm efficiency, several interesting patterns were also produced:

- For the Punjab (top of Table 1) the factor analysis identified four main trends in the data set of thirteen firm characteristics. The most important of these was value added (efficiency) followed by size, capital intensity and finally industrial costs.
- While the analysis for Sindh (bottom of Table 1) produced similar results, several differences were apparent. In the Sindh value added per firm was more closely associated with the size dimension than the efficiency dimension. Also, capital intensity was not as unique a dimension as in the case of the Punjab. That is, in the Sindh the capital intensity dimension did not account for as large a proportion of the variance in the data set as it had done in the Punjab.
- The factor patterns in NWFP (top of Table 2) were quite similar to those found in

TABLE 1

PUNJAB AND SINDH: STRUCTURAL CHARACTERISTICS, TOTAL MANUFACTURING FIRMS, 1976-1987

Variable	*Factor 1*	*Factor 2*	*Factor 3*	*Factor 4*
	Value Added	Size	*Capital Intensity*	Industrial *Costs*
Punjab				
VA / Labor Costs	0.969*	0.080	0.013	0.107
VA / Indust. Costs	0.925*	0.115	0.007	-0.220
VA / Capital	0.924*	-0.023	-0.160	0.043
VA / Worker	0.890*	0.261	0.158	0.113
VA / Firm	0.652*	0.640*	-0.010	0.045
Labor Costs / Firm	0.120	0.963*	0.087	-0.061
Workers / Firm	0.089	0.910*	-0.052	-0.120
Indust. Costs / Firm	0.179	0.879*	0.030	0.173
Capital / Firm	0.003	0.778*	0.411	-0.072
Capital / Worker	0.028	0.234	0.954*	0.003
Capital / Labor Costs	-0.031	-0.031	0.912*	-0.041
Indust. Costs /Worker	0.007	0.066	0.123	0.947*
Indust. Costs / Capital	0.037	-0.111	-0.177	0.900*
Eigen Value	5.058	2.897	1.713	1.712
Variable	*Factor 1*	*Factor 2*	*Factor 3*	*Factor 4*
	Value Added	*Size*	*Industrial Costs*	*Capital Intensity*
Sindh				
VA / Labor Costs	0.945*	0.005	0.055	-0.011
VA / Indust. Costs	0.854*	0.077	-0.182	0.139
VA / Capital	0.834*	-0.012	-0.112	-0.407
VA / Worker	0.819*	-0.006	0.306	0.145
Workers / Firm	0.008	0.959*	0.020	0.104
Labor Costs / Firm	-0.026	0.957*	0.082	0.035
Capital / Firm	0.003	0.902*	0.146	0.214
VA / Firm	0.575*	0.664*	0.173	0.207
Indust. Costs /Worker	-0.010	-0.054	0.957*	-0.119
Indust. Costs / Firm	-0.014	0.226	0.913*	-0.051
Capital / Worker	0.132	0.276	0.697*	0.527*
Indust. Costs / Capital	0.059	-0.091	0.318	-0.792*
Capital / Labor Costs	0.114	0.335	0.350	0.625
Eigen Value	4.468	3.071	2.212	1.230

Notes: Principal component factor analysis, oblique rotation. See *SPSS/PC+ Professional Statistics* (1992) for a description of the methods used.

* = factor loading over 0.50

TABLE 2

NWFP AND BALUCHISTAN: STRUCTURAL CHARACTERISTICS, TOTAL MANUFACTURING FIRMS, 1976-1987

Variable	*Factor 1*	*Factor 2*	*Factor 3*	*Factor 4*
	Value Added	*Size*	*Capital Intensity*	Industrial *Costs*
NWFP				
VA / Labor Costs	0.959*	0.173	0.022	0.094
VA / Indust. Costs	0.958	0.078*	0.044	-0.151
VA / Worker	0.935	0.238*	0.158	0.080
VA / Capital	0.881	0.056*	-0.239	0.104
VA / Firm	0.755	0.511*	0.017	0.044
Labor Costs / Firm	0.245	0.940*	0.155	-0.043
Workers / Firm	0.103	0.930*	-0.051	-0.113
Indust. Costs / Firm	0.259	0.927*	0.087	0.147
Capital / Worker	0.037	0.053	0.982*	-0.028
Capital / Labor Costs	-0.054	-0.088	0.922*	-0.036
Capital / Firm	0.049	0.507*	0.751*	-0.065
Indust. Costs /Worker	-0.056	0.007	0.155	0.949*
Indust. Costs / Capital	0.179	-0.041	-0.355	0.861*
Eigen Value	5.365	2.983	1.871	1.635
Variable	*Factor 1*	*Factor 2*	*Factor 3*	*Factor 4*
	Size	*Industrial Costs*	*Value Added*	*Capital Intensity*
Baluchistan				
Labor Costs / Firm	0.979*	0.140	-0.087	-0.068
Indust. Costs / Firm	0.968*	-0.127	0.023	-0.024
VA / Firm	0.966*	0.177	0.114	-0.058
Workers / Firm	0.849*	0.417	-0.190	-0.094
Capital / Firm	0.816*	0.335	-0.178	0.372
Indust. Costs /Worker	-0.145	-0.950*	0.197	-0.078
VA / Indust Costs	0.188	0.858*	0.397	-0.039
Indust. Costs / Capital	-0.204	0.803*	0.119	-0.433*
VA / Worker	0.082	-0.052	0.946*	0.035
VA / Labor Costs	-0.209	0.085	0.883*	0.066
VA / Capital	-0.051	-0.112	0.821*	-0.490
Capital / Worker	0.028	0.049	0.018	0.984*
Capital / Labor Costs	-0.107	0.167	-0.095	0.963*
Eigen Value	5.209	3.067	2.425	1.520

