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# **Evaluating the Performance of Public Enterprises in Pakistan**

**Mary M. Shirley**

**Even managers critical of Pakistan's new performance evaluation system consider its targeting and bonus system a powerful incentive to improve efficiency.**

<b>Policy, Planning, and Research</b>
<b>WORKING PAPERS</b>
<b>Public Sector Management and Private Sector Development</b>

In 1983 Pakistan initiated a performance evaluation, or "signaling," system for industrial public enterprises (IPEs). The system, which has been applied to most of Pakistan's IPEs and is administered by a special unit outside the civil service, involves:

- Selecting performance evaluation criteria.
- Assigning criterion values.
- Negotiating achievement targets for the enterprise.
- Evaluating results.
- Providing bonuses based on the evaluation (up to three months salary for A grade).

The focus is on operating efficiency, not financial returns, and on motivating management by excluding factors beyond the control of managers.

Even managers critical of the system (including some who did not receive bonuses) cite the targeting and bonus system as a powerful incentive to improve efficiency.

To strengthen the system, the author suggests:

- Adjusting standard profits to exclude items that distort results (such as nonoperating income and depreciation) and that take administered prices into account.
- Rewarding managers who reduce losses as well as those who increase profits.
- Allocating bonuses more selectively — on the basis of individual performance. This requires developing adequate personnel evaluation systems.
- Increasing competition and managerial autonomy (particularly decisions on personnel and credit) to cut costs and increase efficiency.
- Studying the impact of policy and regulatory decisions on IPEs — for example, the costs of social objectives, price controls, and delays caused by central decisionmaking.

The paper concludes with suggestions of ways to simplify and adapt the system for use in other countries.

This paper is a product of the Public Sector Management and Private Sector Development Division, Country Economics Department. Copies are available free from the World Bank, 1818 H Street NW, Washington DC 20433. Please contact Rose Malcolm, room N9-053, extension 61708.

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## SUMMARY AND CONCLUSIONS

This report assesses the performance evaluation system being used for industrial public enterprises in Pakistan. The assessment aims to assist the Pakistani government in strengthening the system as needed, and to inform interested officials in other countries of the costs and benefits of the system and how it might be adapted for their use.

### The Signalling System

Chapter II briefly describes the performance evaluation system, or "signalling system", which began to operate in Pakistan in 1983. The signalling system has been applied to most of the industrial public enterprises (IPEs) under the Ministry of Production (between 41 and 56 IPEs have been evaluated out of 66 in total). The system involves: (i) selecting suitable performance evaluation criterion; (ii) assigning criterion values based on the enterprises's past performance, its objectives, the operational and financial constraints it is expected to face, and the like; (iii) setting targets of achievement in negotiation with the enterprise (five grades from A to E are used in Pakistan); (iv) evaluating results; and (v) providing a bonus on the basis of the evaluation (up to three months of salary for the A grade). The system is administered by the Experts Advisory Cell (EAC), a special unit attached to the Ministry of Production (MOP) but outside the civil service, which is financed by a levy on the state enterprises.

The original proposal for the signalling system assumed that the performance evaluation of public enterprises in Pakistan should differ from private ones to take into account the different objectives of government, factors which are beyond the control of a public manager (such as the quantity and quality of capital employed) and the administered prices faced by many IPEs. Thus, the focus was on operating efficiency rather than financial returns and the proposed criterion for evaluation was public profitability in constant prices.

Public profits differ from private profits as follows: (i) taxes are added back in since government does not want to motivate managers to reduce taxes; (ii) depreciation is added back to avoid awarding older plants vis-a-vis newer ones; (iii) interest is added since interest payments represent transfers rather than changes in efficiency, plus debt and investment decisions are best handled through a separate control system; (iv) non-operating income is subtracted since the aim is to measure operating efficiency; and (v) a charge is included for the opportunity cost of capital, since IPE managers cannot usually control their capital stock but they can control their working capital. Public profits are then divided by fixed operating assets, thus adjusting for changes due to expansion.

Public profitability would then be converted to constant prices and IPEs evaluated on the trend in the resulting indicator. The trend in this indicator in constant prices is a measure of operating efficiency similar to total factor productivity. It was considered especially

appropriate since many IPEs faced administered prices. However, for reasons described in the text, the Government decided to use standard private profits as the primary indicator of performance.

### Impact of the System on Performance

Chapter III assesses the impact of the signalling system on IPE performance using both quantitative and qualitative evidence. In terms of financial profits some 58 percent of the IPEs under the system showed an improvement in performance. Some of these profits were due to increases in prices or windfall gains in non-operating income. To assess the impact on operational efficiency the report assessed a sample of 12 IPEs in detail. Seven out of the sample of 12 showed an improvement in operating efficiency (measured as public profitability in constant prices).

Not surprisingly it was difficult to isolate the signalling system's impact on efficiency from other influences. Nevertheless, it was possible to rule out a number of potential explanations for efficiency gains of the sample IPEs (including changes in the macroeconomy, markets, liquidity, capacity, technology, etc.; see text). There were, however, important changes in the supervisory environment and parallel changes in management that were probably critical to the impact of the signalling system. For example, the MOP fired some managers for incompetence; access to subsidies was curbed, etc.

The qualitative evidence (from interviews with managers and government officials) suggests that the system provided managers with an

added incentive to respond to these environmental changes and a tool (in the form of bonuses) to motivate staff. The targeting and bonus system was cited by all managers consulted, even those critical of the system and those not receiving bonuses, as a potentially powerful incentive for efficiency improvements.

This evidence of positive impact is noteworthy since it arises despite a number of factors which constrain the system's influence. The most important constraint is limited managerial autonomy to cut costs and increase efficiency. For example, managers cannot control their labor costs very effectively (although this may be changing), cannot cut off service or close plants, have limited flexibility in procurement decisions, are constrained in their ability to raise capital, and must cope with government-imposed social welfare objectives. The system's impact is further limited by the exclusion of loss making IPEs; managers are given no incentive for reducing losses (this also may be changing).

#### Impact of the System on Government Policy

The signalling system has not so far had a major impact on government policy vis-a-vis the IPEs or on decisions to restructure the sector and close and liquidate firms (Chapter IV). This despite the fact that the system generates a lot of information that could serve these purposes. One reason for this is that the EAC was set up for and is most effective at influencing management. Another is that policy decisions are not in the hands of the MOP. (The MOP was set up to supervise the IPEs; industrial policy is handled by another ministry; Finance and other



ministries are involved in such decisions as pricing, labor policy, or the allocation of foreign exchange.) Furthermore, the system was set up to calculate operating efficiency and not allocative efficiency, although the information it generates could be adapted for that purpose. One risk of focusing on maximizing performance within the status quo is that the system might actually reduce the pressures for change and restructuring.

### Strengthening the System in Pakistan

The report suggest some ways to improve the operations of the system in Pakistan (Chapter V), notably:

1. Adjusting standard profits to exclude the items which distort results (such as non-operating income and depreciation) and to take administered prices into account where these still exist. The EAC tries to take such anomalies into account by adding physical targets and by making adjustments in the process of setting its targets and grades. The evidence of the sample enterprises, however, suggests that its successes in making targets reflect efficiency improvements has been limited. There is legitimate concern about confusing managers with a change, but in fact the addition of other partial targets makes the system more complex and its impact unpredictable.
2. Rewarding managers who reduce losses can be as, or more, beneficial as motivating managers who increase profits. The EAC is considering ways to give bonuses to loss-making firms.

3. Allocating bonuses more selectively among the staff of an IPE on the basis of individual performance would be highly desirable and merits developing adequate personnel evaluation systems in the future.
4. Increasing competition and managerial autonomy to cut costs and increase efficiency would reduce the need for so many adjustments to the targets and increase the efficiency gains. Decisions on personnel and credit seem to merit particular attention.
5. Studying the impact of policy and regulatory decisions on the IPEs could multiply the influence of the signalling system. The EAC has begun to use its information for these purposes. (For example, they are developing a social accounting matrix and studying labor policy). Examples of potentially useful studies include the costs of social objectives, of price controls, of delays because of centralized decision making.

#### Applying the System in Other Countries

Chapter VI of the report assess the costs versus the benefits of the signalling system and how it might be adapted to other countries. The net benefits for another country cannot be determined in the abstract since there are factors that might raise the costs, as well as ways to increase the potential benefits. The installation and operation costs of the system in Pakistan are in fact rather modest, but the system benefitted from skilled managers in the IPEs and skilled staff in the EAC, as well as the reliable and timely information already collected by the EAC. Moreover, the Pakistani system was designed for the 70 or so companies under the MOP, which include a number of similar firms and some relatively simple

processing industries (cement, for example). Other countries may need to improve the information and skill base considerably and to apply the system to more, and more diverse, companies. (Egypt, for example, is contemplating applying a similar system to some 200 public enterprises.)

The benefits from the system could be maximized by increasing competitive pressures for efficiency wherever possible. This would allow more enterprises to be judged by public profit targets at current prices. The signalling system is in a sense a market proxy; it creates pressures for efficiency that in other circumstances might be supplied (and supplied more effectively) by the market. Thus it makes sense to free markets where possible and focus the system on monopolies. Giving managers greater autonomy to respond to pressures for efficiency will further increase the benefits from performance evaluation. Benefits will also depend on the environment for managers. The general hardening of the managerial environment was an important factor in the efficiency gains in Pakistan. Performance evaluation systems are of limited use without strong commitment from top decision-makers and a demonstrated readiness to fire managers who do not perform.

Finally, the system can be adapted to circumstances in other countries in several ways. It could be made much simpler, at least at the outset, by, for example, shadow pricing a few critical items (such as electricity, wages, and foreign exchange). It could be applied to only the 10 or 15 public enterprises that are usually the key to economic development (such as the utilities and transport companies, etc.). Public

recognition of top performers could be enhanced; it can be as important as bonuses in some cultures. In addition, the amount of macroeconomic information generated by the system could be increased and aggregated for planning and decision-making purposes.

## I. INTRODUCTION

This report provides an early assessment of Pakistan's performance evaluation system for its industrial public enterprises (IPEs). This assessment aims to: (i) provide suggestions to the Pakistani Government on ways to strengthen the system; (ii) inform officials of other countries interested in replicating the system; and (iii) suggest ways it might be adapted to circumstances in other countries.

The report gives a brief history and description of the system (Chapter II), assesses its day to day workings (Chapter III), and calculates its impact on performance and management (Chapter IV) and on government policy (Chapter V). It then provides suggestions for strengthening the system in Pakistan (Chapter VI). It concludes with a chapter on applying the system in other countries that compares costs with potential benefits, and recommends ways to adapt the system to other countries.

## II. BRIEF HISTORY AND DESCRIPTION OF THE SYSTEM<sup>1</sup>

### A. Overview of Industrial Public Enterprises (IPEs)

#### Under the Ministry of Production (MOP)

From independence in 1947 to 1971, most economic activity in Pakistan was carried out by the private sector; the public sector supported

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<sup>1</sup>/ This chapter draws heavily on Leroy Jones and Istaqbal Mehdi, "Pakistan Signalling Project" (draft, September 1985).

development largely by providing basic infrastructure. The state's presence in the manufacturing sector began in 1950 with the establishment of the Pakistan Industrial Development Corporation (PIDC) to support the creation of state enterprises in the manufacturing sector which (presumably) would eventually be transferred to the private sector. From 1972 to 1977, the industrial and financial sectors were progressively nationalized, and the number of IPEs increased from 22 in 1972 to 55 in 1977. The nationalized industries included iron, steel, basic metals, heavy engineering, motor vehicles, chemicals and petrochemicals, and cement.

The post-1977 government adopted a different strategy, emphasizing the importance of free market forces in economic development. Sustained growth was to be achieved on the basis of greater private sector participation and more diversified and export-oriented production. The government was to provide the basic infrastructure needed to support the private sector, and public investment was to be oriented towards the social sectors in order to improve the country's human resource base and ensure that a broader sector of the population benefited from economic growth.

In the last ten years, Pakistan has privatized some public corporations, reestablished fiscal control and acted to restore private sector confidence. The Sixth Plan (1984 to 1988) aims to create adequate conditions for private investment and has started programs to encourage increased private sector participation as well as more efficient investment and production decisions through: deregulation, appropriate input and output pricing, and opening up the economy to increased competition from

abroad. During the first three years of the plan, there has been progress in a number of areas, for example: (a) liberalization of investment sanctioning; (b) deregulation of cement, edible oils, and nitrogenous fertilizer prices; (c) rationalization of natural gas prices for both producers and consumers; (d) opening up of Basmati rice, edible oil and fertilizer production to the private sector; and (e) more flexible exchange rate management to ensure international competitiveness. As a part of this same effort, the government conducted a review of the public manufacturing sector, which resulted in two reports (Uqaili and Beg Reports). Based on the recommendations of these reports, the government reorganized the industrial public enterprise sector into its present structure.

Today there are 66 IPEs grouped in eight holding companies or corporations under the MOP (Table 1 provides background information by holding companies), plus a new steel project. The MOP is an administrative ministry (a Ministry of Industry sets sector-wide policy) and is responsible for monitoring the IPEs to ensure that they are managed efficiently. Specifically MOP: (i) formulates long-term policies for public sector enterprises in consultation with the corporations; (ii) does long-term planning and coordination among corporations and enterprises; (iii) sets IPE objectives and evaluates their performance; and (iv) appoints senior executives and approves the appointment or promotion of other top managers. A special unit, the Experts Advisory Cell (EAC), was created in 1980 to assist the Ministry in monitoring performance, evaluation, and planning. The Cell is financed by a levy on the IPEs and its staff are not part of the civil service.

TABLE 1  
PAKISTAN: CONSOLIDATED BACKGROUND INFORMATION ON THE CORPORATIONS OF THE MINISTRY OF PRODUCTION (a)

CORPORATION	Acronym	Number of Units		Production value at constant prices of 1977-78		Net Sales (Rs. in Mill.)		Pre-tax Profit (Loss) (Rs. in Mill.)		Number Employees as on 30 June of:		Salaries and Wages		Value Added 1985/86
		1982/83	1985/86	1982/83	1985/86	1984/85	1985/86	1984/85	1985/86	1983	1986	1984/85	1985/86	
Federal Chemical and Ceramics Corporation	FCCCL	13	14	648	1250	1301	1679	7	14	6275	7549	239	294	599
National Fertilizer Corporation	NFC	6	6	1528	1602	3814	4391	699	646	5231	5442	226	250	1938
Pakistan Automobile Corporation	PACO	11	12	2914	2742	4638	4709	320	157	8570	7469	386	399	811
Pakistan Industrial Development Corporation	PIDC	5	10	237	451	428	473	-214	-182	3315	5733	80	85	80
State Cement Corporation	SCCP	11	13	1751	2217	3943	4599	460	766	11114	12510	564	648	2254
State Engineering Corporation	SEC	10	10	2025	1951	2252	2217	45	-23	15488	14683	447	461	643
State Petroleum Refining and Petrochemical Corporation	PERAC	3	3	2514	3071	9020	8227	121	112	984	1229	68	89	779
Textile Machinery Corporation Limited	TMC	2	2	0	7	56	36	-14	-26	0	483	13	13	17
<b>T O T A L:</b>		<b>61</b>	<b>70</b>	<b>11618</b>	<b>13291</b>	<b>25454</b>	<b>26330</b>	<b>1423</b>	<b>1463</b>	<b>50977</b>	<b>55098</b>	<b>2024</b>	<b>2238</b>	<b>7070</b>

SOURCE: EAC Annual Reports.

(a) Does not include Pakistan Steel Mills Corporation.



B. Description of the Signalling System

Background

The concept of a public enterprise performance evaluation system was introduced at a Symposium sponsored by the Government of Pakistan and the United Nations in Islamabad in November 1981.<sup>2</sup>

The Government decided to proceed with the system and in December 1981 signed a contract with a consulting firm to implement the system.<sup>3</sup>

The system is based on the following key assumptions:

- (a) Managers can be given a clear perception of their objectives;
- (b) IPEs in Pakistan can be improved;
- (c) Managers can control enterprise performance;
- (d) IPE managers will respond to incentives (monetary and non-monetary);
- (e) Managers can be given ready access to information and other resources necessary to improve IPE performance.
- (d) Performance can be measured objectively and fairly, hence its evaluation will send the right "signals" to managers.

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<sup>2/</sup> In a paper presented by Leroy Jones, "Towards a Performance Evaluation Methodology for Public Enterprises: With Special Reference to Pakistan."

<sup>3/</sup> Jones' consulting firm, Institute for Development Research of Boston (IDR).

On the basis of these assumptions, the so-called signalling system was designed with three components.

- (a) A performance evaluation system to specify socially desirable performance;
- (b) A Public Enterprise Performance Information System (PEPIS) to accurately measure economic performance, and
- (c) An incentive system to reward managers and staff on the basis of actual versus targeted performance.

The EAC was given the main responsibility for developing and implementing performance evaluation system.

The performance evaluation system consists of four key steps: the selection of general performance evaluation criteria, the selection of specific units to measure enterprise performance, the assignment of weights to evaluation criteria, and the negotiation of criterion values to differentiate good from bad performance. This provides the basis for evaluating performance at the end of the year and providing incentives based on results. The main steps involved in the signalling system are shown in Table 1 of the Statistical Appendix.

Table 2: Pakistan - Units Under the Incentive System

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	1983/84	1984/85	1985/86	1986/87
Federal Chemical & Ceramics Corp. (FCCL)	10	13	11	12
National Fertilizer Corporation (NFC)	5	6	6	6
Pakistan Automobile Corporation (PACO)	7	10	7	3
Pakistan Industrial Dev. Corporation (PIDC)	1	2	4	3
State Cement Corporation (SCCP)	10	12	12	13
State Engineering Corporation (SEC)	7	9	9	5
State Petroleum Refining and Petrochemical (PERAC)	1	2	2	2
Textile Machinery Corporation (TMC)	0	2	0	0
TOTAL	41	56	51	44
Total IPEs in MOP	63	70	70	66

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Source: EAC Annual Reports.

Selection of performance evaluation criterion

The original proposal for the system assumed that performance evaluation of public firms in Pakistan must differ from private ones because: (i) public enterprises should be rewarded for maximizing the benefits to society as a whole and not just to the equity holder of the unit; (ii) IPEs generally have non-commercial as well as commercial objectives; and, (iii) many factors which determine enterprise performance (such as quantity and quality of the stock of capital employed, location, fixed input/output purchase agreements with other public enterprises, etc.) are beyond the control of public managers.

Taking this into account, the system was originally designed to evaluate operational efficiency using public profitability in constant prices. The designer of the system argued that simple profits as used for private firms would not be adequate, since they only show the difference between costs and benefits to the individual firm and do not adequately reflect the difference in the value to society between what the enterprise takes out of the economy and what it puts back. Public profit is an indicator that is intended to increase only when society as a whole is better off. It also adjusts for accounting anomalies that might distort the measurement of efficiency.

Public profits are calculated as follows:

Private profits after taxes  
+ Taxes  
+ Depreciation  
+ Interest  
- Nonoperating income (financial income and rent,  
capital gains and transfers)  
- Opportunity cost of working capital  
= Public Profits

Taxes are added back in since this is a return from government's point of view. This avoids giving PE managers a reward for reducing taxes.

Depreciation is added back because including it would: penalize newer plants vis-a-vis older ones, cause profits and profitability to increase (assuming no new investment) without any increase in efficiency, and reward PEs for underdepreciating or changing their accounting practice so as to reduce depreciation charges. Interest is added back because changes in interest payments do not reflect changes in efficiency but transfers from

one part of society to another. The assumption is that enterprise investment and debt decisions are best handled through separate control systems designed to assure the most efficient allocation of capital. Nonoperating income is excluded since it does not reflect operating efficiency. And, finally, a charge is added for the opportunity cost of working capital (in 1983/84 figured as 10.5 percent times inventories; cash, demand deposits, accounts receivables and the like). The IPEs are charged for fixed capital by including fixed operating assets in the denominator, thus adjusting for changes due to expansion.

Public profitability would then be converted to constant prices using a divisa index.<sup>4</sup> Since managers of IPEs in most cases cannot change prices, constant-priced profit attempts to measure factors they can change. (Since the divisa index relies on constantly changing weights, managers still have an incentive to seek lower costs or higher profits through price changes where they have the option.) The trend in public profit in constant prices is appropriate for performance evaluation but not for investment evaluation. IPEs would then be evaluated by the trend in public profitability in constant prices.

The proposal suggested that public profits would be further adjusted to take into account the costs of any noncommercial, social objectives that might affect performance trends. But since such costs are likely not to fluctuate much from year to year in constant prices, this was

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<sup>4</sup>/ See Appendix A for an explanation of this index.

a complication that could be safely ignored, at least in the start-up phase. The more common costs stemming from social objectives (besides price controls) are associated with remote locations (to promote regional development) or redundant workers (to increase employment), and these usually do not markedly affect the year-to-year trends in efficiency.

The original design also called for supplemental indicators to take into account dynamic considerations (i.e., expenditures for research and development, maintenance, training, introduction of new products, etc.) Otherwise, the IPE might tend to neglect those items which have a short-term cost and a long-term benefit. Other qualitative indicators measuring such factors as project implementation were also proposed. These have not yet been implemented and there is some evidence that IPEs are sacrificing the long-term health of the company to short-term profits (see Section III-E below).

In 1983 the original design of the system was substantially changed in order to win the Ministry of Finance's (MOF) agreement to the bonus system. MOF agreed to allow bonuses to be paid only if the basic performance criterion was private profits after taxes. One reason for this was MOF's reluctance to permit bonuses to be paid to staff of IPEs showing private losses but improving public profitability at constant prices. (This is possible since many of the enterprises face price distortions.) MOF also worried about the public relations impact (officials envisioned such headlines as "Public Sector Loses Money; Managers Rewarded"). Another concern was that workers in money-losing PEs would have to be paid bonuses

when their managers got bonuses, but it was unlikely that workers in profitable IPEs would forgo bonuses even if their managers were not rewarded; (This could happen if the trend in constant priced profits was downward). A third reason, which was not explicitly voiced by MOF, may have been MOF's own interest in the IPE's maximizing their private profits, since this reduces the pressures on Finance for relief in the forms of refinancing, higher prices, etc. Finally, there was a concern that non-economists, including the managers of IPEs, would find public profitability hard to grasp.