Notes: Principal component factor analysis, oblique rotation. See *SPSS/PC+ Professional Statistics* (1992) for a description of the methods used.

* = factor loading over 0.50

Punjab. Specifically the four factors - value added, size, capital intensity and industrial costs - had similar compositions and Eigen values.

- Baluchistan (bottom of Table 2) had a contrasting pattern whereby value added was the third most important dimension in the data - following size and industrial costs. In addition, the value added or efficiency dimension consisted of only three variables - value added per worker, value added per unit of capital and value added per labor costs. Value added per firm, and value added per industrial costs or materials were more highly correlated with other dimensions in the data.

In terms of the characteristics associated with efficient and inefficient firms, the discriminant analysis provided some useful insights. For the highly efficient (those with Factor 1 scores greater than 0.5) firms in the Punjab (Table 3):

(1) Given that public firms were coded with a value of two and private firms as one, public firms are on average more efficient than their private counterparts. Specifically the group means on the ownership variable were 1.319 for inefficient firms and 1.762 for efficient firms.

(2) In addition to the fact that highly efficient firms have a high probability of being publicly owned they also are likely to: be larger (Factor 2), have greater capital per unit of labor (Factor 3) and use less industrial materials per worker/capital (Factor 4).

(3) Given that light industries are coded with a one and heavy industries a two, highly efficient firms are also likely to be in the lighter industries - textiles, food, wood products, and paper products.

(4) Using employment costs per laborer as a proxy of worker skills, highly efficient firms are also more likely to have a greater number of skilled workers than employed by their inefficient counterparts.

(5) Using stepwise discriminant analysis, skill differentials were the most important variable in distinguishing highly efficient firms from other firms. This was followed by: (a) the heavy/light industry delineation, (b) ownership (private versus public), (c) size, and (d) industrial costs. These variables were capable of profiling inefficient and efficient firms to the extent that the model correctly classified 82.99 percent of firms as members of the group defined by their Factor 1 score. Here it should be noted that 91.5 percent of the efficient firms (54 out of 59) were correctly classified on the basis of their values for the five discriminating variables.

(6) In terms of the relative contribution made by each variable to the discriminant function (based on the standardized canonical discriminant function coefficients), skills (0.732) were most important followed by the heavy/light industry mix (-0.53). The ownership pattern of private and public was third with a coefficient of 0.489.

(7) One of the unexpected results of the discriminant analysis involved the role of firm size. As noted, a simple examination of the means of efficient and inefficient firms suggests that efficient firms tend to be larger (Factor 2). However, in conjunction with the other discriminating variables the sign on the size term is negative. That is taking into account other factors responsible for profiling firms as efficient or inefficient, smaller firms tend *ceteris paribus* to be more efficient than their larger counterparts.

TABLE 3

PUNJAB: PROFILES OF EFFICIENT MANUFACTURING FIRMS, 1976-1987

Efficiency Measure: Factor 1 > 0.5 (Group Means)

Group	*Priv/Public*	*Factor 2*	*Factor 3*	*Factor 4*	*Heavy*	Skills
Inefficient	1.319	-0.036	-0.050	0.003	1.580	15.84
Efficient	1.762	0.313	0.438	-0.028	1.373	24.96
Total	1.364	0.000	0.000	0.000	1.559	16.77

Stepwise Discriminant Analysis - Order of Entry

Variable	*Wilks' Lambda*	*SCDFC*
Skills	0.895	0.837
Heavy/Light	0.860	-0.486
Private/Public	0.848	0.518
Factor 2	0.834	-0.411
Factor 4	0.827	0.222

Efficiency	Total	Inefficient	Efficient--Correct = 82.99%
Inefficient	517	424	93
Efficient	59	5	54

Efficiency Measure: Factor 1 > 0 (Group Means)

Group	*Priv/Public*	*Factor 2*	*Factor 3*	*Factor 4*	*Heavy*	*Skills*
Inefficient	1.277	-0.087	-0.109	-0.031	1.605	13.05
Efficient	1.713	0.351	0.437	0.125	1.374	23.65
Total	1.364	0.000	0.000	0.000	1.559	16.77

Stepwise Discriminant Analysis - Order of Entry

Variable	*Wilks' Lambda*	*SCDFC*
Skills	0.838	0.732
Heavy/Light	0.770	-0.532
Private/Public	0.747	0.489
Factor 2	0.738	-0.240
Factor 3	0.734	0.153

Efficiency	Total	Inefficient	Efficient - Correct = 81.60%
Inefficient	461	382	79
Efficient	115	27	88

Efficiency Measure: Factor 1 > -0.25 (Group Means)

Group	*Priv/Public*	*Factor 2*	*Factor 3*	*Factor 4*	*Heavy*	*Skills*
Inefficient	1.311	0.046	-0.134	0.065	1.538	14.40

TABLE 3 (Cont.)

PUNJAB: PROFILES OF EFFICIENT MANUFACTURING FIRMS, 1976-1987

Efficient	1.417	-0.046	0.132	-0.064	1.579	19.10
Total	1.364	0.000	0.000	0.000	1.559	16.77

Stepwise Discriminant Analysis - Order of Entry

Variable	*Wilks' Lambda*	*SCDFC*
Skills	0.924	1.044
Factor 2	0.885	-0.818
Factor 4	0.875	-0.298
Private/Public	0.870	0.280

Efficiency	Total	Inefficient	Efficient - Correct = 68.58%
Inefficient	286	223	63
Efficient	290	118	173

Notes: Stepwise discriminant analysis. Factor scores derived from analysis in Table 1. SCDFC = standardized canonical discriminant function coefficients.

Many of these patterns carried over when a broader definition (Factor 1 scores above and below 0) of efficiency was used:

(1) Again, efficient firms were more likely to be public, they were larger (Factor 2), and they had a greater capital intensity (Factor 3). One contrast from the profile of the highly efficient firms is that the more broadly defined efficient firms had higher industrial costs than the (relatively) inefficient firms (Factor 4).

(2) As with the very efficient firms, the relatively efficient firms were concentrated in the lighter industries, and the average skill levels of their workforces were considerably higher than those of workers in relatively inefficient industries.

(3) The factors significant in profiling this measure of efficiency were similar to those contributing to the identification of highly efficient firms: the most important element was relative skill levels followed by the concentration in heavy and light industries. The ownership pattern was the third most important element contributing to the identification of efficient firms, with efficient firms more likely to be publicly owned. In all, five variables were capable of profiling efficient and inefficient firms insofar as 81.60 percent of firms were correctly identified.

For a very broad definition of efficiently (Factor 1 scores greater than -0.25):

(1) Ownership patterns were no longer closely identified with efficiency, the means of the public/private variable were fairly similar - 1.311 for inefficient firms and 1.417 for efficient.

(2) There was also considerable narrowing in the means of the other main variables used in the differentiation analysis.

(3) Only four variables: (a) average skill levels, (b) size (Factor 2), (c) industrial costs

and (d) private/public ownership patterns, were statistically significant in contributing to the profiling of efficient and inefficient firms. These four variables correctly identified 81.6 percent of the sample firms as efficient or inefficient.

It is important to note that as the definition of efficient firms in the Punjab was broadened, the ability of the discriminant model to correctly identify firms as efficient fell quite rapidly. Again, for the model identified 91.52 percent of the most efficient firms correctly but only 76.52% (88 out of 115) for those firms with a Factor 1 score greater than 0. This figure fell to 59.66% (173 out of 290) for the very broad (Factor 1 scores greater than -0.25) definition of efficiency.

The relative efficiency differences of private and public firms were strongest for the very efficient category (Factor 1 scores greater than 0.5) group of firms. Here the standardized canonical discriminant function coefficient was 0.518. This value fell to 0.489 for relatively efficient (those with Factor 1 scores greater than zero) and finally to 0.28 for the mildly (those with Factor 1 scores greater than -0.25) efficient firms.

The logistic regression analysis (of the same groupings and using the same independent variables) produced roughly similar results (Table 4):

(1) Again there was a general decline in the accuracy of the model to distinguish efficient from relatively inefficient firms.

(2) The role of firm ownership was as important in delineating efficient from inefficient firms as it had been in the discriminant analysis. Again, in the case of logistic analysis there was a gradual weakening of this term (in terms of the size of the regression coefficient, and in statistical significance) as the definition of efficiency was broadened.

(3) Finally the size of firms played a role in separating efficient from inefficient firms, with smaller firms tending (in the context of the model) to increase overall firm efficiency.

The patterns in Sindh (Table 5) present an interesting contrast with those found in the Punjab:

(1) Again the public/private dichotomy was present with high levels of efficiency (Factor 1 scores greater than 0.5) more likely to be associated with public ownership. As was the case with the Punjab, the differences between public and private firms were greatest for very high levels of efficiency (group means of 1.374 vs. 1.614), and declined for the broader definitions of efficiency.

(2) Highly efficient firms in the Sindh, tend to be characterized as in the public sector, relatively high capital intensity, using relatively large amounts of industrial materials per worker and having a relatively high capital/labor ratio. As happened in the Punjab, efficient firms tend to be concentrated in the lighter industries.