Today, the system is measuring IPEs principally on the basis of private financial profits after tax in current prices. The EAC has added some other indicators to measure physical production or energy consumption. (See Table 2 of the Statistical Appendix for some examples), and it has tried to adjust profits for companies facing cost plus pricing (see Chapter III). When more than one criterion is used, the EAC assigns weights that reflect the importance Government assigns to each one.

### Setting Targets

Targets are based on budgetary proposals presented by the enterprises according to a format provided by the EAC. The EAC analyzes the proposals, taking into account various considerations, such as:

- (i) The enterprise's initial objective, designed capacity and budgeted profit;
- (ii) The unit's performance record in recent years;
- (iii) The different financial and operational constraints the enterprise is expected to face during the evaluation period; and
- (iv) The enterprise's macroeconomic environment.

It also looks at the actual results for the past year and the budgeted and expected results for the current year.

Based on these considerations, the EAC attempts to set optimum targets, prepares a draft summary of possible targets, and invites the individual managing directors to discuss the proposed criteria. For each proposed criterion the EAC prepares five targets, representing the range of targets from highest to lowest. The C target, is usually based on the enterprise's budgeted figure. B is usually 5 percent higher and A is 10 percent above C; D is 5 percent lower and E is anything less than D. During the negotiations between the EAC and the MDs, the EAC takes into consideration the general business environment, the parameters within which the enterprise is expected to operate (i.e., tariff or exchange rate changes, price and wage policies, etc.), and trends in the cost of production. The EAC focuses on how to increase production and sales while minimizing costs.

Targets are officially agreed in a contract between the EAC and the MDs, subject to the approval of the Ministry of Production. After signing the contract, the enterprise management is, in principle, left on its own to make all efforts necessary to achieve the targets.

### Evaluation

Once it receives the audited accounts, the EAC calculates a composite performance score for the enterprise by multiplying the assigned target weight by the grade obtained and then aggregating the resulting



scores. At this time or earlier, the MD can try to convince the EAC that unforeseen and uncontrollable circumstances (e.g., power outages) warrant a change in its targets.

### Incentive System

The incentive system consists of bonuses based on the enterprise's achievement of the targets. Depending on the enterprise's category, the management and all nonunionized staff receive the following rewards:

Grade A	Excellent	3 months base salary
Grade B	Very Good	2 months base salary
Grade C	Good	1 month base salary
Grade D	Poor	15 days base salary
Grade E	Unacceptable	Nil

Only profitable IPEs receive a bonus. The original proposal was to reward managers of loss makers who reduce the losses by a targeted amount, but MOF worried about having to provide subsidies in order to pay a bonus. As a result all IPE targets must show profits. Furthermore, the EAC sets a cut off point for most IPEs equivalent to the C target (which is usually equivalent to the budget) and IPEs with profits which fall below that point are not usually rewarded. In addition some chronic money losers whose viability is questionable have at times been excluded or dropped from the system.

One measure of the targeting system is the distribution of the grades. If information were perfect about the technical/engineer potential of the company, the future environment and the optimal management

techniques, than the only unknown would be the degree to which the system motivated staff to work harder and better. Under such circumstances, we might expect most enterprises to earn a C grade. It would make sense for the EAC to set targets so that the achievements fall in a normal distribution around the C grade. In fact, the distribution was singled tailed in 1983-84 with over 40% of the IPEs in E grade and roughly equal shares in the other grades. In 1984-85 and 1985/86, the distributions become increasingly bi-modal with 35% in A and 40% in E in 1985/86 (see Table 3).

These results reflect weaknesses in the criterion used as well as imperfect information. One problem is that loss-making companies are automatically assigned "E" which inflates the bottom grade.<sup>5</sup> Another is that the negotiations are dominated by EAC generalists who have limited knowledge of the workings of the IPEs or of industry standards in other countries.

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<sup>5</sup>/ The distributions are still skewed if loss making companies are excluded, however, thirty five percent receive "E" in 1983-84, much larger than other grades. The next year is bimodal: 34% in E and 27% in A. 1985/86 becomes singletailed toward the top: 46% in "A" versus 20 in "C" and 23 in "E".

Table 3: Pakistan: Summary of Performance Evaluation for the Period 1983-1986; Achievement of Final Grades by Corporation

CORPORATION	1983/1984						1984/1985						1985/1986 (1)					
	A	B	C	D	E	SUB-TOTAL	A	B	C	D	E	SUB-TOTAL	A	B	C	D	E	SUB-TOTAL
Federal Chemical & Ceramics Corp. (FCCCL)	2	0	4	0	4	10	0	0	3	1	9	13	3	1	1	0	5	10
National Fertilizer Corporation (NFC)	1	0	2	1	1	5	3	1	1	1	0	5	4	1	1	0	0	6
Pakistan Automobile Corporation (PACD)	2	2	1	0	2	7	4	2	0	1	3	10	1	0	2	0	1	4
Pakistan Industrial Develop. Corp. (PIDC)	0	0	0	0	1	1	0	1	0	0	1	2	1	0	0	0	3	4
State Cement Corporation (SCCP)	1	1	1	4	3	10	2	5	0	0	5	12	5	1	2	0	4	12
State Engineering Corporation (SEC)	0	1	0	0	8	7	2	0	1	0	3	6	1	1	1	0	3	6
State Petroleum Refining & Petroch. (PERAC)	1	0	0	0	1	2	1	0	0	0	1	2	1	0	0	0	0	2
Textile Machinery Corporation (TMC)	0	0	0	0	0	0	0	0	0	0	2	2	0	0	0	0	0	2
SUB-TOTAL	7	4	8	5	17	41	12	9	5	3	27	56	16	4	7	0	18	40
Units to be graded:																		
TOTAL	41						56						51					

(1) Units under Incentive System: 51  
 Considers preliminary results for 45 units. Units with pending documents : 6 (FCCCL: NFL; PACD: Mech Trucks, Millat Tractors, National Motors; SEC: Pioneer Steel; PERAC: NPC)  
 Units graded: 45  
 SOURCE: EAC

PAKISTAN: SUMMARY OF PERFORMANCE EVALUATION FOR THE PERIOD 1983-1986;  
 ACHIEVEMENT OF FINAL GRADES BY CORPORATION  
 (Percentage with respect to Total)

CORPORATION	1983/1984						1984/1985						1985/1986 (1)					
	A	B	C	D	E	SUB-TOTAL	A	B	C	D	E	SUB-TOTAL	A	B	C	D	E	SUB-TOTAL
Federal Chemical & Ceramics Corp. (FCCCL)	4.88	0.00	9.76	0.00	9.76	24.39	0.00	0.00	5.36	1.79	16.07	23.21	6.67	2.22	2.22	0.00	11.11	22.22
National Fertilizer Corporation (NFC)	2.44	0.00	4.88	2.44	2.44	12.20	5.36	1.79	1.79	1.79	0.00	10.71	8.89	2.22	2.22	0.00	0.00	13.33
Pakistan Automobile Corporation (PACD)	4.88	4.88	2.44	0.00	4.88	17.07	7.14	3.57	0.00	1.79	5.36	17.86	2.22	0.00	4.44	0.00	2.22	8.89
Pakistan Industrial Develop. Corp. (PIDC)	0.00	0.00	0.00	0.00	2.44	2.44	0.00	1.79	0.00	0.00	1.79	3.57	2.22	0.00	0.00	0.00	8.89	8.89
State Cement Corporation (SCCP)	2.44	2.44	2.44	9.76	7.32	24.39	3.57	8.93	0.00	0.00	8.93	21.43	11.11	2.22	4.44	0.00	8.89	26.67
State Engineering Corporation (SEC)	0.00	2.44	0.00	0.00	14.63	17.07	3.57	0.00	1.79	0.00	10.71	16.07	2.22	2.22	2.22	0.00	11.11	17.78
State Petroleum Refining & Petroch. (PERAC)	2.44	0.00	0.00	0.00	0.00	2.44	1.79	0.00	0.00	0.00	1.79	3.57	2.22	0.00	0.00	0.00	0.00	2.22
Textile Machinery Corporation (TMC)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.57	3.57	0.00	0.00	0.00	0.00	0.00	0.00
SUB-TOTAL	17.07	9.76	19.51	12.20	41.46	100.00	21.43	16.07	8.93	5.36	48.21	100.00	35.56	8.89	15.56	0.00	40.00	100.00

(1) Units under Incentive System: 51  
 Considers preliminary results for 45 units. Units with pending documents : 6 (FCCCL: NFL; PACD: Mech Trucks, Millat Tractors, National Motors; SEC: Pioneer Steel; PERAC: NPC)  
 Units graded: 45

PAKISTAN: SUMMARY OF PERFORMANCE EVALUATION FOR THE PERIOD 1983-1986;  
 ACHIEVEMENT OF FINAL GRADES BY CORPORATION  
 (Percentage)

CORPORATION	1983/1984						1984/1985						1985/1986 (1)					
	A	B	C	D	E	SUB-TOTAL	A	B	C	D	E	SUB-TOTAL	A	B	C	D	E	SUB-TOTAL
Federal Chemical & Ceramics Corp. (FCCCL)	28.57	0.00	50.00	0.00	23.53	24.39	0.00	0.00	60.00	33.33	33.33	23.21	18.75	25.00	14.29	0.00	27.78	22.22
National Fertilizer Corporation (NFC)	14.29	0.00	25.00	20.00	5.88	12.20	25.00	11.11	20.00	33.33	0.00	10.71	25.00	25.00	14.29	0.00	0.00	13.33
Pakistan Automobile Corporation (PACD)	28.57	50.00	12.50	0.00	11.76	17.07	33.33	22.22	0.00	33.33	11.11	17.86	6.25	0.00	28.57	0.00	5.56	8.89
Pakistan Industrial Develop. Corp. (PIDC)	0.00	0.00	0.00	0.00	5.88	2.44	0.00	11.11	0.00	0.00	3.70	3.57	6.25	0.00	0.00	0.00	18.67	8.89
State Cement Corporation (SCCP)	14.29	25.00	12.50	80.00	17.65	24.39	18.67	55.56	0.00	0.00	18.52	21.43	31.25	25.00	28.57	0.00	22.22	26.67
State Engineering Corporation (SEC)	0.00	25.00	0.00	0.00	35.29	17.07	18.67	0.00	20.00	0.00	22.22	16.07	6.25	25.00	14.29	0.00	27.78	17.78
State Petroleum Refining & Petroch. (PERAC)	14.29	0.00	0.00	0.00	0.00	2.44	8.33	0.00	0.00	0.00	3.70	3.57	6.25	0.00	0.00	0.00	0.00	2.22
Textile Machinery Corporation (TMC)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.41	3.57	0.00	0.00	0.00	0.00	0.00	0.00
SUB-TOTAL	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	0.00	100.00	100.00

(1) Units under Incentive System: 51  
 Considers preliminary results for 45 units. Units with pending documents : 6 (FCCCL: NFL; PACD: Mech Trucks, Millat Tractors, National Motors; SEC: Pioneer Steel; PERAC: NPC)  
 Units graded: 45

### III. IMPACT ON PERFORMANCE

#### A. Methodology

To judge the impact of the system on performance, we looked both at quantitative measures and qualitative evidence from interviews with managers and officials. The quantitative assessment relies principally on a detailed analysis of a sample of 12 enterprises chosen from the six larger corporations. (See Table 4 for background information on these companies). The original intention was to compare enterprises inside and outside the system. Unfortunately, the IPEs outside the system under the MOP are smaller and tend to be the worst performers. The mission was unable to gather sufficient comparable data on private enterprises to compare their performance with similar IPEs. Without this control group we were unable effectively to isolate the system's impact from other influences on IPE behavior. Instead we attempted to examine other plausible factors which could explain any improvement in performance and to determine whether these were sufficient to rule out the influence of the signalling system.

Table 4: Pakistan: Background Information on Sample Enterprises

CORPORATION	Enterprise	Location	Main Products	Total Assets as on 6-30-88	Employment as on 6-30-88	Pre-tax Profit (Loss) in 85-86 (Rs. in Mill)	Net Profit (Loss) in 85-86 (Rs. in Mill)
FCCCL	Sind Alkali	Karachi	Soda Ash	219.00	750	5.04	3.74
FCCCL	Ravi Rayon Limited	Kala Shah Kaku	Acetate rayon yarn	319.25	2075	17.17	8.58
NFC	Lyallpur Chemical and Fertilizer	Jaranwala & Faisalabad	Single super phosphate	1.08.88	548	8.85	3.34
NFC	Pak Saudi Fertilizer	Mirpur Mathelo, District Sukkur	Urea	1968.87	897	233.78	56.78
SCCP	Javedan Cement	Karachi	Ordinary cement	552.88	1124	93.71	93.71
SCCP	Zeal Pak Cement Ltd.	Hyderabad	Ordinary cement	494.05	1988	129.74	116.89
SCCP	Gharibwal Cement Ltd.	Gharibwal, District Jhelum	Ordinary cement	289.85	954	174.55	168.45
SEC	Heavy Mechanical Complex (HMC)	Taxila	Cement plants & sugar plants	1162.97	3102	3.98	3.06
SEC	Pakistan Engineering Co. (PECO)	Lahore	Machine tools, MSD & SSD engines, electric motors, spares	638.85	4431	-40.20	-41.70
SEC	Pakistan Machine Tool Factory (PMTF)	Karachi	Machine tools units, transmission group, tractor components	905.41	2580	4.31	4.31
PACD	Millat Tractors Ltd.	Lahore	Tractors Group	654.78	1029	9.95	9.53
PERAC	National Refinery Ltd. (NRL)	Karachi	Lube I & fuel and Lube II	3753.07	841	120.00	120.00

SOURCE: Annual Reports of EAC.

In judging the sample enterprises we looked at their performance in terms of the main target indicator -- private profits after tax -- and in terms of public profits in constant prices. Public profits in constant prices measures net real benefits -- i.e., efficiency improvements. It is the equivalent of a quantum index of outputs minus a quantum index of inputs and gives a trend similar to the trend in total factor productivity. This enabled us to isolate the influence of pricing on results and to judge whether there had been any efficiency gain in addition to any financial improvements. Thus we were trying to answer two questions: did the system have an impact on private financial profits (its explicit target)? and on efficiency (its underlying goal)?

B. Quantitative Evidence

Current Priced Profits. Incentives are awarded principally on the basis of private profits after taxes in current prices. On the basis of that indicator IPE performance generally has improved. Thirty three IPEs were in the system for its entire three years of operation, of which 19 (or about 58 percent) improved their private profits after tax, from 100 million Rupees in 1982/83 to 617 million in 1985/86. Fourteen showed a deterioration from 445 million Rupees to 67 million. Thus the majority of these IPEs show an improvement in the main indicator being measured by the targeting system. After 3 years the total profits of the 33 IPEs in the system was almost twice what it had been before the system began:

**Table 5:** Summary of Performance of IPEs in System  
for Three Years: Profits  
(Millions of Rupees)

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	1982/83	1983/84	1984/85	1985/86
33 IPEs in system for three years.	344.14	467.16	937.81	684.00
19 IPEs with profit improvements.	-100.75	221.08	717.45	616.74
14 IPEs with profit deterioration.	444.89	246.08	220.36	67.32

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Source: Table 3 of the Statistical Appendix.

The sample enterprises show a similar trend. Five of the 12 improved their profits after tax from the system's introduction in 1983/84 to 1984/85 and seven show an improvement to 1985/86 (based on unaudited data for 1985/86, see Graphs 1-12 of the Statistical Appendix.)<sup>6</sup> Moreover, the sample enterprises with passing grades increased from 6 in 1982/83 to 7 in 1984/85 to 9 in 1985/86 (See Table 3 of the Statistical Appendix).

Constant Priced Profits. Of course, if the aim is to improve efficiency and if efficiency improvements are defined in terms of increases in net real benefits, then increases in private profits are not a good

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<sup>6</sup>/ The five IPEs are Lyallpur Chemicals, Javandan Cement, Zeal Pak Cement, Pak Machine Tool Factory (PMTF), and National Refinery Ltd. (NRL). The seven are these five, plus Sind Alkalies and Gharibwal Cement.

measure. Increases in public profits in constant prices come closer to indicating efficiency gains for most firms and that is used as a measure of efficiency improvement in this report. Data on public profits in constant prices are only available for all the sample for 1980/81 to 1984/85, which covers just the first two years of the system's operation.

In 7 of the 12 sample IPEs, public profitability in constant prices increased above the 1982/83 level in the first two years of the system (See Graphs 1-12). These seven include four for which the increase is also an improvement over past performance (borne out by comparing real value added for 1983/84-1984/85 with a trend line based on 1978/79-1982/83): Sind Alkalis, Lyallpur Chemicals, PMTF, and NRL. All four also improved private profits after tax. The other three enterprises in this group improved efficiency over 1982/83 but were still below their past trends (Pak Saudi, Javedan Cement and Millat Tractors). One company (Zeal Pak Cement) shows a sharp deterioration from past efficiency trends in the first two years of the signalling system. A scorecard on how the companies performed on the two indicators -- private profitability after tax and public profitability in constant prices -- is shown in Table 6.

Some of the enterprises in Table 6 show opposite trends in private profitability and public profitability at constant prices. This occurs, first, because private profit contains items, such as nonoperating income, that do not move in parallel with efficiency gains and that are excluded from public profits, and second, because of administered prices.



We can examine the first divergence -- that caused by the different definitions of public and private profits -- by comparing the two sets of profits in current prices. For most of the sample companies public profit is higher than private profit, principally because of interest and

**Table 6: Trends in Performance of Sample IPEs  
Compared to 1982/83 Levels**

Private Profitability After Tax	Passing Grades			Public Profitability in Constant Prices
	83/84	84/85	85/86	
<u>Improvements:</u>				
Sind Alkalis*			x	Sind Alkalis
Lyallpur Chemicals	x	x	x	Lyallpur Chemical
Javedan Cement			x	Javedan Cement (below trend)
Gharibwal Cement*	x	x	x	
Zeal Pak Cement	x	x	x	
PMTF			x	PMTF**
NRL	x	x	x	NRL
<u>Deterioration:</u>				
Pak Saudi	x	x	x	Pak Saudi (below trend)**
Millat Tractors	x	x	n.a.	Millat Tractors (below trend)
<u>Deterioration:</u>				
HMC		x		HMC
Pakistan Engineering	x			Gharibwal Cement
Ravi Rayon	x		x	Pakistan Engineering
				Ravi Rayon

\* Improvement in 1985/86 only.

\*\* Improvement in 1984/85 only.

depreciation. Since most of the present managers had little influence over the initial investment decisions, private profit penalizes some managers for factors they cannot control. If the high capital charges resulting from government's investment decision make it impossible for them to earn a passing grade, the system will provide no incentive for them to improve factors they can control. At the same time private profit also fails to

motivate managers to use wisely factors they can control by not measuring these items, notably working capital. And the inclusion of non-operating income allows an enterprise to achieve its targets thanks to windfall income that has little or nothing to do with efficiency. For example, three of the 12 sample IPEs had public profits in current prices that were lower than private profits in 1984/85; in fact public profits were negative. In two cases (PECO, and PMTF) this was due to the opportunity cost of working capital, which exceeded profits even when interest payments and depreciation were added back in. In fact PECO went from E to C grade, despite a large build up in accounts receivable, thanks to government debt relief in the form of other financial income. The most extreme example of the distortions that can be caused by using private profitability as a target occurred in the case of HMC, which made the A grade in 1984/85 only because of other income (principally, interest on deferred credits on sales overseas).

In most of the sample firms, the difference between public and private profits is in the level of profits not the trend. With the exception of PECO, the trends in public (current priced) and private profitability do not dramatically diverge. The trends in current and constant priced profits do differ sharply for most companies, showing that prices are the main reason for the differences in the first and last columns of Table 6 (see below).

#### Explanation of the Sample's Performance

As mentioned, since it is impossible to establish a clear causality between the performance changes and the signalling system, we

tried to consider all other possible explanations of performance to see if they left room for the system as a factor. The main explanations include: (i) changes in prices; (ii) changes in the macroeconomic environment; (iii) changes in markets; (iv) changes in IPE liquidity positions; (v) changes in management due to changes in the supervisory environment of the IPEs and/or the signalling system. Other possible explanations which were rejected because they do not fit with the circumstances are: a drop or rise in labor unrest (no significant change occurred); improvement or deterioration in the supply of inputs or services such as electricity, water, transport (IPEs experiencing problems saw little change); technology change (there were no significant changes in the technology used in the sample enterprises during this period). Changes in liquidity was another explanation that was considered and rejected. Levels of liquidity are low in most of the sample firms and showed little improvement during 1983/84 or 1984/85. (See Table 16 of the Statistical Appendix.).

Additions to capacity were also not significant during this period: it was government's policy to curb new investment in the IPEs. Only two IPEs show any major increase in fixed operating assets at constant prices from 1982/83 to 1984/85: Millat Tractors and NRL. Assets of the other IPEs rose by only 2.7 percent on average during this period. In the event, capacity change is corrected for by including fixed operating assets in the denominator of public profitability. (Millat Tractors and NRL show a deterioration in public profitability in both current and constant prices in the years when fixed operating assets increased more than profits).