(3) In contrast to the Punjab, the discriminate model had a more difficult time delineating efficient from inefficient firms. In general, the percentage of firms correctly classified by the model were in the 63-69 percent range. For Punjab, using both narrow and broader measures of efficiency the model was capable of classifying more than 80 percent of the firms correctly.

(4) Also in contrast to the Punjab, as the measure of efficiency was broadened, the

TABLE 4

PUNJAB: FACTORS AFFECTING THE LIKELIHOOD OF EFFICIENT INDUSTRIAL PRODUCTION, TOTAL MANUFACTURING FIRMS, 1976-1987

Efficiency Measure: Factor 1 > 0.5

-2 Log Likelihood = 282.86 - Goodness of Fit = 4256.33

Variable	*Coefficient*	*Std. Error*	*Wald*	*Significance*
Factor 2	-0.583	0.230	6.44	0.0111**
Factor 3	0.059	0.106	0.31	0.5778
Factor 4	-0.340	0.198	2.94	0.0865*
Heavy/Light	-1.902	0.403	22.32	0.0000***
Skills	0.120	0.021	31.71	0.0000***
Ownership	1.680	0.409	16.87	0.0000***
Constant	-4.364	0.812	28.92	0.0000***

Prediction - Overall Correct = 89.76%

Efficiency Measure: Factor 1 > 0

-2 Log Likelihood = 413.97 - Goodness of Fit = 714.66

Variable	*Coefficient*	*Std. Error*	*Wald*	*Significance*
Factor 2	-0.299	0.181	2.73	0.0981*
Factor 3	0.150	0.108	1.94	0.1633**
Factor 4	-0.053	0.108	0.24	0.6216
Heavy/Light	-1.987	0.314	39.60	0.0000***
Skills	0.120	0.018	41.24	0.0000***
Ownership	1.417	0.322	19.40	0.0000***
Constant	-2.881	0.615	21.95	0.0000***

Prediction - Overall Correct = 83.85%

Efficiency Measure: Factor 1 > -0.25

-2 Log Likelihood = 706.52 - Goodness of Fit = 17711.72

Variable	*Coefficient*	*Std. Error*	*Wald*	*Significance*
Factor 2	-0.996	0.197	25.48	0.0000***
Factor 3	-0.053	0.122	0.19	0.6646
Factor 4	-0.276	0.102	7.38	0.0066***
Heavy/Light	-0.099	0.189	0.27	0.6006
Skills	0.124	0.018	45.93	0.0000***
Ownership	0.679	0.279	5.92	0.0140**
Constant	-2.822	0.551	26.27	0.0063***

Prediction - Overall Correct = 70.14%

Notes: Factors based on analysis in Table 1. Logistic Regression Analysis. See *SPSS/PC+ Professional Statistics* (1992) for a description of the method used. Ownership: Private = 1, Public = 2. Light industry = 1.0 (food, textiles, wood products, and paper products). Heavy industry = 2.0 (chemicals, non-metallic mineral products, basic metal industries and metal products/machinery industries). Skills are proxied by the employment cost per worker.

*** significant at the 99% level;
** significant at the 95% level;
* significant at the 90% level.

TABLE 5

SINDH: PROFILES OF EFFICIENT MANUFACTURING FIRMS, 1976-1987

Efficiency Measure: Factor 1 > 0.5 (Group Means)

Group	*Priv/Public*	*Factor 2*	*Factor 3*	*Factor 4*	*Heavy*	*Skills*
Inefficient	1.374	-0.029	-0.052	-0.039	1.561	22.63
Efficient	1.614	0.194	0.350	0.260	1.530	26.40
Total	1.405	0.000	0.000	0.000	1.559	23.13

Stepwise Discriminant Analysis - Order of Entry

Variable	*Wilks' Lambda*	*SCDFC*
Public/Private	0.973	0.627
Factor 3	0.960	0.551
Factor 4	0.954	0.394
Heavy/Light	0.951	-0.243

Efficiency	Total	Inefficient	Efficient - Correct = 63.09%
Inefficient	551	356	195
Efficient	83	39	44

Efficiency Measure: Factor 1 > 0 (Group Means)

Group	*Priv/Public*	*Factor 2*	*Factor 3*	*Factor 4*	*Heavy*	Skills
Inefficient	1.345	-0.034	-0.080	-0.042	1.527	21.21
Efficient	1.547	0.081	0.198	0.099	1.628	27.68
Total	1.405	0.000	0.000	0.000	1.556	23.13

Stepwise Discriminant Analysis - Order of Entry

Variable	*Wilks' Lambda*	*SCDFC*
Skills	0.915	0.854
Private/Public	0.909	0.293

Efficiency	Total	Inefficient	Efficient - Correct = 69.09%
Inefficient	446	322	124
Efficient	118	72	116

Efficiency Measure: Factor 1 > -0.25 (Group Means)

Group	*Priv/Public*	*Factor 2*	*Factor 3*	*Factor 4*	*Heavy*	Skills
Inefficient	1.369	0.011	-0.085	-0.052	1.493	20.55
Efficient	1.449	-0.013	0.103	0.063	1.634	26.24
Total	1.405	0.000	0.000	0.000	1.557	23.12

TABLE 5 (Cont.)