### Changes in Prices

The prices of four of the corporations under the MOP -- cement, fertilizer, petroleum and automobiles -- are administered. Moreover, quite a few of the companies are buying inputs, such as petroleum or electricity, at prices which do not reflect the true costs of production to society. As Graphs 1-12 show, the level of public profitability in constant prices diverges widely from public profitability in current prices for most of the sample IPEs. In six cases the IPEs show the opposite trend in current prices from the constant price trend. In two of these the price effect is positive: increases in administered prices explain why Gharibwal and Zeal Pak Cement could improve their financial profits while efficiency deteriorated. Prices had the opposite effect on Pak Saudi Fertilizer and Millat Tractors, which showed modest improvements in efficiency that were cancelled by adverse price effects. In 1983/84 HMC also improved its constant priced profits while its current priced profits declined. In this case, it was because the company's market for higher priced products (such as turnkey cement plants) deteriorated and HMC shifted into lower value items such as galvanized steel structures.

Pricing has clearly affected the extent to which targets reflect efficiency. For the two years for which constant priced figures are available (1983/84 and 1984/85) the probable grade of the sample companies based on public profits in constant prices differed from the actual grade awarded in 14 (out of 24) cases. For example, Lyallpur Chemicals made a C in 1983/84 on its private profitability target, but would probably have

been an A company in constant prices. The following year it was an A company but would probably have made a C in constant prices.

The EAC has made some effort to adjust its targets for administered prices. For example, the achievements of two sectors with administered prices, cement and fertilizer, are calculated on the basis of the budgeted (the so called retention) price that was used to determine the original target, even through the actual retention price given to the company was higher. This, however, only corrects for the pricing problem on the output side, not the input side. The EAC has also added some nonprofit targets but these do not appear to have improved the capacity of the system to measure efficiency. For example, Zeal Pak Cement earned a C grade in 1983/84 on a combined target of private profitability (40%) and volume of production (60%); it earned an A grade in 1984/85 on a target of profitability (60%); production volume (30%) and productivity (10%). In contrast, Zeal Pak's efficiency (public profitability in constant prices) fell sharply in 1983/84 (a 3% increase in output was offset by a 60% increase in inputs in constant prices) and stayed about the same in 1985/86.

In summary, pricing changes explain the trend in financial profits (both up-and downwards) in six cases, but not the efficiency changes.

### Changes in Markets

Competition could explain an improvement in profits and efficiency if the IPEs react to competitive pressures by working harder to cut costs, expand production, improve quality, etc. in order to retain or expand their markets. If, in contrast, the IPE cannot or will not respond, the result will be a deterioration in performance. Competition increased in Pakistan during the period under review, thanks to trade liberalization, easier private entry into previously public activities, and the earmarking of credit for the private sector. And competition has had a favorable impact on some public firms which are striving hard to improve efficiency and retain their market. (Petro Carbon, which is not part of the sample, is an example.) However, competitive pressure does not seem to be the main explanation for the efficiency improvements in the sample firms. Some of these firms, such as HMC or PECO, have faced competition since before the period under examination. Others, such as the fertilizer plants and the refinery, faced no change in competition but nonetheless showed efficiency gains. In most cases where IPEs have faced an increase in competition the result during the short period under examination has been a deterioration in performance.

An example is cement. Pakland Cement, a private cement plant, began operations in 1982/83 and immediately established new standards of quality control, marketing and timely delivery. Pakland's nearest IPE competitor, Javedan Cement, improved efficiency in the period under review although it is still below past trends. The other two cement plants in the

sample, however, showed declines in efficiency. The public cement plants have a long history of operating in segmented markets and it may take time for them to react to competition by improving efficiency. Moreover, for competition to have a positive impact on efficiency the enterprise must have management with the capacity, autonomy and capital base to respond. This is often not the case for the IPEs; autonomy in particular may be insufficient (See Section D.)

In addition, liberalization has shifted demand in ways that make it difficult or impossible for the IPE to respond. An example of this is Ravi Rayon, a poor performer in both current and constant prices. Ravi Rayon has been having trouble for some time competing with polyester and its problem worsened with liberalized imports of viscose (a direct substitute for rayon).

In sum, increased competition is not a major factor explaining the improvements in efficiency but it is a reason for the deterioration in results in some cases. Since it is the improvement in performance that most interests us, we must look for other explanations.

### Macroeconomic Changes

Changes in the macroeconomic environment could explain some of the performance trends. The first year of operation of the signalling system, 1983/84, was not a buoyant one for the economy; GDP grew by 4.4 percent in real terms which is well below the average of about 7 percent in the 1970s and early 1980s. GDP grew by 8.8 percent in the second year of

the system, 1984/85. The trend in public profits, however, are not well correlated with the movement in GDP. Only three (Pak Saudi Fertilizer, Javedan Cement, and Pak Machine Tools) show a slack growth in constant priced profits in 1983/84 and an acceleration in 1984/85.

On the other hand, the easing of import restrictions, reflected in a 22 percent real growth in imports in 1983/84 and 7.1 percent in 1984/85 could be a more important explanation. For those IPEs which are supply, not demand, constrained, greater access to imports could make a real difference in their output. This explanation does not suffice, however, because most IPEs lack the capital to take advantage of import opportunities (see below).

#### Changes in Management

In several of the sample companies, the improvement in performance seems to be explained in large part by management changes. This is especially true for the four companies which show efficiency gains above their past trends. Probably much of the improvement in the performance of Sind Alkalis can be attributed to a change in the management team at the start of the period. In other cases the same managers strove harder to curb costs and expand output.

For example, Sind Alkalis increased its soda ash capacity utilization from 38 to 90 percent; productivity improved sharply (see Graphs 13-25 of the Statistical Appendix); the volume of production went up 140 percent; and gas consumption declined. Lyallpur Chemicals and



Fertilizer is already above rated capacity and managed to increase utilization still further while curbing raw material and fuel consumption. PMTF also improved capacity use somewhat and coped with stagnant demand by shifting production; it also registered a sharp increase in productivity. The Refinery, always a good performer, increased its inventory turnover and kept energy consumption in check.

An important reason for management's greater attention to efficiency is the general "hardening" of the environment for IPEs during this period, of which the signalling system is only a component. Top authorities were reacting to performance indicators (many of which were being calculated well before the signalling system) with new seriousness and demanding explanations. Managers were being fired for mismanagement. Subsidies and easy access to credit were curbed. IPE investment funds were being sharply curtailed. The installation of the signalling system was itself part of this trend. It is hard to separate these environmental changes from the performance system in order to judge to what extent the harder environment by itself was responsible for the efficiency gains. It does seem likely that the signalling system alone, without these environmental changes, would not have been sufficient to create the efficiency improvements.

### Conclusion

The argument that the efficiency improvements were partly due to the system cannot be ruled out since none of the other explanations fully explain the efficiency improvement. However, it is not fully persuasive

because the targeting system is not really measuring efficiency and the system is operating under a number of constraints on its capacity to affect change. (See Section D below.) Nevertheless, the system may still be influencing efficiency even though it is not effectively measuring it. Managers motivated to increase profits, particularly public enterprise managers, have only so many ways to react. Most of the sample enterprises are not in a position to change prices or to increase transfers. Increasing the quantity of output or reducing the quantity of inputs may be one of the few ways they can react to a profitability target. Such a reaction seems especially likely in the first years of a performance evaluation system, before managers become cynical about the flaws in the indicators or figure out ways to achieve targets without improving efficiency.

An important feature of the system's impact is the fact that it was part of the general policy changes mentioned above. The qualitative evidence described below suggests that the system provided managers with an added incentive to respond to these changes as well as a tool to rally and motivate staff. In sum, the system despite its flaws seems to have had a positive impact on efficiency, an impact that is intimately linked to the other changes in the IPE managerial environment.

### C. Qualitative Evidence

Most managers consulted felt that the system had had a positive impact on performance, as did government officials. They attributed this

not only to the targets and bonuses, but also to a number of other, parallel features of the system: the systematic gathering and processing of information on performance, the serious discussions of performance in the negotiations and review meetings, and the resulting better understanding of the enterprises in the Ministry of Production.

The targeting and bonus system was cited by all managers consulted, even those critical of the system and those not receiving bonuses, as a positive development which could be a powerful motivation if properly handled. Managers of companies which had received the bonus maintained that their staff was very aware of the target and knew what they and their department would have to do on a daily and monthly basis to achieve the A target. Since the C target is the same as the budget for most companies and the A and B targets are typically 5 and 10 percent above that level, it is fairly simple for the IPEs to convert their budgets into targets. Judging from the enterprises visited, Pakistan's IPEs have thorough management information systems. Budget achievement and other indicators are monitored on a quarterly, monthly, weekly and daily basis for each work unit. Under such circumstances it is plausible that staff could know what the target means for their unit and where they stand in achieving the goal during the year.

Even companies which have not achieved the target in the past seem to be influenced by the signalling system. Petro Carbon, for example, is attempting to compete against imports of carbon black in a limited market. It is a small scale, inefficient producer that had accumulated

R/75 million in losses over seven years. Nevertheless, thanks to aggressive management and, according to management, motivation to receive the bonus, the company converted its R/9 million loss in 1984/85 to a R/7.5 million profit in 1985/86, brought down average production costs from R/16,000/ton to R/9000/ton and expects to earn an A grade.

The MOP has long produced a great deal of information on its IPEs. The difference introduced by the signalling system is that the information centers around a few key indicators that are being monitored. This allows decision makers to focus on achievements plus a few explanatory variables and helps make sense of a flood of data. Furthermore, it uses on a weighted comprehensive indicator (private profitability) which reduces the distortions caused by partial indicators. In addition, information is now arriving in a more timely fashion. Audited reports used to be received by MOP one to two years after the end of a fiscal year. Since the incentive has been linked to receipt of audited reports they arrive on average within five months, or at most seven. Furthermore, there is more serious follow up to auditors' comments. If, for example, the auditors' report states that they were "unable to verify inventories," a team is sent from the Ministry to investigate and in extreme cases the manager has been fired. Finally, the kind of assessment that was done in section A above of the improvement in efficiency and its probable causes would not have been possible before the signalling system.

Another important change is that targets are now negotiated rather than set from above. This plus the fact that the target means something substantial now -- a bonus -- causes management to treat targets more seriously. Targeting is more rational and realistic and management understands the reasons for the target and, with some exceptions, has agreed to the goal. The main exceptions are the money losing firms that do not stand a chance of achieving a profit target. Several of these have refused to sign the agreement.

All enterprises meet regularly (at least twice a year) with the Secretary of Production, the head of their corporation and the other MDs in the corporation. The EAC prepares an agenda which is circulated beforehand. These meetings always begin by following up on any issues raised during the previous meeting. In particular the Secretary reports on any commitment he undertook (usually with regard to negotiations with other ministries) and the MDs report on any responsibilities or improvements in performance that they pledged to achieve in the previous meeting. The discussions center around a comparison of budgeted and actual performance provided by the EAC. After the meeting the EAC prepares minutes. Managers regard being called upon to report on performance before the Secretary and their fellow managers as effective in motivating them to do better and in informing the Secretary of their situation and problems. It also helps them understand their standing vis-a-vis the other IPEs in their corporation.

D. Constraints on the System's Impact

Besides the fact the targets are an imperfect reflection of efficiency, there are a number of factors which could constrain the system's impact on public enterprise efficiency:

- (1) The rewards are not sufficiently large or distributed in such a way as to motivate performance improvements;
- (2) Managers lack sufficient autonomy to change performance;
- (3) Managers are not competent to respond to rewards with changes in performance;
- 4) Some PEs are excluded from the system; and
- (5) The macroeconomic environment is not conducive to performance improvements.

To some extent all of these constraints are operating in Pakistan.

Failure to Motivate Efficiency Improvements

Most managers consulted think that the size of the bonus is sufficient to motivate their staff. Nonunionized staff have not been receiving bonuses in recent years and the prospect of a bonus is seen as an inducement. Not surprisingly, if the firm has once received a bonus, the motivation to keep or increase the bonus the following year is stronger than if the firm has never received a bonus. In contrast, a senior staff member of one money losing firm was not even aware of the existence of the signalling system. Lower level staff of one IPE that made the A grade only because of nonoperating income were also not aware of the target.

The way the bonuses are distributed may reduce the incentive impact. The bonus is meant to be a management tool that enables managers to encourage productivity improvements by rewarding better performers. The way the system is administered in Pakistan has reduced managerial flexibility. First, all nonunionized staff of an A grade firm receive three months of salary across the board. Some managers reward lower or no bonuses to a few individuals that receive a below average merit rating (all firms consulted have some sort of individual performance evaluation system); others did not realize that they could reduce the award. But managers cannot raise the award for an above average individual, nor can they distinguish between units or departments on the basis of their performance. It was originally proposed that managers be given complete discretion in awarding bonuses, but this was dropped in the face of opposition from MOP, corporations and some managers. Second, unionized staff receive a bonus (the level is decided by the government) regardless of whether the firm achieved its target (and with no differentiation among workers on the basis of merit). Typically the bonus for unionized workers is a higher multiple (7 to 10 months were cited) than the bonus awarded to nonunionized staff. (MOP is considering linking workers' bonuses more to the unit's performance through the collective bargaining process. Third, the bonus under the system is usually awarded six months after the end of the fiscal year, which reduces its incentive impact on the following year, but provides an incentive for firms to submit their audited accounts.

#### Lack of Management Autonomy to Affect Efficiency

The main constraints on management's capacity to increase operating efficiency are:

- (i) Inability to lay off labor to cut costs;
- ii) Lack of control over compensation decisions;
- (iii) Inability to close lines or cut off service to cut costs;
- (iv) Constraints on flexibility in procurement decisions;
- (v) Constraints on choice of product mix, markets and suppliers;
- (vi) Lack of flexibility in expenditures requiring credit or foreign exchange;
- (vii) Need to meet government imposed social welfare objectives; and
- (viii) Inherited capital stock.

The first three issues are all related to the power of unionized labor in Pakistan. The MOP has taken steps to decentralize some personnel decisions to the corporations and enterprises, such as disciplinary firings, promotions, and compensation decisions in collective bargaining. Reductions in force, however, are virtually impossible, so managers cannot cut costs by laying off workers and closing lines or plants. (The lack of flexibility in the labor force is illustrated for the sample IPEs in graphs 15 through 36 of the Statistical Appendix.) Managers also have limited flexibility in controlling compensation. Individual managers can be faulted for a tendency to give in to labor demands in collective bargaining, a common trait in public enterprise management where there is cost plus pricing, easy access to subsidies or cheap credit. But this tendency is also a reflection of a pervasive attitude throughout the public sector and a long history of union power in the public enterprises. The government-enforced bonus system for unionized workers further reduces



managerial control over labor costs. Because of this, increases in the wage bill bear little relationship to productivity increases, (as graphs 25 through 36 of the Statistical Appendix show for the sample IPEs). This situation appears to have gotten worse during the period under review; with one exception (Sind Alkalis) all the sample enterprises show faster increases in average labor costs than in productivity during 1983/84-1984/85. In comparison, the majority of the firms show productivity increasing faster than labor costs from 1980/81-1981/82.

A similar situation seems to pertain throughout the MOP:

Table 7: Comparison of Labor Costs and Productivity Increases; All IPEs Under the Ministry of Production (% Change)

	82-83/ 81-82	83-84/ 82-83	84-85/ 83-84
MANPOWER	-1.1	10.6	0.2
TOTAL LABOR	13.6	19.0	14.2
AVERAGE LABOR COSTS	14.8	7.5	13.9
PRODUCTION / <sup>a</sup>	18.6	9.4	5.9
PRODUCTIVITY	19.8	-0.1	6.7

<sup>a</sup>/ At constant 1977/78 prices.

Source: EAC

This situation appears to be changing. The MOP has become concerned about rising labor costs and has begun to stress measures to cut costs. Managers are now being asked to bargain for reasonable wage levels and cut costs in overtime, bonuses and the like.

Procurement procedures also reduce management's flexibility in cutting costs or seeking new technology. For example, HMC, which produces heavy equipment, including turnkey sugar and cement plants, must consult its corporation for all purchases over about \$12,000 and if the item is a capital good it must go for competitive bidding (raw material purchases over about \$118,000 must also go for competitive bidding). This requires an advertisement, 45 days for placement of bids, and 40 days for study and selection. The firm is expected to accept the lowest bid. Purchases over \$600,000 must be approved by a ministerial committee and purchases over about \$3 million must be approved by the a high level committee of the cabinet and approval can take two years. Thus, even if managers feel motivated to seek out lower cost inputs or to develop new methods of operation or product lines, they must deal with a sometimes lengthy bureaucratic procedure that can stifle new initiatives or force the firm to miss opportunities.

Some of the firms are also constrained in their choice of markets, products and suppliers. Not surprisingly, import substituting enterprises (like the Refinery) must satisfy uomestic demand before exporting. The Pak Suzuki automobile company is required to produce a certain number of its lowest priced passenger cars and to purchase a portion of its inputs from another state enterprise. It is hard to judge if this is a constraint, since most managers are not aggressively seeking new markets and adapting product mix. Years of operating in a controlled environment has made them complacent even in the face of rising competition.

Government imposed social welfare objectives place another burden on the IPE that reduces management's flexibility to cut costs. For example Pak Machine Tools is required to train five people for every one they intend to hire. Plants located in remote areas at government behest have to provide education, housing, health services and transportation to employees as well as bear added transport costs.

The operations of the financial system are another constraint on management. Credit and foreign exchange ceilings are allocated as part of the budgetary process through negotiations between first, the corporations, the Ministry of Production and the Ministry of Finance, and then between the corporations and the companies. There is no reason why these ceilings would tend to favor the more efficient firms, especially since price distortions make it hard to judge efficiency. In other words, the more efficient enterprise may not be the most profitable one, and a manager intent on improving efficiency may lack sufficient liquidity or foreign exchange to make expenditures with high rates of return. A related constraint is the fact that IPE managers cannot get coverage for their foreign exchange purchases even though private enterprises have this facility in Pakistan.

Finally, management is constrained by the inherited capital stock. Management can still improve operating efficiency within that constraint, but the task can be considerably harder when the plant is grossly under or oversized or the equipment is antiquated and worn out.

### Lack of Management Competency to Affect Efficiency

A danger in many developing countries is that PE managers lack the competency to understand the efficiency target or to improve efficiency in the face of the target. Pakistan is fortunate in having IPE managers who seem generally skilled and competent. Nevertheless, these managers and their staff have been accustomed to operate in a protected environment without the pressures for efficiency that the signalling system is supposed to provide. If the system were to try to motivate managers on the basis of public profitability, managers would need to be trained in the rationale of the profit adjustments. Some may also need training and assistance in areas that have not been so important in the past, such as in identifying cost cutting measures, in marketing, and in planning. Deregulation and the pressures for efficiency from the EAC have created new incentives for managers to acquire these skills.

### Exclusion of some PEs from the System

In 1985/86 the incentive system was applied to 51 of the MOP's 66 enterprises. The excluded enterprises were mostly small in terms of assets, employment and revenues (most of the small firms under the Pakistan Industrial Development Corporation are excluded). In 1987-88 all the MOP firms are included in the system. But the coverage is in fact not complete since loss making enterprises are in effect excluded from the system in Pakistan. Managers of such enterprises tend to become demoralized if they feel the target is not a realistic one. Some six enterprises made losses

throughout the three years of the system and could be considered to be, in effect, excluded from the system. This would mean that 45 IPEs were covered by the system in 1985/86, or 64 percent of the total.

### Macroeconomic Environment

Finally there may be exogenous factors which constrain efficiency gains. Depressed demand, shortages of inputs, weaknesses in the infrastructure, and the like can all make it difficult for managers to effect changes. These factors certainly operate in Pakistan. For example, many of the IPEs suffered because of power shortages during this period; Millat Tractors faced a drop in demand because the Agricultural Development Bank provided inadequate funds for farmers to buy tractors. PECO suffered when the Electricity Company cancelled an order for towers. Yet despite such problems the majority of the sample firms were still able to improve their efficiency.

### E. Perverse Effects on Performance

Performance evaluation systems could motivate short term improvements in profitability and yet have a perverse effect on long term performance. The design of the Pakistani system took into account the fact that if the targets were solely based on short run measures, there would be a tendency to sacrifice expenditures with short run costs and only long run benefits. This tendency could be expected to be a problem in Pakistan, where the average tenure of an IPE manager is estimated to be about three years. Nevertheless, it was quite rightly decided to begin with a simpler

system based on short run targets only and to add targets for items like maintenance or training, and dynamic indicators, such as investment and R and D, as the system matures and the short-run targeting system is working well. MOP is also in the process of introducing corporate planning for all IPEs (and a qualitative measure of corporate planning will be included in the targets eventually).

There is some evidence that the lack of any longer term target might already have had an impact on performance. For example, one of the sample firms (Gharibwal Cement) achieved a B grade partly because it did not carry out its budgeted repair and maintenance program and hence worked 316 instead of 300 days a year. Several managers also worried that their targets were based at full or more than full capacity operation without enough provision for more than routine maintenance. EAC makes an effort to assure that the targets are realistic and allow for preventive maintenance and also will readjust the target if there is some unforeseeable and unpreventable problem. At the time of the evaluation EAC checks that the IPE has adhered to the agreed maintenance schedule.

#### IV. IMPACT OF THE SYSTEM ON GOVERNMENT POLICY

##### A. Impact on the Regulatory Environment and Pricing

The signalling system gets its name from the notion that it will signal managers about the behavior that government desires -- and government about the effects of its policy on performance. Of course the

first set of signals is the primary purpose of the system, but the second set could be even more important if government policy is the primary determinant of performance. In theory the system signals the need for regulatory reform through the adjustments that have to be made in the targets to take account of government imposed costs, lack of managerial autonomy and the like. Proponents of the system maintain that by making these adjustments explicit the system highlights the cost of distortions, helping government to make a conscious choice. Furthermore, even if policy reforms do not ensue, the system motivates managers to operate at greater efficiency within the degrees of freedom they are given; lack of autonomy is not accepted as a blanket excuse for inefficiency. Critics of the system argue that by adjusting for these problems, the signalling system actually makes it easier for government to ignore them. Instead of promoting reform the system hinders or delays it. The same criticism is made of price adjustments; by adjusting targets for price distortions the system reduces the pressure to remove the distortion. But this is only true in so far as a move to efficiency prices would work in favor of the manager, a situation that does not appear to pertain to Pakistan. In the past IPE managers were not held to efficiency targets -- nor were they lobbyists for reform.