SINDH: PROFILES OF EFFICIENT MANUFACTURING FIRMS, 1976-1987

Stepwise Discriminant Analysis - Order of Entry

Variable	*Wilks' Lambda*	*SCDFC*	
Skills	0.923	0.947	
Factor 2	0.920	-0.217	
Heavy/Light	0.919	0.152	
Efficiency	Total	Inefficient	Efficient - Correct = 63.88
Inefficient	347	252	95
Efficient	287	134	153

Notes: Stepwise discriminant analysis. Factor scores derived from analysis in Table 1. SCDFC = standardized canonical discriminant function coefficients.

model did not have a falling percentage of firms correctly identified as efficient. These percentages were 53 for the very efficient, 62 for relatively efficient (Factor 1 scores greater than 0) and 53 for the broad (Factor 1 scores greater than -0.25) definition of efficiency.

(5) In general size did not play a great role in distinguishing efficient from inefficient firms. That is, except for the very broad definition of efficiency, the size variable was not statistically significant in characterizing firms as efficient or relatively inefficient.

The logistic regression exercises for Sindh (Table 6) highlighted several of the more important patterns. In particular it is apparent that the efficiency of public sector firms is confined largely to the most efficient enterprises. As the definition of efficiency is broadened, this variable quickly loses its statistical significance. Clearly, for the Sindh skill differentials are by far the major factor characterizing efficient and inefficient. Because so few other variables contribute to this delineation, the overall predictability of the logistic model is not as great as in the case of the Punjab.

In general therefore we can conclude that the factors delineating efficient from relatively inefficient firms are much clearer in Punjab than in Sindh. Still, it is apparent that public enterprises in general tend to utilize factors of production somewhat more efficiently than their private sector counterparts. This is particularly the case for the very efficient firms in both regions.

For the NWFP, a similar pattern develops to that found in the Punjab (Table 7):

(1) The predictability of the discriminant model was in the same general range as that found in the Punjab, with more than 80 percent of the firms in the high efficiency range correctly classified. As with the Punjab, this percentage fell as the definition of efficiency was expanded.

(2) Based on group means the most efficient firms in the NWFP can be characterized as public firms, larger in size (Factor 2, Table 2), more capital intensive (Factor 3), use

TABLE 6

SINDH: FACTORS AFFECTING THE LIKELIHOOD OF EFFICIENT INDUSTRIAL PRODUCTION, TOTAL MANUFACTURING FIRMS, 1976-1987

Efficiency Measure: Factor 1 > 0.5

-2 Log Likelihood = 463.89 - Goodness of Fit = 653.18

Variable	*Coefficient*	*Std. Error*	*Wald*	*Significance*
Factor 2	0.077	0.101	0.59	0.4431
Factor 3	0.162	0.105	2.38	0.1227
Factor 4	0.201	0.109	3.41	0.0648*
Heavy/Light	-0.507	0.282	2.23	0.0723*
Skills	0.018	0.015	1.55	0.2137
Ownership	0.683	0.283	5.84	0.0156**
Constant	-2.609	0.565	21.36	0.0000***

Prediction - Overall Correct = 87.22%

Efficiency Measure: Factor 1 > 0

-2 Log Likelihood = 713.42 - Goodness of Fit = 643.51

Variable	*Coefficient*	*Std. Error*	*Wald*	*Significance*
Factor 2	-0.043	0.093	0.21	0.6432
Factor 3	0.010	0.108	0.01	0.9293
Factor 4	0.040	0.096	0.17	0.6778
Heavy/Light	-0.109	0.210	0.27	0.6045
Skills	0.058	0.012	23.78	0.0000***
Ownership	0.404	0.214	3.56	0.0591*
Constant	-2.670	0.435	37.65	0.0000***

Prediction - Overall Correct = 72.08%

Efficiency Measure: Factor 1 > -0.25

-2 Log Likelihood = 818.85 - Goodness of Fit = 641.06

Variable	*Coefficient*	*Std. Error*	*Wald*	*Significance*
Factor 2	-0.124	0.094	1.73	0.1882
Factor 3	-0.021	0.115	0.03	0.8557
Factor 4	0.037	0.091	0.17	0.6815
Heavy/Light	0.148	0.185	0.65	0.4217
Skills	0.061	0.011	28.75	0.0000***
Ownership	-0.062	0.202	0.09	0.7607
Constant	-1.742	0.396	19.36	0.0000***

Prediction - Overall Correct = 63.88%

Notes: Factors based on analysis in Table 5. Logistic regression analysis. See *SPSS/PC+ Professional Statistics* (1992) for a description of the method used. Ownership: Private = 1, Public = 2. Light industry = 1.0 (food, textiles, wood products, and paper products). Heavy industry = 2.0 (chemicals, non-metallic mineral products, basic metal industries and metal products/machinery industries). Skills are proxied by the employment cost per worker.