The main constraints on the IPEs mentioned earlier all entail a cost. Since these costs are typically not directly felt by Government --they either take the form of foregone taxes or dividends or higher prices to consumers -- there is a tendency for the trade offs never to be considered.

The EAC has not often used its information base to promote regulatory reform. One exception is a study of labor costs that can be expected to increase pressures for wage restraint. The EAC adjusts targets to take into account the constraints on enterprises during the negotiations, but no formal calculation of the costs implied by these adjustments is made. For example, the cost to an IPE of not being permitted by government to make a necessary replacement investment in a timely fashion would be explicitly calculated for target setting purposes but would not be analyzed elsewhere. The costs of other constraints, such as not being able to lay off redundant workers, are treated as a normal cost of doing business and no adjustment is made to the target. The costs of meeting government imposed social objectives would not be calculated unless these change considerably from year to year. Thus, the cost of training more people every year than an IPE could possibly employ would not be explicitly estimated because such costs don't significantly affect the trend in operating efficiency. The EAC does produce a diagnostic report at the end of the year which assess each unit's real performance and can form the basis for follow-up studies.

Nor has the system been used to illustrate the financial impact of pricing or other policy changes, either at the enterprise or the aggregate level. It would be fairly simple to do simulation exercises to estimate the impact of changes in wages, foreign exchange, electricity prices, etc. on each public enterprise and on the group.

The EAC was set up for, and is more effective at, influencing management rather than Government. Further, the decisions about many of



these policies are not in the hands of the MOP. The Ministry of Industry, the Ministry of Finance and often the very top levels of Government play a role in decisions about, for example, industrial policy, the allocation of foreign exchange or the stance of the public sector vis-a-vis layoffs.

Nonetheless, the EAC could do more to influence the regulatory environment by making the costs of regulation explicit. It could do studies of the costs of social objectives, of transporting goods from remote locations, of delays caused by overcentralized decision making, etc. It could without too much difficulty estimate the degree to which IPE output prices are distorted: EAC has calculated the weights of different outputs and the IPEs are producing tradeables. Determining the subsidy element in input prices may be more difficult but is also possible; again the weights are known and studies of efficiency prices for some major nontradeables (water and electricity) have been done. And it could analyze the impact of policy changes on individuals and groups of IPEs. In this regard it is noteworthy that the EAC is developing a Social Accounting Matrix (SAM) which will show IPE performance and linkages with the rest of the economy and is expected to be an input into policy formulation.

B. Impact on Decisions to Close or Sell IPEs

The system calculates the operating efficiency (or X-efficiency) of the enterprises; it is not designed to calculate allocative efficiency (or whether the investment represents the best alternative use of resources). In some cases the economic costs of keeping an enterprise operating -- even at peak efficiency -- may exceed the economic benefits.

The IPE may be tying up resources in an activity with low, or even negative, economic returns that could be put to far more productive uses elsewhere. In some extreme cases where the enterprise has negative value added at international prices, improving its operations may make matters worse; society is worse off economically the more the enterprise produces because the economic value of its output is less than the economic value of the inputs it consumes. Since prices are distorted in Pakistan the financial profits of the enterprise do not reflect its true benefits to society and mask the cost to the economy.

In addition, some of the IPEs appear to have outlived their original objective or are not able to adapt to the new rules of a more open market. Managers are in some cases striving to improve the efficiency of an outmoded plant or one too small or large scale to be efficient. Yet upgrading the enterprise may yield far lower returns than alternative investments.

While this is not a problem of the signalling system per se, it cannot be separated entirely. By focusing on the operations of the IPEs and not considering the fundamental wisdom of keeping the enterprise alive, the signalling system may be making matters worse in some cases. The issue also arises because the EAC seems well placed to assess the net economic benefits of IPEs. It is staffed with economists and the computer system is set up to take shadow prices. Without much additional data it could calculate the financial and economic costs and benefits (taking into account indirect benefits and externalities) of IPEs that might be candidates for closure. The EAC's work on corporate planning and the SAM

are expected to be tools for assessing restructuring requirements within the sector.

## V. SUGGESTIONS FOR STRENGTHENING THE SYSTEM IN PAKISTAN

This review of the system suggests several ways that the signalling system might be made to work better in Pakistan. First, the internal operations of the system might be strengthened by changes in the way the targets are set and bonuses awarded, in the MIS, and in the technology. Second the system would obviously function better if there were changes in the environment of IPEs, including in the autonomy granted to managers, in the relationship with the labor force, in the decisions about closures, pricing and competition.

### A. Improving the Internal Operation of the System

#### Targets and Bonuses

First, priority should be given to shifting from private to public profitability and introducing further price liberalization. In particular the award of bonuses for profits achieved thanks to price controls or nonoperating income seems especially distortionary. Price and trade liberalization have made profit figures for many IPEs a more meaningful reflection of efficiency while also increasing competitive pressures. While this obviates the need to use constant priced profits in many (not all) cases, consideration should still be given to making some

of the adjustments to private profits suggested in the original proposal. Excluding depreciation would eliminate the system's bias in favor of older companies and the possibility that a manager may be rewarded for purely accounting changes. Non-operating income should be excluded to avoid rewarding managers for windfall gains that have no relation to operating efficiency. Even though taxes have not been an important factor in IPE profits, the use of pretax profits avoids motivating managers to reduce or evade taxes or rewarding managers for a change in legislation. Excluding interest charges assures that the system does not judge managers for a cost they cannot control; including the cost of working capital judges them for one they can. Moreover this redefinition of profit following straight forward accounting practices should be easily grasped by non-economist, including IPE management, in a way that constant priced profits might not.

Several arguments can be raised against public profitability. One is that by adding back in taxes, interest rates and depreciation and by subtracting non-operating income, managers are not motivated to minimize their charges and maximize their income. While this is an important argument, the fact is that most public managers cannot control some items such as interest or age of plant and can manipulate others to hide inefficiencies (for example, depreciation or non-operating income). Other indicators of cash flow, liquidity, debt:equity or the like could be introduced to assure financial solvency while keeping public profitability as a closer proxy to efficiency. All of these indicators are less likely to distort the measurement of performance than private profits, and come closer to measuring what the Ministry of Finance is interested in.

A second objection to public profits is that using a different profit concept for public firms makes it harder to compare their performance with private ones, and hence could impede rather than enhance competitive pressures for improvement. Yet, rather than hindering comparison, these sorts of adjustments are often essential to allow realistic public/private comparisons. Thus, pre-tax profits should be used to take into account the fact that PEs are exempt from many taxes, while when they do pay taxes they cannot evade them as easily as private firms. Similarly, interest charges would need to be added back if public firms have access to subsidized capital or pay lower interest because of government guarantees. Depreciation charges would also need to be added back to avoid penalizing one firm or the other simply because of the age of its plant and to avoid problems with accounting anomalies. Finally, nonoperating income is often the home of hidden subsidies in PEs and subject to windfall gains that have more to do with the PE's privileged position than its operational efficiency.

Finally, the EAC argues with some justice that the introduction of a new indicator could confuse management. On the other hand, the EAC has introduced and changed fairly frequently the partial indicators used in addition to profits. The analysis of this report indicates that the benefits of the change may exceed the cost of some initial confusion. Using unadjusted profits distorted the results and allowed inefficient firms to make passing grades.

The EAC makes a concerted effort to make up for the deficiencies of standard profitability by making adjustments in the course of its

evaluation and by developing partial physical indicators. During the evaluation the EAC may discount performance because of an increase in administered prices or a windfall gain in non-operating income. Despite the fact that these represent realistic and objective adjustments, managers have protested this "arbitrary" discount and have succeeded in forcing the EAC to award them their grade on the basis of the original, unadjusted indicators. The evidence of the sample IPEs indicates that the EAC has had only limited success in giving grades which reflect efficiency improvements. A more realistic indicator would avoid this problem and give a clearer signal to management.

Furthermore, partial indicators of physical efficiency could have unintended and perhaps even perverse effects. Using these indicators in combination with profitability double counts certain items and not others. In some cases this may be intentional (to count energy costs twice as a way to reinforce the need for conservation). But in other cases the results seem contrary to the intention: for example, counting the volume of production plus profitability counts outputs twice and inputs only once and thus deemphasizes cost control. EAC is aware of this problem. When recently the Cell was instructed to give explicit targets for four costs (raw materials, energy, labor, and financial expenses) it chose quite rightly not to give these an additional weight but to make them constraints on the profit target. This, however, raises a related problem. Each additional indicator reduces managements' degrees of freedom; the virtue of profitability is that it weighs costs versus benefits while leaving management to judge how best to minimize costs and maximize benefits. Systems which instruct managers how to minimize costs require a good deal

more information on the inner workings of the firm and risk reducing manager's sense of responsibility for the other, unspecified items.

A second recommendation is to explore ways to begin to reward the managers of firms who reduce losses by improving efficiency or who make private losses and public profits. One possibility is for government to assume some of the burden as a payment for costs it has imposed on PEs in cases where, for example, the PE was undercapitalized. A first step would be for the EAC to calculate what would have been the costs to (i) reward bonuses to loss making IPEs that would have made profits under public profitability in current prices; and (ii) reward bonuses to loss making IPEs that show a large reduction in public losses, and (iii) to reward bonuses to loss making IPEs that would have made profits under public profitability in constant prices. This information is already available and the EAC has done already a preliminary estimate. For simplicity's sake this estimate could be done for all IPEs in these categories even through the actual targeting would exclude a share of these firms. The cost of giving a bonus to these IPEs is probably small since the number of affected staff are small and should be easily offset by the increment in efficiency. It was estimated that if Pakistan's IPEs achieved on average a five percent improvement in productivity, only about three percent of the increment in profits would be needed to pay all IPE nonunionized staff one month's bonus. The MOP is currently considering ways to award bonuses to such loss-making firms.

Third, bonuses should preferably not be allocated across the board. While it makes sense to reward or penalize the top management on the basis of the enterprise's performance, the rest of the staff should receive a bonus on the basis of their individual and work unit performance.

The size of the enterprise's bonus pool should be linked to the IPE's achievement of its target, but not the level of each individual bonus. There are merit evaluation systems in place in some companies but these might need to be extended and improved to implement this recommendation.

Fourth, consideration should be given to introducing efficiency targets especially for those IPEs that face noncompetitive markets, until competition can be introduced. Managers of the competitive engineering IPEs are very aware that it is unfair to treat them the same as processing industries which face a captive market. The solution is not to ease the target on the engineering firms but to strengthen the target of the process enterprises. One way to do this is to present the IPE's trend in constant-priced profitability. Even if this constant-priced profitability is not acceptable for bonuses, it could still be calculated and reported on as an efficiency indicator. If possible enterprises should develop targets for this indicator and their performance should be evaluated as a way of informing both enterprise and government about the true trends in efficiency. IPE managers should be informed as to how the efficiency indicator is calculated for their company as a way of removing any misunderstanding about public profitability in constant prices. Even if this is not acceptable the constant price profits could be used by the EAC as a check on its partial physical indicators.

Also, the kind of analyses done in this report could be carried out for all IPEs. Divergencies between the efficiency indicator and current-priced public and private profitability could then be explained in the EAC reports and begin a revealing discussion of the distortionary



effects of price controls. This could contribute to the goal of removing of controls over prices wherever competition is possible and bringing the prices of tradeables more in line with international prices.

Fifth, an effort should be made to award the bonuses earlier in order to link performance directly with reward and to increase the impact on the following year. One way to do this would be not to wait for the audited accounts, or at least not to wait until the accounts of all companies in the system are received, before awarding the bonuses. When the system was instituted, waiting for the audited accounts was an important way to motivate managers to provide the accounts on time. Now that accounts are being received regularly and closing year accounts are similar to the audited figures, it should be possible to use year end figures. If this is unacceptable, the grade could be announced on the basis of year end figures but part or all of the bonuses only awarded when the audited accounts are received.

#### Improving Targeting

The EAC has rightly resisted increasing its size to bring on a lot of industry specialists just for target negotiations. One way to improve in depth knowledge of the companies might be to bring in outside experts from the academic or business communities, as is done in Korea. Or the EAC might rely more on the technical expertise in the corporations. There are some problems with these approaches: it could be harder and slower to reach agreement with a lot of outsiders involved, while the

corporations have a vested interest in their enterprises earning a good score. Also the EAC has acquired skills in preparing and negotiating targets that would be lost if there were separate professionals involved. Nevertheless, the EAC could use some specialist knowledge, perhaps provided by a team of advisors brought in on a short-term basis at EAC discretion. Consideration should be given to expanding the EAC budget for this purpose. Also the EAC should develop international benchmarks for comparison.

### Technology Improvements

The EAC should evaluate the feasibility of replacing the existing system with one that is more flexible and less costly. For example, a similar system developed for Venezuela uses microcomputers and a commercial software package that can be operated by the supervising economists. In contrast, the present set at EAC uses a minicomputer and requires the EAC to maintain programmers.

### B. CHANGES IN THE ENVIRONMENT FOR IPEs

As noted, environmental changes are an important aspect of any productivity gain. Since the signalling system relies on motivating managers to increase efficiency, the system is only as effective as the managers. If management is hemmed in by restrictions or has access to easy bail outs in the form of government subsidies or guaranteed loans, the system cannot be effective. Pakistan introduced a number of reforms parallel with the signalling system which played an important role in any

efficiency impact it may have had. Ways to further increase the pressures for efficiency should be sought. First, top priority should be given to promoting competition through further trade liberalization, reducing barriers to private entry and discrimination against domestic private producers, and eliminating administrated prices for competitive enterprises. Second, the decision-making process should be studied to find ways to increase flexibility as well as accountability by removing the constraints mentioned earlier. Thus, managers should be given greater flexibility to cut costs by laying off workers, closing uneconomic lines and seeking least cost suppliers. Layoffs of redundant workers with severance pay and redeployment schemes are being successfully pursued in a number of developing countries. Public companies have also successfully reduced redundancies by vigorously prosecuting discipline charges and through early retirement and voluntary severance packages. Similar measures might work in Pakistan.

In controlling labor costs, managers will need not only greater autonomy in compensation decisions, but also Government support for exercising wage restraint. It makes no economic (as opposed to political) sense to negotiate an across-the-board bonus for the entire unionized labor force with no link to performance measures. Obviously, this will be hard to change, but even linking a relatively small part of the bonus to a merit system would be an important signal.

The procurement rules should be examined for ways to streamline procedures and increase flexibility. Experience elsewhere has shown that a

vigorous ex post evaluation and auditing systems is more efficient in controlling abuses than ex ante controls over procurement.

In a similar vein, the constraints on IPE's choice of markets, products and suppliers should be studied. In some cases, these are intimately linked to the IPE's privileges. For example, an enterprise might be required to serve certain markets as the price for its protection against competition. Such arrangements entail trade offs that are not always readily apparent. On closer inspection, the net benefits are likely to be less than expected, or even negative. Where the constraint is management's own inadequacies to react to competitive markets, the EAC's efforts to promote more flexible and innovative management should continue.

The administration of credit is another constraint on public and private efficiency. As mentioned, there is no reason why allocations should favor the efficient; most probably the reverse is true. As Pakistan removes distortions and increases the pressures for business efficiency, the need for a more competitive and flexible multi-banking system will become more and more apparent.

Third, the Government should consider a hard look at ways to eliminate some of the social welfare objectives imposed on the firms. Experience has shown that PEs are a costly and often ineffective way to achieve those goals. Furthermore, it is impossible to evaluate the costs, much less the success or failure, of such welfare programs when they are buried in the enterprise's accounts instead of funded through the budget.

For example, it should be questioned whether providing job training by forcing a PE to train five times the people it needs is the most effective way to accomplish the goal of increasing productive employment. The enterprise might be meeting this cost by deferring maintenance or new product development, which could be very costly for the country in the long run. Such training is a subsidy to the private sector which would otherwise have to pay for it, and it is a subsidy that is not being periodically assessed because of the way it is being funded. It may be that if the training were not being done for them the private enterprises would do it themselves. Or it might be done more cheaply through a training institute. By treating such expenses as nonroutine and weighing costs against benefits these issues can begin to be addressed.

Fourth, the EAC should do more studies assessing the impact of major policy and regulatory decisions on IPEs. Some examples of potentially useful studies have already been mentioned: the costs of social objectives, of locating IPEs in remote locations, of delays caused by centralized clearance procedures and of pricing policies. In particular, the EAC could develop selected shadow distortions. The EAC should also consider reporting on the macroeconomic impact of IPEs (their shares of exports, imports, credit, etc.) and study the financial and economic viability of troubled enterprises.

It was beyond the scope of this paper to analyze the corporations in detail. Interviews with corporate, government and enterprise officials revealed a weak economic rationale for the corporations. In some cases they are largely ignored by their enterprises, especially if the IPE is powerful as is the case with, for example, NRL. In addition, the corporations have sometimes worked against competition among their constituent IPEs. For example, the cement companies have not competed among themselves in the past but have cross-subsidized inefficient producers. With the recent emergence of private producers, the public cement firms are acting as a corporate body to be able to compete with the much smaller independent producers. The role of the corporations needs to be reviewed in more detail. Either they should become serious actors in the effort to improve IPE performance -- in which case their own performance should also be evaluated -- or they should be abolished.

## VI. APPLYING THE SYSTEM IN OTHER COUNTRIES

The Pakistan signalling system, for all the flaws discussed here, represent a major advance in holding managers accountable for performance. In many developing countries, there is no attempt to develop targets, and no meaningful reporting on PE results; good managers go unrewarded and bad managers unsanctioned. As a result, the interest in the Pakistan signalling system is very strong and a number of countries are considering introducing something similar, including the Philippines, Egypt and Venezuela. Korea already has a similar system in place. This assessment of the experience in Pakistan provides a number of lessons for such countries about the potential costs and benefits and how to adapt the system to different circumstances.

A. Potential Costs and Benefits

Costs

The initial cost of the Pakistan system was US\$350,000 to \$400,000. This includes development costs and a mainframe computer system (with an operational memory of one MB and a fixed disk of 620 MB) with remote terminals and a tape unit. Table 21 of the Statistical Appendix presents the organization chart of EAC. Assuming an average salary of US\$300 a month for 17 top level professional staff, the basic operating cost of the system is approximately \$70,000 a year, or \$1060 per IPE.

The financial cost of installing and operating the signalling system in another country may be less than the cost in Pakistan for two reasons. First, the Pakistani system was the first of its kind and there is considerable learning embodied in the installation costs. Second, the system can now be operated entirely on personal computers using easily available commercial software, which obviates the need for computer personnel and reduces the equipment costs. The installation costs today are more likely to be on the order of \$75,000 and the principal maintenance cost would be the salary of one analyst for approximately every ten companies.

In addition, since there are no economies of scale -- it is just as much work to evaluate a small company as a large -- other countries might be able to reduce costs by focusing on fewer, more important companies. This was attempted in Pakistan, but because of the bonus managers objected to being excluded.

Several factors, however, could raise the cost to another country. First, the Pakistan system was designed to apply to companies under the MOP: 70 companies maximum. Other countries may aim to include more PEs; Egypt, for example, is considering eventually extending a similar system to some 200 industrial public enterprises. This will raise the initial cost of data gathering and systemization and require additional staff to operate. Second, the Pakistan system was applied only to industrial public enterprises. Although the IPEs are diverse, they include a number of similar firms (for example, ten cement companies, six fertilizer plants, seven vehicle manufacturers) and many are relatively simple processing industries with few product lines (cement, petroleum refining, soda ash). Extending the system to the entire PE sector and including such diverse enterprises as utilities, transport companies, agricultural marketing boards, or banks will require additional time and staff.

Third, and most important, the data on IPEs in Pakistan were good before the system began. An effort to develop a uniform information system for the enterprises had begun in 1975/76. By the time the system was implemented the IPEs had well developed internal MIS; they were already



being audited by private auditors according to generally accepted standards; and the EAC was systematically receiving a lot of information. Notwithstanding this data base, under the signalling system project a good deal of time and effort went into assuring that accounts were fully accurate, comparable and received by the EAC in a timely fashion. Each IPE must prepare cost accounting data according to a uniform system (the required reports are shown in Table 17 of the Statistical Appendix).

Other countries may need to do a lot more groundwork to improve the internal accounting and auditing and assure a timely flow of the necessary data to the monitoring agency. The accounting improvements required for performance evaluation are also necessary for effective management and should be pursued in their own right. Of course countries may also choose to begin with a simpler, less data intensive system than that installed in Pakistan. This could reduce the start up time for the information system but it will not obviate the need for reliable internal accounting. Of course good data are not just a prerequisite for good monitoring. If a PE's internal control and information systems are not reliable, then it will be next to impossible for managers to improve performance, no matter how strongly motivated.

Finally, Pakistan boasts experienced, skilled managers in the IPEs and well educated and competent economists in the EAC. In recent years IPE managerial compensation has been competitive with the private sector and the rate of turnover of skilled staff has been reduced. The necessary skills are also available in the three countries contemplating

installing the system. But other, less developed countries will need to budget more for training and technical assistance. A notable feature of the Pakistani system is the fact that the EAC staff are not part of the civil service and their salaries are paid by a levy on the IPEs. This has been important in enabling the Cell to attract the necessary skills and could be usefully tried in other countries.

### Benefits

The most important potential benefits from the system are: improvement in the operating efficiency of the enterprises and improvement in the general contribution of the sector to the economy. How realizable are these benefits? Not surprisingly, this report has not been able to provide a definitive answer to that important question. Judging from the short experience in Pakistan, an improvement in operating efficiency may result; especially if the performance evaluation system is combined with other reforms.

The Pakistani system has so far not been utilized to promote the sort of reforms that would make a broader contribution to macroeconomic efficiency (which could entail pricing changes, liquidations, deregulation, etc.), so the premise that the system could contribute to development in this way is not proven by this case. Nevertheless, the system develops all the necessary information and analytical tools for such use. There are indications that it is beginning to be put to this use in Pakistan and in the long run this could well prove its most powerful contribution.

B. Prospects for Realizing the Potential Benefits

The experience in Pakistan offers some guidance on ways to improve the likelihood that the potential benefits can be realized. Among the factors which influence the prospects for efficiency gains are: pricing, market structure and the coverage of the system; the supervisory structure for PEs and the degree of managerial autonomy; and the role of the labor force.

Pricing and Market Structure and its Implications for Coverage of the System

There is ample evidence that competition is an important force in promoting efficiency in any enterprise, public or private. There are many reasons why competition may not exist in a developing country; absence of competition is often a reason for creating public enterprises. But in Pakistan there are instances where the opportunities for competition have not been fully explored (among public fertilizer or cement plants, for example).

The signalling system is in a sense a market proxy; it creates pressures for efficiency that in other circumstances might be supplied by the market. Of course markets can have many failings, but bureaucracies may do even worse. And these administrative arrangements prove a weak substitute for competitive pressures. Moreover, it is the existence of monopolies and price distortions that complicate the system most and make it difficult to administer.

For all these reasons governments will want to consider using competitive pressures to promote efficiency wherever possible through trade liberalization, removal of barriers to private entry and discrimination between public and private enterprise, promotion of exports, etc. In particular import liberalization is an important way to increase competition in large scale industries where public enterprises tend to dominate the domestic market. This will greatly simplify the task of evaluating competitive PEs, which can be held to a simple profit target at current prices, and can allow the system to focus more on natural monopolies such as utilities and railways.<sup>1</sup> The latter are usually the most important in terms of the budget and the rest of the economy; certainly in Pakistan the inefficiencies of the power authority have had far more damaging effects on economic growth than that of any IPE.

One consequence of freeing market forces is that some PEs will not be able to compete. In some cases this may be corrected by changing management and giving managers the authority to cut costs and seek new markets or by restructuring the finances and operations of the company. But in other cases the company may be the wrong size or producing the wrong

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1/ Of course competition will still be imperfect and a case could be made for using constant prices even for fully competitive enterprises. (For example, should a manager of an oil company have been rewarded for windfall profits in the early 1980s?) But in terms of priorities, adjusting the prices of noncompetitive firms is the more important.

product for present markets. And, as mentioned above, improving operating efficiency is not enough to insure a net efficiency gain. An important contribution to the overall efficiency of the sector is to liquidate nonviable companies. This also greatly simplifies the task of monitoring and evaluation.

#### Supervision of the Sector and Managerial Autonomy

If governments choose to focus the system more on noncompetitive PEs, then it might make sense to have a central performance evaluation system. For one thing, noncompetitive PEs are found along with competitive ones under the same ministries. For another, many governments lack the skills or funds to create evaluation units in every oversight ministry. Furthermore, the Ministry of Production in Pakistan is not a typical ministry in Pakistan or in other countries. Its role is to supervise the IPEs under it; a separate Ministry of Industry is responsible for formulating industrial policy. The typical sector ministry combines these roles and often does an inadequate job of supervision. Sector ministries tend to see themselves more as advocates of PEs than as their evaluators. Finally, having a central evaluation unit would help resolve some of the problems the EAC has in assuming a wider role when that role brings it into issues that are the domain of other ministries. Thus a central unit might be better placed to influence the Ministry of Finance to grant competitive PEs greater autonomy. A central unit could have a broader view of trends in the public enterprise sector. The Korean experience would be worth studying in this regard since it covers PEs from all sectors and is centrally administered.

A central unit would not necessarily manage the evaluation system alone; it could draw on expertise of the sector ministries to do the evaluation. In some large countries it might be appropriate for the central unit to delegate most of the operation of the system to the sector ministries or to holding companies if they exist, and to focus on aggregating information, doing comparisons, maintaining the system, assuring the quality of the evaluations and conducting periodic checks, designing improvements, and doing macroanalyses. Smaller, resource scarce countries are unlikely to have sufficient qualified personnel to staff more than one or two supervisory units.

An important feature of the Pakistani system is the fact that the performance evaluation system was not introduced in isolation. The "hardening" of the managerial environment was an important influence on the efficiency gains. This implies that the system should be combined with a sharp cutback in access to funds for investment (at least at the outset), reductions in subsidies and easy access to credit, decentralization of authority for personnel decisions and other cost cutting measures, and most importantly, a demonstrated readiness to fire managers who do not perform. Strong commitment on the part of top decision makers was an important part of the Pakistani (and Korean) reforms and is a prerequisite for getting the system off the ground. The Pakistani experience also shows that the impact of the system will be constrained by the managers' degrees of freedom. Autonomy will need to increase parallel with accountability for the exercise to be meaningful.

### Role of the Labor Force

A critical factor in the operation of the system in Pakistan is the IPE's inability to lay off workers or effectively keep wage increases in line with productivity improvements. The IPEs, as public enterprises everywhere, are not a major source of employment since they tend to be in capital intensive activities. The cost to the economy is not just the cost of inflated wages or redundant workers; the wage bill in such capital intensive activities tends to be a relatively small part of their costs. More important is the cost of keeping inefficient PEs or unproductive product lines working to provide employment, and the inefficiencies and demoralization that bring down productivity in an overstaffed enterprise. Programs to raise public and worker understanding of the need for reform, including in some cases plant closures and layoffs, combined with redeployment and severance pay arrangements will make it easier to implement a meaningful performance evaluation system.

### C. Adapting the System to Other Circumstances

#### Simpler Systems

The design of the Signalling System is based on some basic and sensible principles.<sup>2</sup> One of these is that targets should be few,

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2/ See Leroy Jone, "Performance Evaluation for Public Enterprises", Boston, June 1985.

comprehensible, and weighted. The reason for this is that the targets are meant to signal managers as to what government considers desirable behavior and to allow government to control enterprises on the basis of results, not their conformity to bureaucratic processes. The targets should therefore aim to give a clear indication of government's objectives and priorities, but not second guess management on how to reach these goals. For example, setting targets for profits and for working capital, inventory levels, and the like, tells managers not only what to achieve but how to achieve it. It becomes impossible to then hold management responsible for success or failure. A second principle of the system is to use indicators that count all costs and all benefits once and only once. This avoids double counting and asymmetric counting. Profits have the advantage of being a weighted indicator of benefits minus costs that meet these principles.

But in countries where financial data are unreliable, where profits would need to be calculated in constant or shadow prices to be meaningful, and where skills are scarce, some simple engineering indicators coupled with cost per unit of output targets may be a starting point. These indicators do tend to distort managerial behavior by focusing on only one aspect of performance (for example, by counting costs and not revenues you may encourage managers to forego expenditures with high returns). But the Pakistan case provides some evidence that efficiency could be improved with a far simpler system. If, as hypothesized, IPE managers responded to an imperfect target (private profits) with efficiency gains because they had (or thought they had) no other way to achieve the bonus, then other imperfect indicators (such as cost per unit of output) might have the same effect -- at least in the initial years.



Another way to simplify the system and still give correct signals to managers is to shadow price a only a few critical items, for example, electricity, wages, foreign exchange. This simplifies the calculation and makes it easier to pinpoint and estimate the costs of price distortions and to identify economically nonviable enterprises. It also gives managers greater incentive to react to fluctuations in world market prices.

Finally, the system could focus on fewer PEs. The largest enterprises causing the biggest fiscal drain or with the most linkages with the rest of the economy would be the logical place to begin. In most countries no more than 10 to 15 enterprises need be covered. But Pakistan's experience shows that it may prove hard to restrict the system to a few PEs, especially if bonuses are given.

#### The Incentive System

Other countries may wish to give more emphasis to the public recognition of top performers than Pakistan has. Depending on the cultural context, the public announcement of grades and the award of medals or other non-material honors can be more important to top management than the bonus. Discussions of the achievement of the targets in meetings with permanent secretaries, ministers and (as in Korea) the head of state has proven very effective in motivating managers.

Amount of Macroeconomic Information Generated by the System

Besides performance evaluation, government needs information on its PEs in order to develop informed macroeconomic policies. If the system is centralized and its scope is broader, then it would be easy to use it for broader policy purposes. The Pakistani system provides information on PE production, value added and investment in current and constant prices; it generates all standard financial ratios and debt information; it gives volume of production and sales, number of employees, energy consumption, labor productivity, and the like; and it provides detailed price indices for items of public production and consumption. Since all of this information is computerized and standardized, it can be easily aggregated to provide a complete picture of the trends in a major sector of the economy for planning and decision making purposes.

Annex A

EXPLANATION OF THE DIVISA INDEX USED IN THE SIGNALLING SYSTEM

The best way to explain the divisa index is to use a simple example of an IPE with two inputs, say coal and oil. Let us assume that the price and quantity consumed evolve as follows:

	<u>YEAR ONE</u>			<u>YEAR TWO</u>			<u>YEAR THREE</u>		
	P	Q	V	P	Q	V	P	Q	V
COAL	1	10	10	2	11	22	2	13	26
OIL	2	3	<u>6</u>	2	2	<u>4</u>	3	2	<u>6</u>
			16			26			32

P=price, Q=quantity, V=value.

Ignoring year three for the moment, we can determine the trend in the volume of input consumption with two common indices, Laspeyres and Paasche, and with the divisa index. Using the Laspeyres index the base year data provides the weights. Thus, if we construct a Laspeyres price index using year one as the base year, we are treating oil (P = 2) as twice as important as coal (P = 1) and putting a premium on decreasing the consumption of oil. Applying base year prices to year two would give a value in constant prices of 15 (1 x 11 + 2 x 2), showing that the quantity of inputs consumed decreased by 6%.

With the Paasche index the last year data provide the weights. If year two is the last year, then we are treating coal and oil as equally important since they have the same price (P = 2). And we show the same value in year one as in year two in constant prices (year two price times year one quantities of coal and oil, i.e., 2 x 10 + 2 x 3 = 26), showing that the overall quantity consumed remained the same in years one and two.

A divisa price index uses two year average values as weights. The weight is thus the value of each item in year one plus its value in year two divided by two. In the example, this would yield:

$$(V_t + V_{t+1})/2 = W$$

Coal: (10 + 22) / 2 = 16

Oil: (6 + 4) / 2 = 5

Coal in this case is three times as important as oil. Applying this weighted average of values to the quantities yields:

	<u>YEAR ONE</u>	<u>YEAR TWO</u>
Coal:	10 x 16 = 160	11 x 16 = 176
Oil:	3 x 5 = <u>15</u>	2 x 5 = <u>10</u>
	175	186

showing that overall quantity increased by 6%

If we now add year three the difference between the three indices is even clearer. The Laspeyres index uses the same base year prices for weights, year one. The Paasche base year changes to year three and we must redo our calculations of the previous years. The divisa index uses a weighted average of the last two years and is thus constantly changing. The picture with divisa is now:

$$\text{Coal} = (22 + 26)/2 = 24 \quad \text{and} \quad \text{Oil} = (4 + 6)/2 = 5$$

	YEAR TWO	YEAR THREE
Coal:	11 x 24 = 262	13 x 24 = 312
Oil:	2 x 5 = <u>10</u>	2 x 5 = <u>10</u>
	272	322

showing that the volume of consumption increased by 18%. The Laspeyres index gives an increase of about 6% and the Paasche, 14%.

The advantage of the Laspeyres is clearly its simplicity, but this must be weighed against its disadvantage--its failure to take account of changes in relative prices. The Paasche index corrects for this, but it requires that the series be recalculated with each new end of period and it tends to overstate the importance of price changes. The divisa is complicated, but not as burdensome as Paasche, and by using values as weights it takes account of shifts in quantities which mitigate the effect of changes in prices.

**PAKISTAN: ASSESSMENT OF THE INDUSTRIAL PUBLIC ENTERPRISE  
PERFORMANCE EVALUATION SYSTEM**

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Table 1: Pakistan: Chronogram of Activities of the Experts Advisory Cell

ACTIVITIES OF EAC	YEAR 1			YEAR 2												YEAR 3												
	4th QUARTER			1st QUARTER			2nd QUARTER			3rd QUARTER			4th QUARTER			1st QUARTER			2nd QUARTER			3rd QUARTER			4th QUARTER			
	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	
1) Analysis of enterprise performance and target setting	****	****	****										****	****	****													
2) Reception of budgetary proposals from management of enterprises				.												.												
3) Analysis of proposals and target negotiation				***	****	**										***	****	**										
4) MBP approval of signed contracts						**											**											
5) Monthly Performance Reports publication	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
6) Quarterly Reports publication							.			.			.				.			.								
7) Monitoring meetings	****			****			****			****			****			****			****			****			****			
8) Annual Review publication																	.											
9) Evaluation of performance against targets																	****	****										
10) Reception from enterprises of finalized accounts																			.									
11) Process of accounts auditing																				****	****							
12) Review of performance evaluation and final grading																						****						
13) Annual Report Publication																									.			

Table 2: Pakistan: Comparison of Profits for the Sample Units  
(Millions of Rupees)

CORPORATION	UNIT	1982/1983		1983/1984			Grade Achieved under Incentive System(s)	1984/1985			Grade Achieved under Incentive System(s)	1985/1986			Grade Achieved under Incentive System(s)	
		Private Profits After Taxes (Curr. Pr.)	Public Profits at Current Prices	Private Profits Constant Prices 81/82	Private Profits After Taxes (Curr. Pr.)	Public Profits at Current Prices		Public Profits Constant Prices 81/82	Private Profits After Taxes (Curr. Pr.)	Public Profits at Current Prices		Public Profits Constant Prices 81/82	Private Profits After Taxes (Curr. Pr.)	Public Profits at Current Prices		Public Profits Constant Prices 81/82
FOCL	Sind Alkali	0.21	3.79	0.40	-5.56	-1.79	14.38	E	0.02	20.07	42.76	E	4.74		A	
FOCL	Ravi Rayon Limited	19.26	33.12	31.71	25.67	39.45	44.31	A	7.72	21.08	19.39	E	8.58		A	
NFC	Lyalpur Chem. & Fertil.	1.97	3.29	13.86	0.94	5.43	56.86	C	2.01	6.10	53.92	A	3.34		A	
NFC	Pak Saudi Fertilizer	202.49	445.15	322.79	142.73	294.43	301.26	A	127.41	453.21	432.72	A	105.73		C	
SCCP	Javedan Cement	9.98	89.14	104.39	13.98	81.45	56.01	D	82.89	77.26	57.75	E	59.39	80.67	71.42	C
SCCP	Zoel Pak Cement Ltd.	19.84	5.53	-18.20	16.80	15.94	-187.64	C	71.80	39.82	-154.22	A	17.30		C	
SCCP	Gharibool Cement Ltd.	11.48	13.27	21.56	10.28	15.56	56.37	A	120.73	18.04	53.94	B	63.46	10.57	42.54	A
SEC	Heavy Mechanical Complex	28.03	-8.14	49.67	0.66	-82.92	401.19	E	16.72	-84.43	709.14	A	4.48		E	
SEC	Pakistan Engineering Co.	28.81	24.21	112.68	6.29	15.42	132.46	E	6.56	-5.69	-16.87	C	-29.60		E	
SEC	Pakistan Machine Tool	-0.27	7.90	210.08	-0.73	-41.47	304.04	E	3.74	-27.72	359.06	E	6.32		C	
PACB	Hillat Tractors	41.19	47.39	-129.67	45.29	84.20	-203.79	A	40.48	47.82	-221.97	B	N.A.	-5.47	12.29	N.A.
PERMC	National Refinery	43.67	17.74	-282.63	48.00	94.69	717.31	A	120.00	184.49	480.98	A	120.00		A	

SOURCE: EAC

Data for public profits is from NEPIS runs. Private profits data (except for 82/83) correspond to the figures considered by the Incentive System.

(a) Based on adjusted private profits at current prices after tax.

PAKISTAN: EVALUATION CRITERIA AND GRADES ACHIEVED BY THE SAMPLE UNITS

CORPORATION	UNIT	1983/1984		1984/1985		1985/1986		1986/1987	
		Evaluat. Criteria	Weight	Evaluat. Criteria	Weight	Evaluat. Criteria	Weight	Evaluat. Criteria	Weight
FOCL	Sind Alkali	Change in profitability	1.00	Profitability	0.90	Profitability	0.90	Profitability	0.70
				Productivity	0.10	Energy consumption	0.10	Physical Production	0.30
FOCL	Ravi Rayon Limited	Change in profitability	1.00	Profitability	0.90	Profitability	0.90	Profitability	1.00
				Productivity	0.10	Energy consumption	0.10		
NFC	Pak Saudi Fertilizer	Change in profitability	1.00	Profitability	0.90	Profitability	0.80	Profitability	0.80
				Productivity	0.10	Energy consumption	0.20	Physical production	0.20
NFC	Lyalpur Chem. & Fertil.	Change in profitability	1.00	Profitability	0.90	Profitability	0.80	Physical production	0.80
				Productivity	0.10	Energy consumption	0.20	Variable production cost	0.20
SCCP	Javedan Cement	Change in profitability	0.40	Profitability	0.80	Profitability	0.50	Profitability	0.80
		Physical production	0.60	Physical production	0.20	Physical production	0.40	Physical production	0.40
				Productivity	0.10	Energy consumption	0.10		
SCCP	Gharibool Cement Ltd.	Change in profitability	0.40	Profitability	0.80	Profitability	0.50	Profitability	0.80
		Physical production	0.60	Physical production	0.20	Physical production	0.40	Physical production	0.40
				Productivity	0.10	Energy consumption	0.10		
SCCP	Zoel Pak Cement Ltd.	Change in profitability	0.40	Profitability	0.80	Profitability	0.60	Profitability	0.60
		Physical production	0.60	Physical production	0.20	Physical production	0.30	Physical production	0.40
				Productivity	0.10	Energy consumption	0.10		
PACB	Hillat Tractors	Change in profitability	0.90	Profitability	0.80	N.A.	N.A.	N.A.	N.A.
		Physical production	0.10	Physical production	0.10				
				Productivity	0.10				
SEC	Heavy Mechanical Complex	Change in profitability	1.00	Profitability	0.90	Profitability	1.00	Profitability	1.00
				Productivity	0.10				
SEC	Pakistan Machine Tool	Change in profitability	1.00	Profitability	0.90	Profitability	0.90	Profitability	0.90
				Productivity	0.10	Energy consumption	0.10	Productivity	0.10
SEC	Pakistan Engineering Co.	Change in profitability	1.00	Profitability	0.90	Profitability	0.90	(c)	
				Productivity	0.10	Energy consumption	0.10		
PERMC	National Refinery	Change in profitability	0.25	Profitability	0.25	Profitability	0.25	Profitability	0.25
		Capacity utilization	0.50	Physical Production	0.50	Physical production	0.40	Physical production	0.40
		Controllable processing cost per ton of crude	0.15	Controllable processing cost per ton of crude	0.15	Controllable processing cost per ton of crude	0.17	Controllable processing cost per ton of crude	0.17
		Energy consumption	0.10	Energy consumption	0.10	Energy consumption	0.10	Energy consumption	0.10

Table 3: Pakistan: (IPEs Under MOP; Profits After Taxes and Grades Achieved  
(Millions of Rupees)

CORPORATION	U N I T S	1982/83	1983/84			1984/85			1985/86		
		Profit After Tax	Profit Aft.Ts	Year in Inc.Syst.	Grade(a)	Profit Aft.Ts	Year in Inc.Syst.	Grade(a)	Profit Aft.Ts(b)	Year in Inc.Syst.	Grade(c)
FCCCL	Antibiotic (*)	1.18	4.66	*	C	0.58	*	E	-2.85	*	E
	Ittehad Chemicals (*)	38.36	20.53	*	C	28.28	*	E	3.75	*	E
	Ittehad Pesticides	-0.04	2.43	*		0.06	*	E			
	Kurram Chemicals	-1.59	0.29	*		0.02	*	E			
	National Fibres	-59.36	5.06	*	E	-37.66	*	E		*	n.a.
	Noushers DDT	-0.41	-3.63	*		1.99	*	C	-1.15	*	E
	Pak Dyes (*)	0.09	0.39	*	C	0.89	*	C	0.73	*	C
	Pakistan PVC	0.58	0.02	*		-5.10	*	E			
	Ravi Engineering (*)	0.66	1.08	*	A	1.26	*	E	1.57	*	B
	Ravi Rayon (*)	19.35	25.67	*	A	7.72	*	D	8.58	*	A
	Sind Alkali (*)	0.21	-5.56	*	E	0.03	*	E	4.74	*	A
	Swat Ceramics (*)	1.68	1.55	*	E	-3.25	*	E	-11.56	*	I
	Swat Elutriation (*)	1.10	0.53	*	C	0.57	*	C	-0.21	*	I
	Noushers PVC					2.43	*		3.73	*	A
TOTAL		1.81	53.02			-2.18					
NFC	Lyalpur Chemicals (*)	1.38	0.94	*	C	2.01	*	A	3.34	*	A
	National Marketing	0.00	0.00	*		0.00	*	C	0.00	*	A
	Pak American (*)	21.08	5.34	*	D	40.29	*	B	10.63	*	A
	Pak Arab (*)	-211.68	95.32	*	C	111.61	*	A	168.42	*	E
	Pak China (*)	100.37	21.86	*	E	8.44	*	D	18.62	*	A
	Pak Saudi (*)	202.49	142.73	*	A	127.41	*	A	105.73	*	C
TOTAL		113.64	266.19			289.76		306.74			
PACO	Al-Ghazi		17.18	*		12.71	*			*	
	Awami Autos	18.39	7.11	*	A	2.63	*			*	
	Beluchistan Wheels		-13.67	*		-21.96	*			*	
	Bela Engineering (*)	19.04	8.31	*	C	14.57	*	D	1.46	*	C
	Domestic Appliances (*)	-2.64	-5.46	*	E	-2.26	*	E	-7.30	*	E
	Meck Trucks	3.76	4.27	*		4.11	*	A	-6.07	*	n.a.
	Millat Tractors	38.87	45.29	*	A	40.48	*	B		*	n.a.
	National Motors	29.96	23.05	*	B	27.84	*	A		*	n.a.
	Nayadour	-20.50	0.10	*	E	-4.19	*	E		*	
	Tractors Develop.	61.16	39.00	*		0.16	*			*	
	Pak Suzuki		21.64	*		83.26	*	A	65.62	*	A
	Republic Motors	-4.63	13.14	*	B	27.79	*	A		*	
	Sind Engineering	17.03	7.54	*		10.15	*	B	10.32	*	C
Trailors Development	-3.83	-6.99	*		-4.78	*	E		*		
TOTAL		156.61	160.51			190.51					
SCCP	Associated Cement (*)	6.44	8.20	*	D	46.29	*	B	37.50	*	A
	Dandot (*)	4.06	8.95	*	B	13.00	*	B	21.97	*	E
	General Refract.	-4.50	2.86	*		2.75	*	E	3.53	*	E
	Gharibul (*)	9.70	10.26	*	A	120.73	*	B	63.46	*	A
	Javedan (*)	9.96	13.98	*	D	52.59	*	E	59.39	*	C
	Kohat		3.00	*		-49.10	*	E	-15.00	*	E
	Maple Leaf (*)	3.10	2.71	*	C	54.99	*	A	12.19	*	A
	Mustekham (*)	9.22	21.34	*	E	99.48	*	B	52.62	*	B
	National Cement (*)	6.03	0.64	*	D	-10.11	*	B	21.06	*	A
	Thatta (*)	5.17	8.00	*	D	-2.39	*	E	-23.72	*	E
	White (*)	1.08	0.00	*	E	7.85	*	E	6.93	*	A
TOTAL		58.16	96.74			407.88		257.23			

SOURCE: EAC Annual Reports

- a) Based on adjusted current profits after tax and on reviewed grades.
- b) Data from unaudited adjusted current profits.
- c) Initial grades based on unaudited adjusted current profits after tax.