*** significant at the 99% level;
** significant at the 95% level;
* significant at the 90% level.

TABLE 7

NWFP: PROFILES OF EFFICIENT MANUFACTURING FIRMS, 1976-1987

Efficiency Measure: Factor 1 > 0.5 (Group Means)

Group	*Priv/Public*	*Factor 2*	*Factor 3*	*Factor 4*	*Heavy*	*Skills*
Inefficient	1.377	-0.042	-0.003	-0.032	1.279	14.24
Efficient	1.686	0.223	0.014	0.166	1.229	18.72
Total	1.427	0.000	0.000	0.000	1.271	14.96

Stepwise Discriminant Analysis - Order of Entry

Variable	*Wilks' Lambda*	*SCDFC*
Skills	0.920	1.080
Factor 3	0.888	-0.751
Public/Private	0.869	0.977
Factor 2	0.829	-0.884
Heavy/Light	0.816	-0.255
Factor 4	0.811	0.205

Efficiency	Total	Inefficient	Efficient - Correct = 82.11%
Inefficient	183	150	33
Efficient	35	6	29

Efficiency Measure: Factor 1 > 0 (Group Means)

Group	*Priv/Public*	*Factor 2*	*Factor 3*	*Factor 4*	*Heavy*	Skills
Inefficient	1.333	-0.120	-0.147	-0.034	1.251	13.44
Efficient	1.766	0.438	0.534	0.127	1.340	20.50
Total	1.427	0.000	0.000	0.000	1.271	14.96

Stepwise Discriminant Analysis - Order of Entry

Variable	*Wilks' Lambda*	*SCDFC*
Skills	0.749	0.921
Private/Public	0.715	0.538
Heavy/Light	0.710	-0.234
Factor 2	0.702	-0.288

Efficiency	Total	Inefficient	Efficient - Correct = 81.19%
Inefficient	171	139	32
Efficient	47	9	38

TABLE 7 (Cont.)

NWFP: PROFILES OF EFFICIENT MANUFACTURING FIRMS, 1976-1987

Efficiency Measure: Factor 1 > -0.25 (Group Means)

Group	*Priv/Public*	*Factor 2*	*Factor 3*	*Factor 4*	*Heavy*	Skills
Inefficient	1.419	0.158	-0.212	0.265	1.152	13.23
Efficient	1.434	-0.167	0.224	-0.280	1.396	16.79
Total	1.427	0.000	0.000	0.000	1.271	14.96

Stepwise Discriminant Analysis - Order of Entry

Variable	*Wilks' Lambda*	*SCDFC*
Skills	0.906	-0.909
Factor 4	0.820	0.656
Factor 2	0.742	0.665

Efficiency	Total	Inefficient	Efficient - Correct = 75.23
Inefficient	112	85	927
Efficient	106	27	79

Notes: Stepwise discriminant analysis. Factor scores derived from analysis in Table 2. SCDFC = standardized canonical discriminant function coefficients.

more raw materials per worker (Factor 4) have a relatively high average skill level and produce lighter industrial products.

(3) When these variables are included in the discriminant model however, the size (as in the case of the Punjab and to a lesser extent the Sindh) variable assumed a negative sign. That is after taking into account ownership and other discriminating factors such as differential skill levels, smaller firms were relatively more efficient. This pattern did change for the very broad definition of efficiency (Factor 1 scores greater than -0.2). For these firms larger enterprises were more efficient than their smaller counterparts.

(4) Again, the role of public ownership in distinguishing efficient from inefficient firms was largely a factor for only the very efficient and moderately efficient firms. When the definition of efficiency was broadened to encompass all forms with factor scores greater than -0.25, public ownership was no longer a factor characterizing efficient firms.

The logistic regression analysis (Table 8) again confirmed the broad findings of the discriminant analysis. Overall the model correctly identified a large percentage of firms (usually more than 80 percent). The decline in importance of public/private ownership in identifying efficient firms again declined rapidly as the definition of efficiency was expanded to encompass more and more firms with lower average levels of efficiency.

As might be imagined from the results of the factor analysis (Table 2) Baluchistan presents an interesting contrast to the other provinces,

TABLE 8

NWFP: FACTORS AFFECTING THE LIKELIHOOD OF EFFICIENT INDUSTRIAL PRODUCTION, TOTAL MANUFACTURING FIRMS, 1976-1987

Efficiency Measure: Factor 1 > 0.5

-2 Log Likelihood = 147.69 - Goodness of Fit = 279.27

Variable	*Coefficient*	*Std. Error*	*Wald*	*Significance*
Factor 2	-1.038	0.325	10.21	0.0014***
Factor 3	-0.690	0.272	6.46	0.0111**
Factor 4	0.292	0.238	1.50	0.2206
Heavy/Light	-2.093	0.967	4.68	0.0305**
Skills	0.283	0.065	18.64	0.0000***
Ownership	2.102	0.643	10.67	0.0011***
Constant	-6.906	1.398	24.41	0.0000***