Table 3 con't: Pakistan: IPEs Under MOP; Profits After Taxes and Grades Achieved (Millions of Rupees)

CORPORATION	U N I T S	1982/83	1983/84			1984/85			1985/86		
		Profit After Tax	Profit Aft.Ts	Year in Inc.Syst.	Grade(a)	Profit Aft.Ts	Year in Inc.Syst.	Grade(a)	Profit Aft.Ts(b)	Year in Inc.Syst.	Grade(c)
SEC	NFF	-6.71	-9.13			-9.42	*	E	0.03	*	E
	NMC (*)	0.00	0.66	*	E	16.72	*	A	4.48	*	E
	Karachi Pipe (*)	7.29	3.50	*	E	-11.69	*	E	2.64	*	B
	Metropolitan Steel (*)	5.21	4.25	*	E	11.09	*	A	12.55	*	
	Northern Found.	-2.26	0.00								
	PHTF (*)	1.01	-8.73	*	E	3.74	*	E	6.32	*	C
	PECO (*)	28.61	6.39	*	E	8.58	*	C	-39.60	*	E
	Pak Switchgear	0.43	0.22			0.68	*	E	-2.37	*	E
	Pioneer Steel	1.52	-1.17	*	E	-0.99	*	E		*	n.c.
	Quality Steel (*)	1.81	2.47	*	B	3.51	*	E	1.15	*	
TOTAL		36.91	-1.94			26.22					
PIDC	Al-Libas		-4.20			-4.47					
	Barau Sugar	-29.19	-19.36			0.00					
	Cotton Ginning		-3.63			0.06			0.28	*	
	Dir. Forest		-43.42			-62.05					
	Harnai Woollen	-17.89	-24.92			-23.08					
	Indus. Steel Pipes	2.77	1.70			3.55	*	B	1.81	*	E
	Larkana Sugar	-29.93	-26.08			-25.10			-11.25	*	E
	Quaidabad (*)	1.21	1.85	*	E	-6.52	*	E	2.17	*	A
	Shahdakt		-78.93			-67.84					
	Terbeta		-26.34			-30.99					
Indus Gas Co.	0.00										
Karachi Gas Co.	0.00										
TOTAL		-73.03	-223.33			-216.44					
PERAC	ENAR	0.57	0.38			1.08					
	National Petrocarbon	0.78	0.57			0.75	*	E		*	n.c.
	NRL (*)	43.67	48.00	*	A	120.00	*	A	120.00	*	
TOTAL		45.02	48.95			121.83					
TMC	Textile Winding	-2.51	-2.04			0.10	*	E			
	Textile Spinning	-13.59	-10.38			-13.80	*	E			
TOTAL		-16.10	-12.42			-13.70					

SOURCE: EAC Annual Reports

- a) Based on adjusted current profits after tax and on reviewed grades.
- b) Data from unaudited adjusted current profits.
- c) Initial grades based on unaudited adjusted current profits after tax.

**TABLE 4**  
**SIND ALKALIS**  
**PROFITABILITY**  
(Millions of Rupees)

	1980/81	1981/82	1982/83	1983/84	1984/85
<b>1. Profit at Current Prices</b>					
Private profit after taxes	5.07	6.83	0.21	-5.25	0.03
Private profit before taxes	10.57	6.83	0.21	-5.25	0.03
Public profit at market prices	13.60	13.71	3.94	-1.83	20.39
<b>2. Profit at constant 1981/1982 prices</b>					
Public profit at market prices	13.55	13.71	4.79	10.76	34.27
<b>3. Assets</b>					
Total assets at Curr. Acct. values	137.23	173.39	197.38	213.91	225.34
Net Worth at Curr. Acct. values	48.35	50.06	50.28	44.72	44.75
Capital Exp. at Curr. Acct. values	101.69	115.45	105.97	108.18	101.16
Fixed Op. Assets at Curr. Acct. values	49.33	74.64	69.47	65.48	139.56
Fixed Op. Assets at Curr. Market values	314.77	362.05	398.81	425.40	537.69
Fixed Op. Assets at Constant market values	328.39	362.05	364.40	366.64	439.27
<b>4. Profitability</b>					
Private: After tax; on total assets	3.69	3.94	0.11	-2.45	0.01
Private: After tax; on net worth	10.48	13.65	0.42	-11.73	0.07
Private: Before tax; on cap. exp.	10.39	5.92	0.20	-4.85	0.03
Public: At curr. mkt.Ps on fix.op. assets	4.32	3.79	0.99	-0.43	3.79
Public: At cons. mkt.Ps on fix.op. assets	4.13	3.79	1.31	2.93	7.80

**TABLE 5**  
**RAVI RAYON**  
**PROFITABILITY**  
**(Millions of Rupees)**

	1980/81	1981/82	1982/83	1983/84	1984/85
<b>1. Profit at Current Prices</b>					
-----					
Private profit after taxes	13.07	14.25	19.35	25.67	7.72
Private profit before taxes	13.07	14.25	20.20	25.82	16.72
Public profit at market prices	30.40	34.38	33.06	39.51	28.01
<b>2. Profit at constant 1981/1982 prices</b>					
-----					
Public profit at market prices	32.47	34.38	26.77	44.57	25.29
<b>3. Assets</b>					
-----					
Total assets at Curr. Acct. values	311.83	331.24	309.90	307.81	317.75
Net Worth at Curr. Acct. values	60.60	83.73	117.26	117.00	118.90
Capital Exp. at Curr. Acct. values	193.73	223.50	269.39	256.71	245.85
Fixed Op. Assets at Curr. Acct. values	76.29	93.14	87.52	123.55	117.84
Fixed Op. Assets at Curr. Market values	1040.60	1113.30	1221.38	1344.81	1423.32
Fixed Op. Assets at Constant market values	1086.74	1113.30	1116.78	1159.69	1165.46
<b>4. Profitability</b>					
-----					
Private: After tax; on total assets	4.19	4.30	6.24	8.34	2.43
Private: After tax; on net worth	21.56	17.02	16.50	21.94	6.49
Private: Before tax; on cap. exp.	6.74	6.37	7.50	10.06	6.80
Public: At curr. mkt.Ps on fix.op. assets	2.92	3.09	2.71	2.94	1.97
Public: At cons. mkt.Ps on fix.op. assets	2.99	3.09	2.40	3.84	2.17

**TABLE 6**  
**PAK SAUDI FERTILIZER**  
**PROFITABILITY**  
**(Millions of Rupees)**

	1980/81	1981/82	1982/83	1983/84	1984/85
<b>1. Profit at Current Prices</b>					
-----					
Private profit after taxes	100.78	240.16	202.49	142.36	127.41
Private profit before taxes	100.78	240.16	202.49	190.66	197.41
Public profit at market prices	348.42	502.48	445.18	394.43	453.21
<b>2. Profit at constant 1981/1982 prices</b>					
-----					
Public profit at market prices	255.57	502.48	320.44	298.70	430.67
<b>3. Assets</b>					
-----					
Total assets at Curr. Acct. values	2099.59	2276.94	2444.65	2102.60	1950.60
Net Worth at Curr. Acct. values	655.45	802.63	892.96	951.13	904.04
Capital Exp. at Curr. Acct. values	1650.41	1852.61	1838.26	1726.96	1527.28
Fixed Op. Assets at Curr. Acct. values	1677.37	1680.27	1552.48	1396.71	1262.73
Fixed Op. Assets at Curr. Market values	3684.03	4011.10	4492.21	4831.65	5205.59
Fixed Op. Assets at Constant market values	3833.94	4011.10	4094.43	4153.43	4241.32
<b>4. Profitability</b>					
-----					
Private: After tax; on total assets	4.80	10.55	8.28	6.77	6.53
Private: After tax; on net worth	15.38	29.92	22.68	14.97	14.09
Private: Before tax; on cap. exp.	6.11	12.96	11.02	11.04	12.93
Public: At curr. mkt. prices on fix. op. assets	9.46	12.53	9.91	8.16	8.71
Public: At cons. mkt. prices on fix. op. assets	6.67	12.53	7.83	7.19	10.15

**TALBE 7**  
**LYALLPUR CHEMICAL AND FERTILIZER**  
**PROFITABILITY**  
(Millions of Rupees)

	1980/81	1981/82	1982/83	1983/84	1984/85
<b>1. Profit at Current Prices</b>					
Private profit after taxes	2.23	-4.21	1.97	2.18	2.01
Private profit before taxes	4.17	4.73	4.69	5.29	4.95
Public profit at market prices	19.19	6.65	3.29	5.43	6.10
<b>2. Profit at constant 1981/1982 prices</b>					
Public profit at market prices	3.61	6.65	13.36	58.86	35.89
<b>3. Assets</b>					
Total assets at Curr. Acct. values	94.70	92.43	121.36	83.24	87.33
Net Worth at Curr. Acct. values	12.34	17.61	16.99	15.93	17.94
Capital Exp. at Curr. Acct. values	17.27	21.50	19.83	18.26	18.84
Fixed Op. Assets at Curr. Acct. values	13.44	12.57	10.65	8.55	7.78
Fixed Op. Assets at Curr. Market values	75.43	82.34	140.06	148.67	155.88
Fixed Op. Assets at Constant market values	80.64	82.34	130.89	131.00	132.17
<b>4. Profitability</b>					
Private: After tax; on total assets	2.36	-4.56	1.62	2.62	2.31
Private: After tax; on net worth	18.09	-23.91	11.57	13.70	11.22
Private: Before tax; on cap. exp.	24.13	22.02	23.65	28.98	26.26
Public: At curr. mkt.Ps.on fix.op.assets	25.44	8.08	2.35	3.65	3.91
Public: At const. mkt.Ps.on fix.op.assets	4.48	8.08	10.21	44.93	27.15

Source: EAC

**TABLE 8**  
**JAVEDAN CEMENT**  
**PROFITABILITY**  
(Millions of Rupees)

	1980/81	1981/82	1982/83	1983/84	1984/85	1985/86
<b>1. Profit at Current Prices</b>						
Private profit after taxes	-15.73	3.61	9.96	13.98	16.80	25.54
Private profit before taxes	-15.73	3.61	9.96	13.98	16.80	25.54
Public profit at market prices	5.99	90.81	89.14	81.45	77.75	80.67
<b>2. Profit at constant 1981/1982 prices</b>						
Public profit at market prices	87.99	90.81	104.40	58.01	57.63	72.13
<b>3. Assets</b>						
Total assets at Curr. Acct. values	589.98	608.51	606.49	573.27	529.71	552.88
Net Worth at Curr. Acct. values	86.56	88.47	100.13	103.11	106.71	130.30
Capital Exp. at Curr. Acct. values	433.86	456.88	393.34	332.67	351.43	345.25
Fixed Op. Assets at Curr. Acct. values	463.24	458.52	448.06	415.63	394.02	393.19
Fixed Op. Assets at Curr. Market values	991.50	1090.41	1222.62	1307.13	1386.00	1546.71
Fixed Op. Assets at Constant market values	1043.93	1090.41	1125.50	1135.44	1147.54	1147.54
<b>4. Profitability</b>						
Private: After tax; on total assets	-2.67	0.59	1.64	2.44	3.17	4.62
Private: After tax; on net worth	-18.17	4.08	9.95	13.55	15.75	19.60
Private: Before tax; on cap. exp.	-3.62	0.79	2.53	4.20	4.78	7.40
Public: At curr. mkt.Ps.on fix.op.assets	0.60	8.33	7.29	6.23	5.57	5.22
Public: At const. mkt.Ps.on fix.op.assets	8.43	8.33	9.28	5.11	5.02	6.29

Source: EAC

**TABLE 9**  
**GHARIBWAL CEMENT: PROFITABILITY**  
(Millions of Rupees)

	1980/81	1981/82	1982/83	1983/84	1984/85	1985/86
<b>1. Profit at Current Prices</b>						
-----						
Private profit after taxes	9.62	13.71	11.46	10.26	8.35	15.61
Private profit before taxes	16.49	27.61	19.98	20.76	23.47	21.71
Public profit at market prices	11.86	16.82	13.31	15.59	16.04	10.83
<b>2. Profit at constant 1981/1982 prices</b>						
-----						
Public profit at market prices	25.21	16.82	21.56	55.15	53.07	34.71
<b>3. Assets</b>						
-----						
Total assets at Curr. Acct. values	194.78	200.97	229.19	254.15	238.73	289.65
Net Worth at Curr. Acct. values	76.50	60.27	66.03	68.33	68.73	84.28
Capital Exp. at Curr. Acct. values	79.68	62.78	67.72	68.76	68.73	84.28
Fixed Op. Assets at Curr. Acct. values	71.50	59.83	66.02	64.89	70.91	69.68
Fixed Op. Assets at Curr. Market values	651.32	692.98	768.90	825.73	882.75	981.54
Fixed Op. Assets at Constant market values	686.59	692.98	709.53	719.04	734.40	734.40
<b>4. Profitability</b>						
-----						
Private: After tax; on total assets	4.94	6.82	5.00	4.04	3.50	5.39
Private: After tax; on net worth	12.58	22.74	17.36	15.02	12.15	18.52
Private: Before tax; on cap. exp.	20.69	43.98	29.50	30.20	34.14	25.76
Public: At curr. mkt.Ps.on fix.op.assets	1.82	2.43	1.73	1.89	1.82	1.10
Public: At const. mkt.Ps.on fix.op.assets	3.67	2.43	3.04	7.67	7.23	4.73

Source: EAC

TABLE 10  
ZEAL PAK  
PROFITABILITY  
(Millions of Rupees)

	1980/81	1981/82	1982/83	1983/84	1984/85
<b>1. Profit at Current Prices</b>					
-----					
Private profit after taxes	12.84	12.88	12.64	15.35	22.61
Private profit before taxes	22.84	23.13	12.64	19.73	29.61
Public profit at market prices	8.75	13.02	5.53	15.94	25.17
<b>2. Profit at constant 1981/1982 prices</b>					
-----					
Public profit at market prices	46.62	13.02	-18.30	-167.64	-165.98
<b>3. Assets</b>					
-----					
Total assets at Curr. Acct. values	399.47	350.66	385.77	456.17	
Net Worth at Curr. Acct. values	105.87	111.72	112.36	129.16	
Capital Exp. at Curr. Acct. values	150.93	137.23	121.24	150.30	
Fixed Op. Assets at Curr. Acct. values	80.72	92.73	128.61	142.67	
Fixed Op. Assets at Curr. Market values	1105.61	1187.14	1323.18	1431.86	1492.36
Fixed Op. Assets at Constant market values	1163.95	1187.14	1221.52	1245.19	1238.16
<b>4. Profitability</b>					
-----					
Private: After tax; on total assets	3.21	3.67	3.28	3.37	n.a.
Private: After tax; on net worth	12.12	11.53	11.25	11.89	n.a.
Private: Before tax; on cap. exp.	15.13	16.85	10.43	13.13	n.a.
Public: At curr. mkt.Ps.on fix.op.assets	0.79	1.10	0.42	1.11	1.69
Public: At const. mkt.Ps.on fix.op.assets	4.01	1.10	-1.50	-13.46	-13.41



**TABLE 11**  
**MILLAT TRACTORS**  
**PROFITABILITY**  
(Millions of Rupees)

	1980/81	1981/82	1982/83	1983/84	1984/85	1985/86
<b>1. Profit at Current Prices</b>						
Private profit after taxes	12.92	24.08	41.19	45.29	40.48	9.53
Private profit before taxes	27.19	45.92	81.49	93.59	77.72	9.95
Public profit at market prices	9.98	28.46	47.39	54.20	47.82	-5.47
<b>2. Profit at constant 1981/1982 prices</b>						
Public profit at market prices	221.92	28.46	-126.68	-203.79	-221.87	12.29
<b>3. Assets</b>						
Total assets at Curr. Acct. values	257.18	405.72	551.52	571.96	570.54	654.76
Net Worth at Curr. Acct. values	31.82	60.74	101.30	139.76	181.78	182.89
Capital Exp. at Curr. Acct. values	31.82	60.74	128.30	172.88	199.51	189.64
Fixed Op. Assets at Curr. Acct. values	7.38	21.43	24.75	78.98	117.72	123.30
Fixed Op. Assets at Curr. Market values	25.09	42.51	51.14	112.19	167.70	202.00
Fixed Op. Assets at Constant market values	27.09	42.51	48.16	98.88	140.24	153.83
<b>4. Profitability</b>						
Private: After tax; on total assets	5.02	5.93	7.47	7.92	7.10	1.46
Private: After tax; on net worth	40.59	39.64	40.67	32.41	22.27	5.21
Private: Before tax; on cap. exp.	85.44	75.61	63.52	54.14	38.96	5.25
Public: At curr. mkt.Ps.on fix.op.assets	39.80	66.96	92.66	48.31	28.52	-2.71
Public: At const. mkt.Ps.on fix.op.assets	819.32	66.96	-263.07	-206.10	-158.20	7.99

**TABLE 12**  
**HEAVY MECHANICAL COMP. EX**  
**PROFITABILITY**  
**(Millions of Rupees)**

	1980/81	1981/82	1982/83	1983/84	1984/85
<b>1. Profit at Current Prices</b>					
-----					
Private profit after taxes	2.66	17.88	28.03	7.12	26.11
Private profit before taxes	2.66	17.88	28.03	7.12	26.11
Public profit at market prices	-45.56	-38.70	-8.62	-91.52	-87.28
<b>2. Profit at constant 1981/1982 prices</b>					
-----					
Public profit at market prices	-42.01	-38.70	17.97	113.57	0.65
<b>3. Assets</b>					
-----					
Total assets at Curr. Acct. values	887.39	983.45	1034.30	1143.36	1175.96
Net Worth at Curr. Acct. values	132.09	134.27	143.55	151.29	209.46
Capital Exp. at Curr. Acct. values	459.15	653.04	697.73	676.28	656.18
Fixed Op. Assets at Curr. Acct. values	185.51	177.07	177.46	166.39	157.44
Fixed Op. Assets at Curr. Market values	234.87	900.24	979.55	1053.19	1098.08
Fixed Op. Assets at Constant market values	672.08	900.24	916.87	921.59	927.09
<b>4. Profitability</b>					
-----					
Private: After tax; on total assets	0.30	1.82	2.71	0.62	2.22
Private: After tax; on net worth	2.01	13.32	19.52	4.70	12.47
Private: Before tax; on cap. exp.	0.58	2.74	4.02	1.05	3.98
Public: At curr. mkt.Ps.on fix.op.assets	-5.46	-4.30	-0.88	-8.69	-7.95
Public: At const. mkt.Ps.on fix.op.assets	-4.71	-4.30	1.96	12.32	0.07

TABLE 13  
PAKISTAN MACHINE TOOL FACTORY  
PROFITABILITY  
(Millions of Rupees)

	1980/81	1981/82	1982/83	1983/84	1984/85
<b>1. Profit at Current Prices</b>					
Private profit after taxes	6.67	10.51	-0.27	-13.37	2.10
Private profit before taxes	6.67	10.51	-0.27	-13.37	2.10
Public profit at market prices	10.05	-0.04	7.90	-41.90	-29.22
<b>2. Profit at constant 1981/1982 prices</b>					
Public profit at market prices	24.95	-0.44	210.09	180.94	278.61
<b>3. Assets</b>					
Total assets at Curr. Acct. values	755.94	726.72	715.56	807.73	860.18
Net Worth at Curr. Acct. values	291.94	291.84	291.83	291.91	291.88
Capital Exp. at Curr. Acct. values	430.59	407.44	391.55	408.64	429.35
Fixed Op. Assets at Curr. Acct. values	312.31	298.67	284.97	276.57	269.20
Fixed Op. Assets at Curr. Market values	1105.99	1169.14	1267.35	1351.02	1420.22
Fixed Op. Assets at Constant market values	1167.05	1169.14	1170.72	1176.12	1181.89
<b>4. Profitability</b>					
Private: After tax; on total assets	0.88	1.45	-0.04	-1.66	0.24
Private: After tax; on net worth	2.29	3.60	-0.09	-4.58	0.72
Private: Before tax; on cap. exp.	1.55	2.58	-0.07	-3.27	0.49
Public: At curr. mkt.Ps.on fix.op.assets	0.91	0.00	0.62	-3.10	-2.06
Public: At const. mkt.Ps.on fix.op.assets	2.14	-0.04	17.95	15.38	23.57

Source: EAC

TABLE 14  
PAKISTAN ENGINEERING COMPANY  
PROFITABILITY  
(Millions of Rupees)

	1980/81	1981/82	1982/83	1983/84	1984/85
<b>1. Profit at Current Prices</b>					
Private profit after taxes	-4.91	26.78	28.61	6.39	8.58
Private profit before taxes	-4.91	26.78	28.61	9.93	15.48
Public profit at market prices	-16.35	25.21	24.35	15.22	-2.99
<b>2. Profit at constant 1981/1982 prices</b>					
Public profit at market prices	3.19	25.21	110.04	119.07	82.15
<b>3. Assets</b>					
Total assets at Curr. Acct. values	604.63	577.37	542.16	554.76	631.99
Net Worth at Curr. Acct. values	55.65	55.59	80.45	86.09	94.67
Capital Exp. at Curr. Acct. values	96.40	86.28	102.07	102.88	140.64
Fixed Op. Assets at Curr. Acct. values	47.51	70.78	66.10	69.78	67.75
Fixed Op. Assets at Curr. Market values	258.83	303.79	331.48	362.87	385.33
Fixed Op. Assets at Constant market values	272.78	303.79	305.91	315.70	320.00
	375.59				
<b>4. Profitability</b>					
Private: After tax; on total assets	-0.81	4.64	5.28	1.15	1.36
Private: After tax; on net worth	-8.83	48.17	35.56	7.43	9.06
Private: Before tax; on cap. exp.	-5.10	31.04	28.03	9.65	11.00
Public: At curr. mkt.Ps.on fix.op.assets	-6.32	8.30	7.35	4.19	-0.78
Public: At const. mkt.Ps.on fix.op.assets	1.17	8.30	35.97	37.72	25.67

TABLE 15  
NATIONAL REFINERY  
PROFITABILITY  
(Millions of Rupees)

	1980/81	1981/82	1982/83	1983/84	1984/85
<b>1. Profit at Current Prices</b>					
-----					
Private profit after taxes	40.13	52.25	43.67	48.00	120.00
Private profit before taxes	40.13	52.25	53.20	114.45	120.00
Public profit at market prices	38.84	15.44	17.57	94.35	184.83
<b>2. Profit at constant 1981/1982 prices</b>					
-----					
Public profit at market prices	-435.21	15.44	-283.91	686.90	385.31
<b>3. Assets</b>					
-----					
Total assets at Curr. Acct. values	2031.90	2338.99	2570.52	3447.19	3642.26
Net Worth at Curr. Acct. values	303.44	302.38	298.07	656.52	697.97
Capital Exp. at Curr. Acct. values	453.99	619.53	982.35	1744.90	1803.18
Fixed Op. Assets at Curr. Acct. values	555.77	528.26	487.71	446.30	2355.36
Fixed Op. Assets at Curr. Market values	899.01	967.28	1050.61	1126.87	3184.55
Fixed Op. Assets at Constant market values	952.96	967.28	974.84	985.41	2642.46
<b>4. Profitability</b>					
-----					
Private: After tax; on total assets	1.98	2.23	1.70	1.39	3.29
Private: After tax; on net worth	13.23	17.28	14.65	7.31	17.19
Private: Before tax; on cap. exp.	8.84	8.43	5.42	6.56	6.65
Public: At curr. mkt.Ps.on fix.op.assets	4.32	1.60	1.67	8.37	5.80
Public: At const. mkt.Ps.on fix.op.assets	-45.67	1.60	-29.12	69.71	14.58

Table 16: Pakistan: Comparison of Business Ratios for the Sample Units

CORPORATION	UNIT	SHORT TERM LIQUIDITY RATIOS								DEBT/EQUITY RATIOS							
		Current Ratio				Acid Test				Total debt to net worth				Long term debt to net worth			
		1981/82	1982/83	1983/84	1984/85	1981/82	1982/83	1983/84	1984/85	1981/82	1982/83	1983/84	1984/85	1981/82	1982/83	1983/84	1984/85
FCCCL	Sind Alkali	0.49	0.35	0.27	0.34	0.25	0.20	0.15	0.22	1.72	1.97	2.68	2.62	1.31	1.11	1.42	1.25
FCCCL	Ravi Rayon Limited	0.27	1.53	1.43	1.13	0.21	0.95	0.99	0.75	2.61	1.41	1.33	1.29	1.69	1.30	1.20	1.07
MFC	Lyallpur Chem. & Fertil.	0.72	0.77	0.74	0.55	0.66	0.73	0.62	0.44	2.55	4.78	2.66	3.20	0.22	0.17	0.15	0.05
MFC	Pan Sudi Fertilizer	1.26	1.35	1.66	1.46	1.23	1.33	1.63	1.43	1.53	1.28	1.02	0.93	1.31	1.06	0.82	0.69
SCCP	Javedon Cement	0.20	0.20	0.20	0.20	0.10	0.10	0.00	0.00	3.60	3.10	3.10	2.60	2.20	2.20	2.30	1.60
SCCP	Zool Pak Cement Ltd.	0.45	0.48	0.51	N.A.	0.21	0.25	0.38	N.A.	0.43	0.63	1.01	N.A.	0.23	0.08	0.18	N.A.
SCCP	Charibool Cement Ltd.	0.40	0.50	0.40	0.60	0.20	0.30	0.30	0.40	0.40	0.60	0.00	0.00	0.00	0.00	0.00	0.00
SEC	Heavy Mechanical Complex	1.25	1.66	1.24	1.30	1.15	1.54	1.18	1.19	4.84	4.87	5.27	3.45	3.86	3.86	3.47	2.13
SEC	Pakistan Engineering Co.	0.21	0.17	0.22	0.50	0.16	0.11	0.16	0.42	7.34	4.12	4.25	4.31	0.55	0.27	0.20	0.49
SEC	Pakistan Machine Tool	0.48	0.27	0.25	0.29	0.43	0.25	0.22	0.23	0.70	0.67	0.89	1.03	0.40	0.34	0.40	0.47
PACD	Millat Tractors	0.70	0.80	0.40	0.30	0.60	0.70	0.40	0.10		0.30	0.30	0.90		0.30	0.20	0.10
PERAC	National Refinery	0.53	0.49	0.43	0.35	0.47	0.32	0.38	0.30	3.63	4.71	2.56	2.56	1.05	2.30	1.56	1.58

SOURCE: EAC

Table 17: Pakistan: Reporting Requirements of the EAC

- (i) Monthly Operating Results:
  - (a) Profit and Loss Statement;
  - (b) Operating Expenses;
  - (c) Cost of goods sold;
  - (d) Manufacturing Costs;
  - (e) Inputs Consumption;
  - (f) Net Sales;
  - (g) Sales analysis;
  - (h) Production Cost;
  - (i) Others (energy consumption, production losses, man hours).
  
- (ii) Quarterly Reports:
  - (a) Balance Sheet
  - (b) Cash and Bank Balance;
  - (c) Trade Receivables Analysis;
  - (d) Material Inventory;
  - (e) Finished Goods Inventory
  - (f) Loans;
  - (g) Taxes and Duties;
  - (h) Product Prices
  - (i) Personnel Summary Officers;
  - (j) Project Progress report

Source: EAC

Table 18: Production Value at Constant Prices of 1977-1978  
(Millions of Rupees)

CORPORATION	UNIT	Production Value at constant prices of 1977-78 (Jul-Jun)						Index (1982/1983=100)					
		1980/81	1981/82	1982/83	1983/84	1984/85	1985/86	1980/81	1981/82	1982/83	1983/84	1984/85	1985/86
FCCCL	Sind Alkali	75.72	73.09	51.80	78.64	95.20	111.28	148.18	141.10	100.00	151.81	183.78	214.83
FCCCL	Ravi Rayon Limited	88.13	91.82	92.55	106.74	211.20	214.46	95.22	99.00	100.00	115.33	228.20	231.72
FCCCL	National Fibres Limited		0.00	218.66	353.86	425.10	543.43		0.00	100.00	181.83	194.41	248.53
FCCCL	Ittihad Pesticides	12.43	8.21	22.68	42.09	25.68	25.10	54.81	36.20	100.00	185.58	113.23	110.87
FCCCL	Ittihad Chemicals	83.42	90.23	95.77	92.09	127.00	142.38	77.10	84.22	100.00	96.16	132.61	148.67
MFC	Liyalpur Chem. & Fertil.	36.65	36.97	37.53	38.05	38.08	38.07	97.66	98.61	100.00	101.39	101.47	101.44
MFC	Pak Soudi Fertilizer	445.98	682.59	757.56	791.52	798.32	718.17	58.87	90.10	100.00	104.48	105.38	94.80
PACO	Pak Suzuki Motors Ltd.				353.20	1015.81	1298.51				100.00	287.60	367.08
PACO	Millet Tractors	308.60	478.20	697.88	830.80	843.47	631.30	44.22	68.52	100.00	119.06	120.88	90.46
PACO	Maya Dour Motors	113.05	85.90	110.44	94.40	68.53	44.32	102.36	77.78	100.00	85.48	62.05	40.13
SCCP	Javedan Cement	178.42	191.97	217.78	233.81	250.29	252.17	81.93	88.16	100.00	108.75	119.53	115.80
SCCP	Zenl Pak Cement Ltd.	463.89	416.33	380.98	396.04	390.76	405.04	128.51	115.23	100.00	109.71	108.25	112.21
SCCP	Gharibnal Cement Ltd.	243.28	244.20	249.22	250.93	256.28	256.12	97.62	97.99	100.00	100.69	102.82	102.77
SEC	Heavy Mechanical Complex	120.81	178.09	429.68	378.34	439.94	344.33	28.12	40.98	100.00	88.05	102.39	80.14
SEC	Pakistan Engineering Co.	361.84	437.84	577.10	481.02	527.97	445.81	62.70	75.63	100.00	83.35	91.49	77.25
SEC	Pakistan Machine Tool	136.96	146.28	117.44	115.42	127.77	180.44	118.62	124.54	100.00	98.28	108.80	153.84
PERAC	National Refinery	2154.80	2332.80	2478.85	2508.50	2720.43	3029.72	88.38	94.07	100.00	105.19	109.70	122.17
PERAC	National Petrocarbon	61.72	62.07	34.19	20.07	43.28	41.21	180.52	181.54	100.00	58.70	126.59	120.53

SOURCE: EAC



Table 19: Number of Employees

CORPORATION	UNIT	Number of Employees as on 30-06 of:						Index (1982/1983=100)					
		1981	1982	1983	1984	1985	1986	1981	1982	1983	1984	1985	1986
		FCCCL	Sind Alkali	847	819	798	770	764	750	108.14	101.88	100.00	96.49
FCCCL	Ravi Rayon Limited	1310	1348	1398	2084	2081	2075	93.84	96.35	100.00	149.28	149.07	148.64
FCCCL	National Fibres Limited		459	520	938	974	999		88.27	100.00	180.38	187.31	172.88
FCCCL	Ittehad Pesticides	296	181	135	227	222	199	219.28	119.25	100.00	168.15	164.44	147.41
FCCCL	Ittehad Chemicals	1173	1328	1368	1301	1272	1254	85.75	96.93	100.00	95.10	92.98	91.67
NFC	Llysapur Chem. & Fertil.	521	498	507	526	549	548	102.78	98.22	100.00	103.75	108.28	108.09
NFC	Pak Saudi Fertilizer	648	768	867	818	842	897	74.74	88.58	100.00	94.35	97.12	103.46
PACO	Pak Suzuki Motors Ltd.				1043	1083	1086				100.00	103.84	104.12
PACO	Hillat Tractors	508	583	845	751	1131	1029	78.45	90.39	100.00	118.43	175.35	158.53
PACO	Mays Daur Motors	880	857	867	726	706	696	101.50	98.65	100.00	83.74	81.31	80.28
SCCP	Javedan Cement	1159	1171	1148	1148	1136	1124	101.13	102.18	100.00	100.00	99.13	98.08
SCCP	Zoel Pak Cement Ltd.	1968	1871	1886	1929	1904	1988	104.24	99.20	100.00	102.28	100.85	105.41
SCCP	Gharibool Cement Ltd.	953	942	952	950	958	964	101.18	98.96	100.00	99.79	100.63	100.21
SEC	Heavy Mechanical Complex	3129	3187	3236	3313	3273	3102	96.69	97.67	100.00	102.38	101.14	95.86
SEC	Pakistan Engineering Co.	4679	4718	4689	4611	4549	4431	99.79	100.82	100.00	98.34	97.01	94.50
SEC	Pakistan Machine Tool	2573	2500	2499	2800	2570	2580	102.95	100.04	100.00	104.04	102.84	103.24
PERAC	National Refinery	646	648	675	759	848	841	95.70	96.00	100.00	112.44	125.83	124.59
PERAC	National Petrocarbon	212	211	183	178	192	204	138.56	137.91	100.00	116.34	125.49	133.33