Prediction - Overall Correct = 84.40%

Efficiency Measure: Factor 1 > 0

-2 Log Likelihood = 155.45 - Goodness of Fit = 219.76

Variable	*Coefficient*	*Std. Error*	*Wald*	*Significance*
Factor 2	-0.576	0.292	3.89	0.0484**
Factor 3	-0.028	0.237	0.01	0.9052
Factor 4	0.262	0.231	1.29	0.2558
Heavy/Light	-2.137	0.925	5.34	0.0209**
Skills	0.308	0.066	22.03	0.0000***
Ownership	1.788	0.622	8.26	0.0041***
Constant	-6.476	1.366	22.48	0.0000***

Prediction - Overall Correct = 83.03%

Efficiency Measure: Factor 1 > -0.25

-2 Log Likelihood = 235.41 - Goodness of Fit = 226.20

Variable	*Coefficient*	*Std. Error*	*Wald*	*Significance*
Factor 2	-1.001	0.308	10.55	0.0012***
Factor 3	-0.119	0.222	0.29	0.5908
Factor 4	-0.880	0.259	11.58	0.0007***
Heavy/Light	-0.051	0.449	0.01	0.9094
Skills	0.203	0.044	21.08	0.0000***
Ownership	0.635	0.584	1.18	0.2765
Constant	-3.974	1.197	11.02	0.0009***

Prediction - Overall Correct = 77.06%

Notes: Factors based on analysis in Table 7. Logistic Regression Analysis. See *SPSS/PC+ Professional Statistics* (1992) for a description of the method used. Ownership: Private = 1, Public = 2. Light industry = 1.0 (food, textiles, wood products, and paper products). Heavy industry = 2.0 (chemicals, non-metallic mineral products, basic metal industries and metal products/machinery industries). Skills are proxied by the employment cost per worker.

*** significant at the 99% level;

** significant at the 95 percent level;

* significant at the 90% level.

although because of the small sample size some caution should be exercised in interpreting the discriminant results (Table 9):

(1) In contrast to the other regions, efficient plants in Baluchistan are characterized as private, smaller (Factor 1), lower use of industrial materials per unit of capital and of lower capital intensity. While, as is the case in other regions, efficient firms do have relatively higher average skill levels, these firms tend to be concentrated in the heavier industries.

(2) The discriminant model was able to correctly predict the efficiency group of well over 90 percent of the region's firms (although there was no change in the composition of these groups in moving from moderately efficient (Factor 3 scores greater than zero) to the broad measure of efficiency (Factor 3 scores greater than -0.25).

(3) The major element in distinguishing efficient from inefficient firms was the line of industry. As noted from the examination of group means, efficient firms in Baluchistan tend to be in the heavier industries. This pattern carried over to the discriminant analysis with the industrial composition the most important variable in distinguishing efficient from relatively inefficient firms.

(4) Another important difference with the other regions involves the role of ownership in distinguishing efficient from inefficient firms. Public/private ownership was not an important element in distinguishing very efficient firms. This variable was, however, important for the broader definition of efficiency, with a positive sign indicating that after taking the heavy/light industrial factor into account, public firms were more efficient than their private sector counterparts.

CONCLUSIONS

The findings noted above support the tentative conclusions noted at the beginning of the paper. Specifically, public firms are more efficient than their private counterparts. This conclusion holds across a number of definitions of efficiency. The same picture develops across different parts of the country. Baluchistan may be an exception to this general rule. Even here, however, a case can be made that public ownership is associated with a broadly defined group of relatively efficient firms. Clearly privatization *per se* is no panacea for increasing the country's industrial output, particularly in the class of most efficient firms. This is not to say that there are no opportunities for successful privatization in manufacturing. The results simply suggest that the process should proceed very carefully and on a case-by-case basis.

A particularly interesting pattern was the contrast between Sindh and Punjab/NWFP. Factors leading to efficiency are much harder to identify in the Sindh than in the case of the other two provinces. Several questions therefore remain. Why did the differences between light and heavy industry not play an important role in explaining efficiency differences in the Sindh? Also, it is not clear why skill differentials or the size of firms were not major factors characterizing very efficient firms in the Sindh.

REFERENCES

BMDP Statistical Software Manual. 1990 version. vol. 1. Berkeley, CA: University of California Press.

TABLE 9

BALUCHISTAN: PROFILES OF EFFICIENT MANUFACTURING FIRMS, 1976- 1987

Efficiency Measure: Factor 1 > 0.5 (Group Means)

Group	*Priv/Public*	*Factor 1*	*Factor 2*	*Factor 4*	*Heavy*	Skills
Inefficient	1.500	0.153	0.107	0.196	1.200	21.76
Efficient	1.250	-0.383	-0.267	-0.490	1.750	25.16
Total	1.429	0.000	0.000	0.000	1.357	22.73

Stepwise Discriminant Analysis - Order of Entry

Variable	*Wilks' Lambda*	*SCDFC*
Heavy/Light	0.731	1.249
Factor 1	0.532	-0.205
Skills	0.484	0.622
Factor 2	0.444	0.463

Efficiency	Total	Inefficient	Efficient - Correct = 92.86%
Inefficient	20	18	2
Efficient	8	0	8

Efficiency Measure: Factor 1 > 0 (Group Means)

Group	*Priv/Public*	*Factor 1*	*Factor 2*	*Factor 4*	*Heavy*	Skills
Inefficient	1.286	-0.218	0.100	-0.115	1.143	21.24
Efficient	1.571	0.218	-0.100	0.115	1.571	24.22
Total	1.429	0.000	0.000	0.000	1.357	22.73

Stepwise Discriminant Analysis - Order of Entry

Variable	*Wilks' Lambda*	*SCDFC*
Heavy/Light	0.800	1.067
Private/Public	0.705	1.000
Factor 1	0.669	-0.578

Efficiency	Total	Inefficient	Efficient - Correct = 92.86%
Inefficient	14	12	2
Efficient	14	0	14

Efficiency Measure: Factor 1 > -0.25 (Group Means)

Group	*Priv/Public*	*Factor 1*	*Factor 2*	*Factor 4*	*Heavy*	*Skills*
Inefficient	1.286	-0.218	0.100	-0.115	1.143	21.24
Efficient	1.571	0.218	-0.100	0.115	1.571	24.22
Total	1.429	0.000	0.000	0.000	1.357	22.73

TABLE 9 (Cont.)

BALUCHISTAN: PROFILES OF EFFICIENT MANUFACTURING FIRMS, 1976- 1987

Stepwise Discriminant Analysis - Order of Entry

Variable	*Wilks' Lambda*	*SCDFC*	
Heavy/Light	0.800	1.067	
Private/Public	0.705	1.000	
Factor 1	0.669	-0.578	
Efficiency	Total	Inefficient	Efficient - Correct = 92.86%
Inefficient	14	12	2
Efficient	14	0	14

Notes: Stepwise discriminant analysis. Factor scores derived from analysis in Table 2. SCDFC = standardized canonical discriminant function coefficients.

FRANE, James W. and HILL, Mary Ann. 1987. Annotated computer output for factor analysis: a supplement to the write-up for computer program BMDP4M. *Technical Report No. 8*. Los Angeles: BMDP Statistical Software. pp. 3-4.

Census of Manufacturing Industries for 1985-86 and 1986-87. Islamabad: Federal Bureau of Statistics, Statistics Division, Government of Pakistan.

Logistic regression analysis. 1992. In *SPSS/PC+ Professional Statistics. Version 5.0*. Chicago: SPSS Inc.

NAQVI, Syed Nawab Haider and KEMAL, A.R. 1991. The privatization of public industrial enterprises in Pakistan. *The Pakistan Development Review*. vol. 30. no. 2. Summer. pp. 105-144.

SPSS/PC+ Professional Statistics. Version 5.0. 1992. Chicago: SPSS Inc.

ملخص / Résumé / Resumen

ملامح الفعالية الاقليمية في الباكستان: مقارنة بين الشركات الصناعية التابعة للقطاعين العام والخاص

بقلم: Robert E.Looney

في استقصاء جرى حول فعالية شركات القطاعين العام والخاص في الباكستان، تبين أن فعالية شركات القطاع العام اكثر فعالية من نظائرها في القطاع الخاص. ويتضمن هذا

PROFILS DE L'EFFICACITE REGIONALE AU PAKISTAN: COMPARAISON ENTRE LES ENTREPRISES DE PRODUITS MANUFACTURES DU SECTEUR PUBLIC ET PRIVE

par Robert E. Looney

Au cours de l'examen de l'efficacité respective des entreprises publiques et privées au Pakistan, on a trouvé que les entreprises publiques sont plus efficaces que leurs homologues privées. Cette conclusion prend à revers un grand nombre de définitions de l'efficacité. Le même cas de figure se développe à travers plusieurs régions du pays. Ces constatations suggèrent que la privatisation, en soi, n'est pas la panacée en ce qui concerne l'augmentation du rendement industriel du pays, particulièrement dans la catégorie des entreprises les plus efficaces. Même si ces résultats n'impliquent pas l'absence totale d'opportunités pour une privatisation couronnée de succès dans le domaine de la production de produits manufacturés, il apparaît que le processus ne doive progresser qu'avec précautions et sur la base du cas par cas.

PERFILES DE LA EFICIENCIA REGIONAL EN PAQUISTAN: UNA COMPARACION DE EMPRESAS MANUFACTURERAS DEL SECTOR PUBLICO Y PRIVADO

por Robert E. Looney

En un examen de la eficiencia relativa de las firmas públicas y privadas de Paquistán se descubrió que las firmas públicas son más eficientes que sus contrapartes privadas. Esta conclusión incluye un número de definiciones de la eficiencia. La misma imágen se desarrolla a través de diferentes partes del país. Dichos resultados sugieren que la privatización por sí mismo no es la panacea para incrementar los resultados industriales del país, particularmente en la categoría de las firmas más eficientes. En tanto que estos hallazgos no implican una ausencia absoluta de oportunidades para una privatización exitosa en la manufactura, parece que el proceso debe realizarse muy cuidadosamente y de caso en caso.