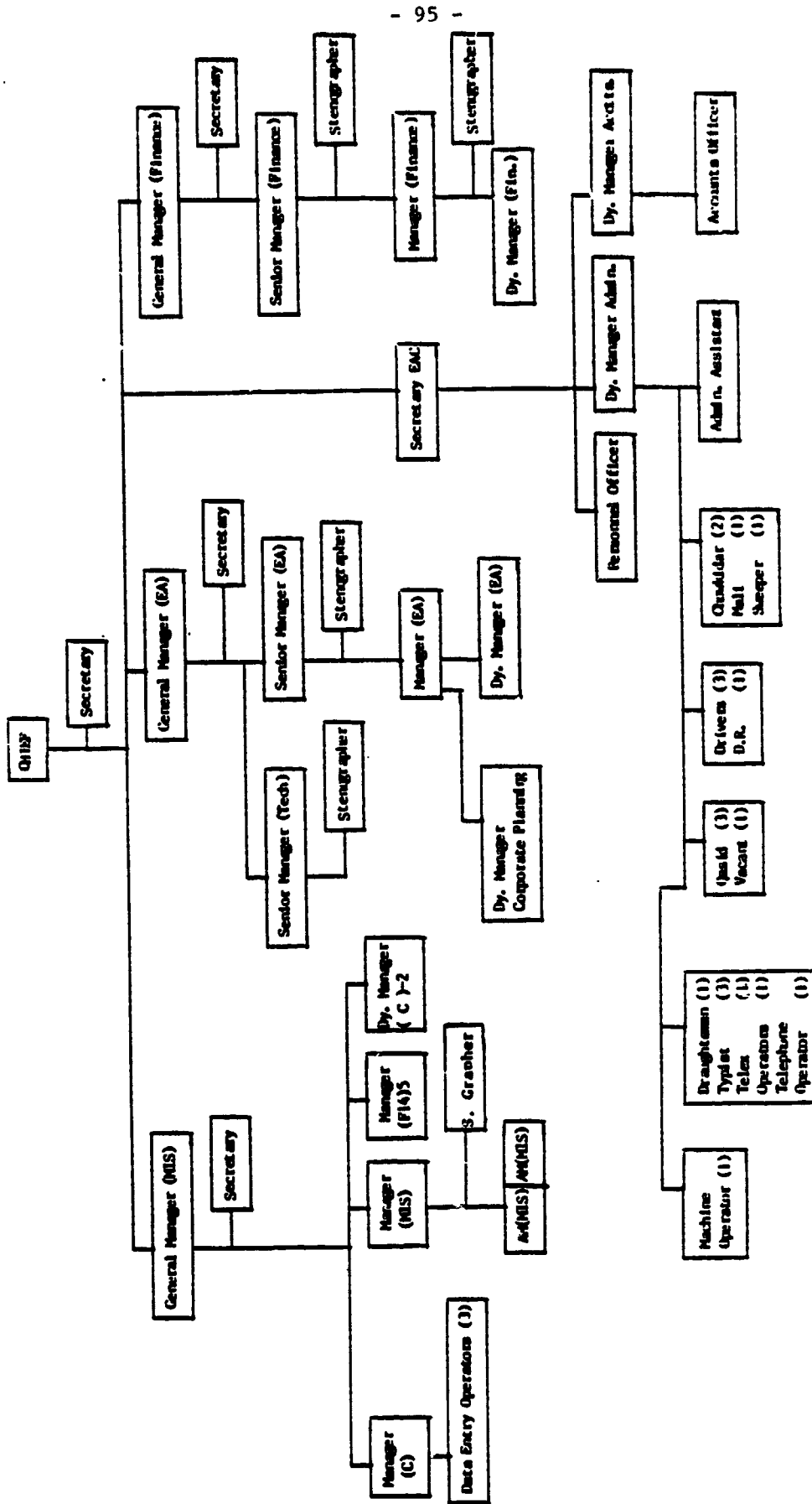
SOURCE: EAC

Table 20: Productivity of Sample Units

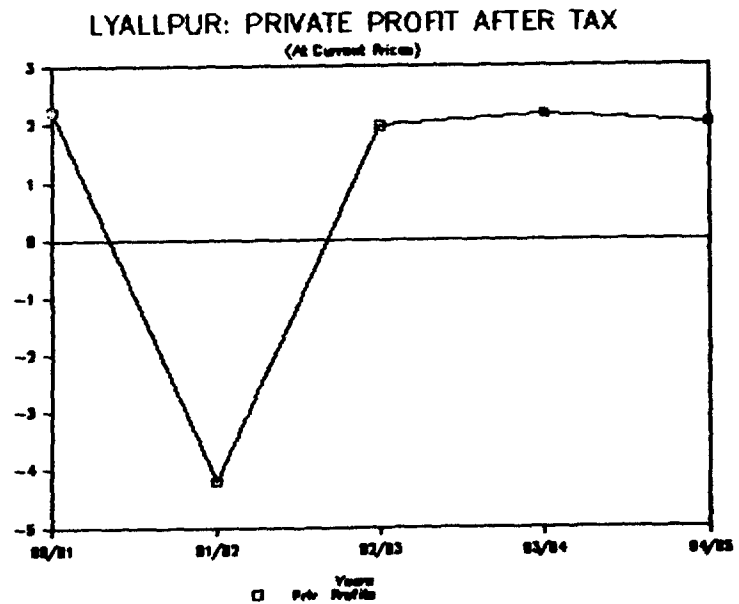
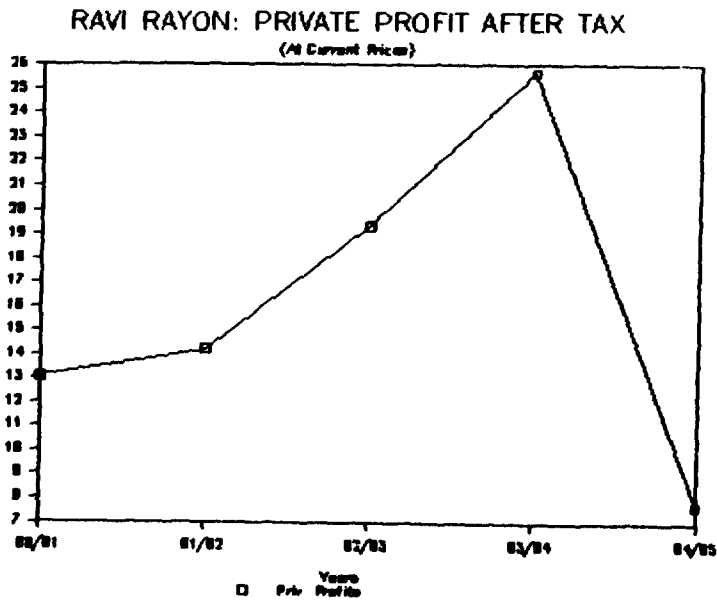
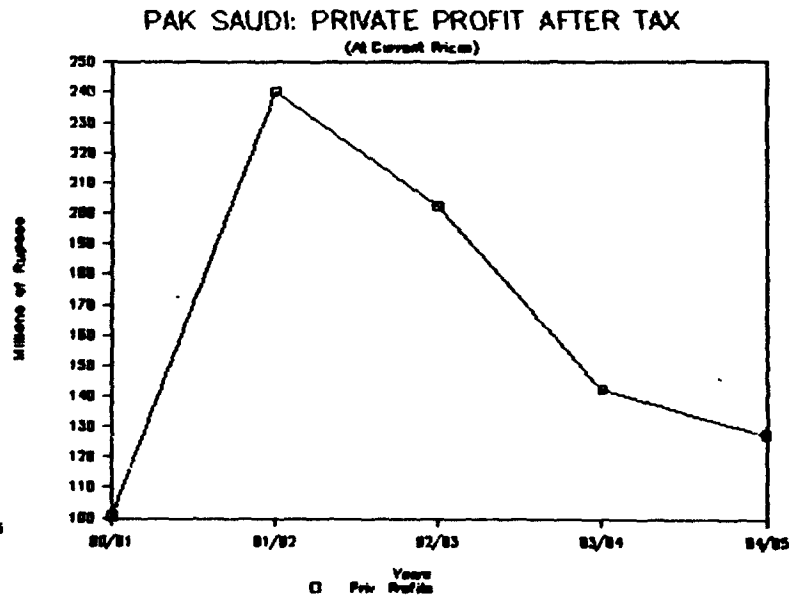
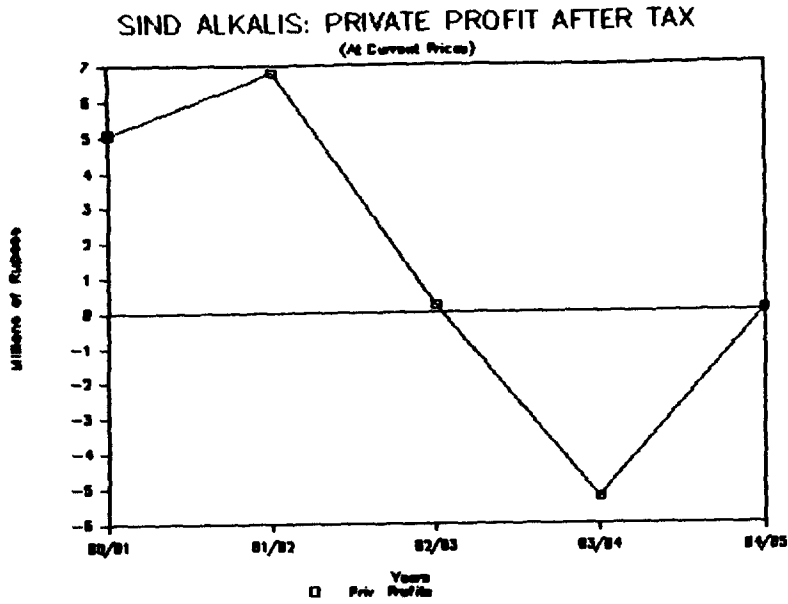
CORPORATION	UNIT	Labor Productivity (Millions of rupees per worker)						Index (1982/1983=100)					
		1980/81	1981/82	1982/83	1983/84	1984/85	1985/86	1980/81	1981/82	1982/83	1983/84	1984/85	1985/86
FCCL	Sind Alkali	0.09	0.09	0.08	0.10	0.12	0.15	137.72	138.50	100.00	157.34	191.96	228.58
FCCL	Ravi Rayon Limited	0.07	0.07	0.07	0.06	0.10	0.10	101.48	102.75	100.00	77.26	153.08	155.90
FCCL	National Fibres Limited		0.00	0.42	0.38	0.44	0.60		0.00	100.00	89.71	103.79	143.75
FCCL	Ittehad Pesticides	0.04	0.08	0.17	0.19	0.12	0.13	25.00	30.35	100.00	110.37	68.85	75.08
FCCL	Ittehad Chemicals	0.07	0.07	0.07	0.07	0.10	0.11	101.58	97.20	100.00	101.11	142.62	162.18
NFC	Lylajpur Chem. & Fertil.	0.07	0.07	0.07	0.07	0.07	0.07	95.03	100.29	100.00	97.72	93.70	93.65
NFC	Pak Saudi Fertilizer	0.89	0.89	0.87	0.97	0.95	0.80	78.77	101.72	100.00	110.74	108.51	91.63
PACO	Pak Suzuki Motors Ltd.				0.34	0.94	1.19				100.00	276.98	352.54
PACO	Millat Tractors	0.81	0.82	1.08	1.11	0.75	0.61	56.37	75.81	100.00	102.24	68.93	56.70
PACO	Maya Daur Motors	0.13	0.10	0.13	0.13	0.10	0.06	100.85	78.69	100.00	102.08	76.31	49.99
SCOP	Javedan Cement	0.15	0.16	0.19	0.21	0.23	0.22	81.02	86.27	100.00	108.75	120.58	118.07
SCOP	Zeal Pak Cement Ltd.	0.24	0.22	0.19	0.21	0.21	0.20	123.28	116.28	100.00	107.27	107.23	106.45
SCOP	Gharibwal Cement Ltd.	0.25	0.26	0.26	0.26	0.27	0.27	96.50	99.03	100.00	100.90	102.18	102.55
SEC	Heavy Mechanical Complex	0.04	0.06	0.13	0.11	0.13	0.11	29.08	41.87	100.00	86.01	101.23	83.60
SEC	Pakistan Engineering Co.	0.08	0.09	0.12	0.10	0.12	0.10	62.63	75.37	100.00	84.78	94.30	81.75
SEC	Pakistan Machine Tool	0.05	0.06	0.06	0.04	0.06	0.07	113.27	124.49	100.00	94.48	105.79	148.82
PERAC	National Refinery	3.34	3.60	3.67	3.44	3.21	3.60	90.78	97.99	100.00	93.55	87.32	98.06
PERAC	National Petrocarbon	0.29	0.29	0.22	0.11	0.28	0.20	130.28	131.64	100.00	50.46	100.87	90.40

SOURCE: Tables 1 and 2.

Table 21: Experts Advisory Cell Organization Chart



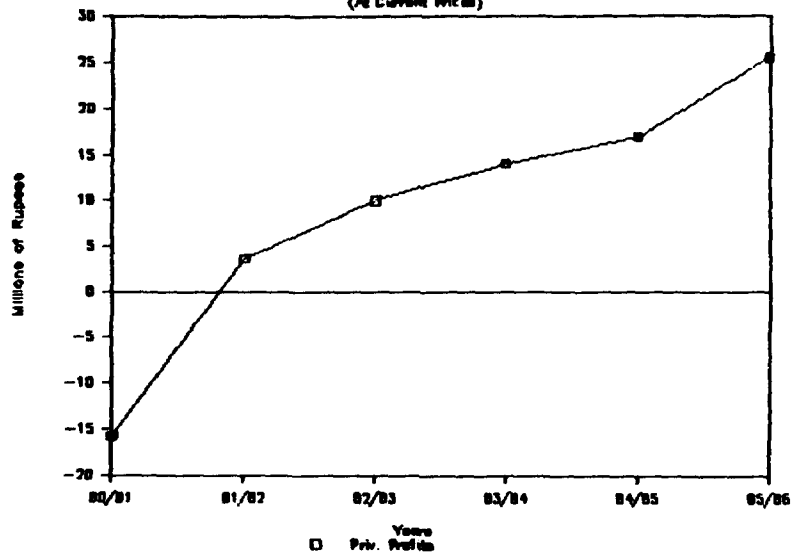
Graphs 1 - 4



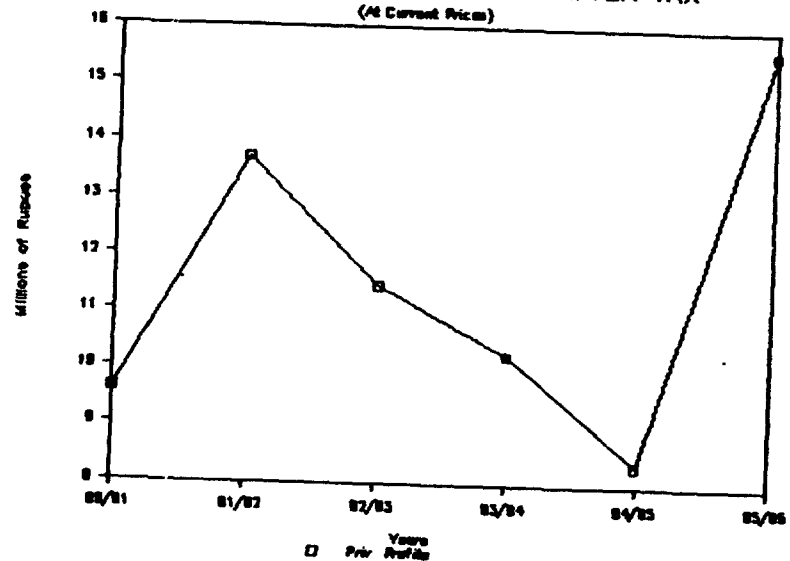
SOURCE: Tables 4 - 15 of the Statistical Appendix.

Graphs 5 - 8

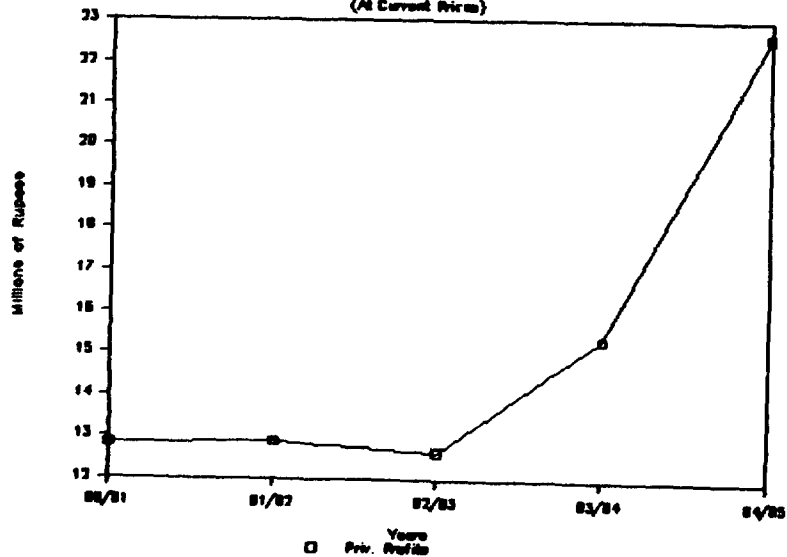
JAVEDAN: PRIVATE PROFIT AFTER TAX  
(At Current Prices)



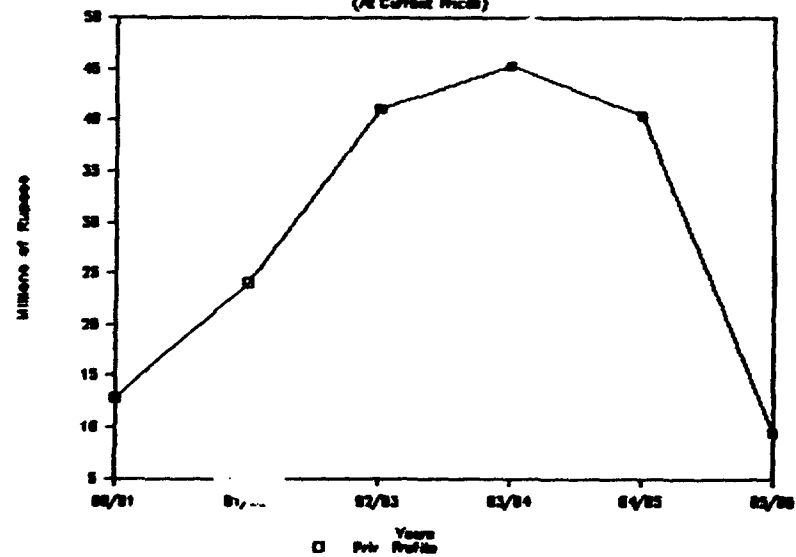
GHARIBWAL: PRIVATE PROFIT AFTER TAX  
(At Current Prices)



ZEAL PAK: PRIVATE PROFIT AFTER TAX  
(At Current Prices)

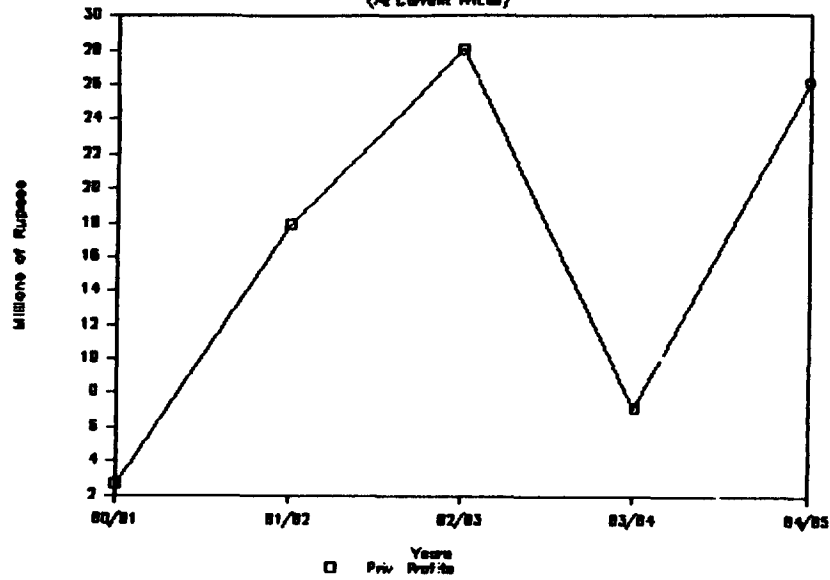


MILLAT TRACT.: PRIVATE PROFIT AFTER TAX  
(At Current Prices)

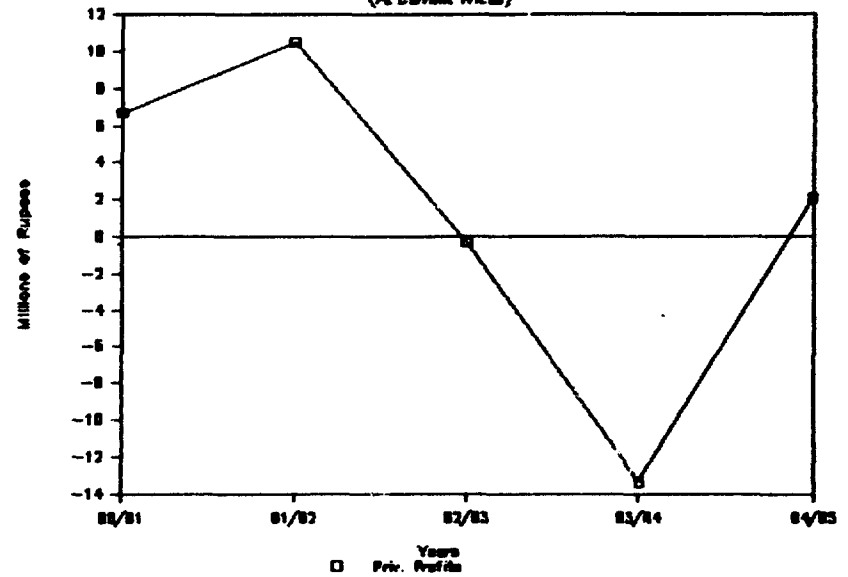


Graphs 9 - 12

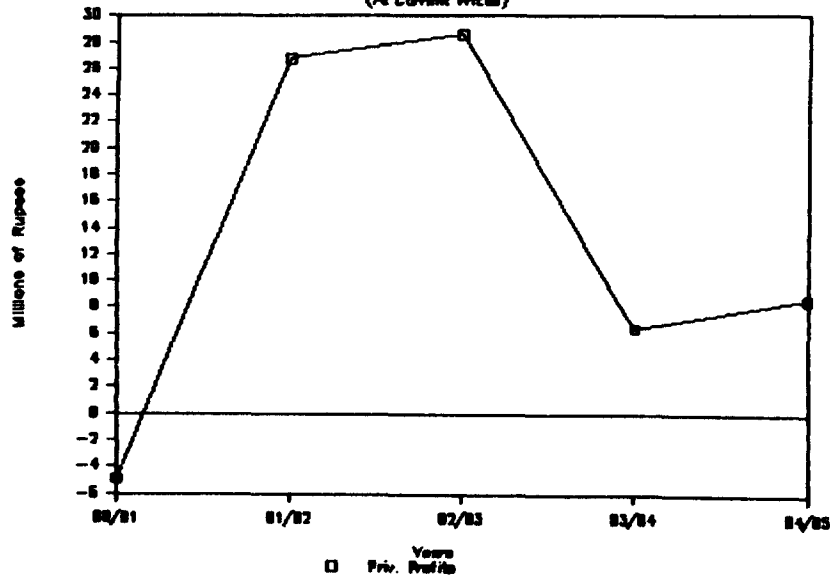
HEAVY MECHAN.: PRIVATE PROFIT AFTER TAX  
(At Current Prices)



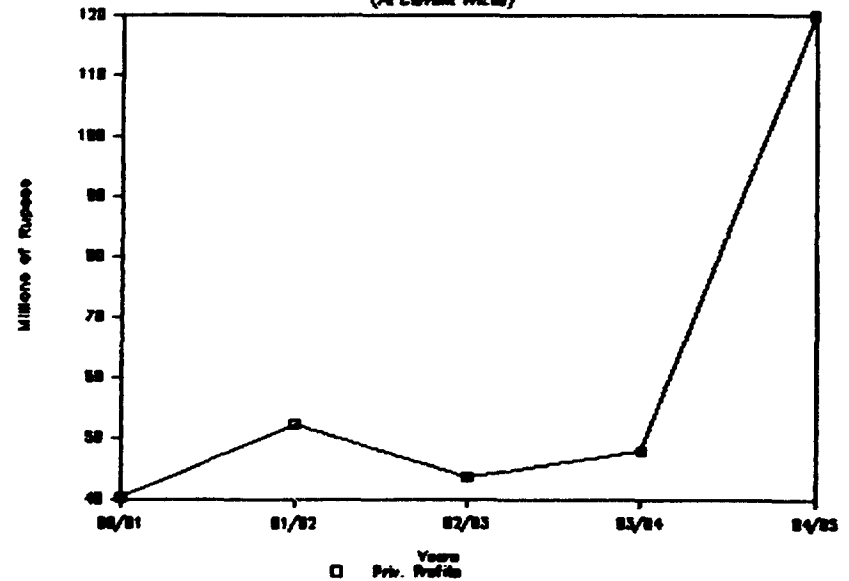
PMTF: PRIVATE PROFIT AFTER TAX  
(At Current Prices)



PECO: PRIVATE PROFIT AFTER TAX  
(At Current Prices)

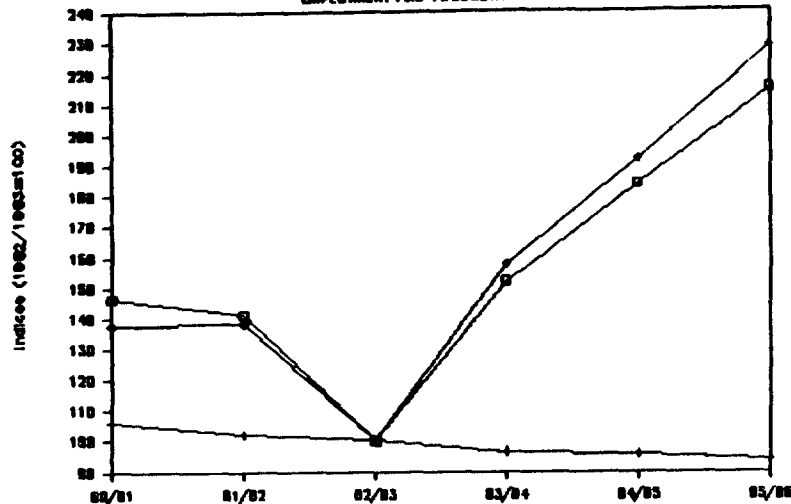


NRL: PRIVATE PROFIT AFTER TAX  
(At Current Prices)



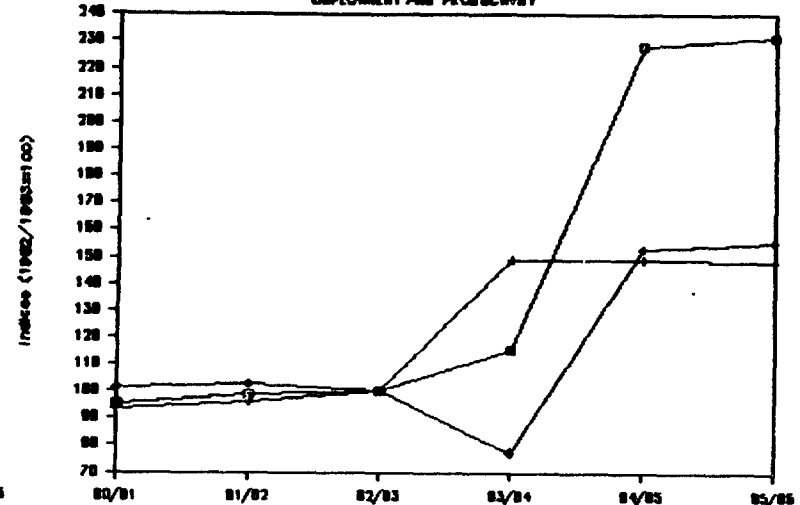
Graphs 13 - 16

SIND ALKALIS: PRODUCTION, EMPLOYMENT AND PRODUCTIVITY



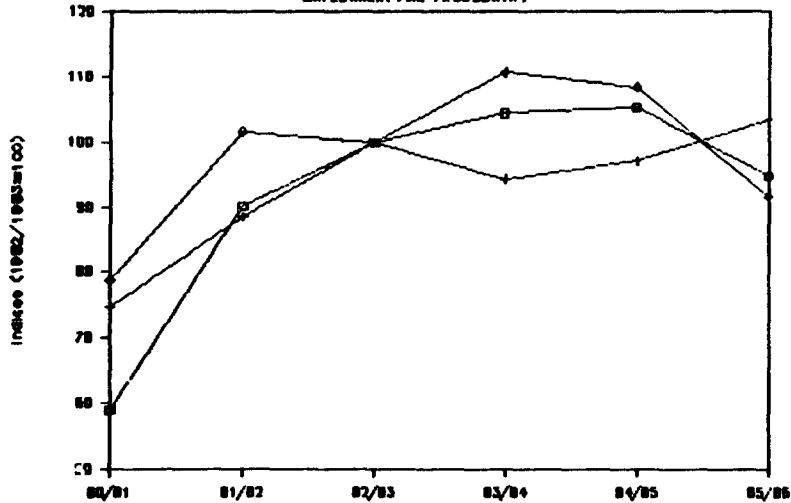
□ Prod. Index      + Empl. Index      ○ Prod't Index

RAVI RAYON: PRODUCTION, EMPLOYMENT AND PRODUCTIVITY



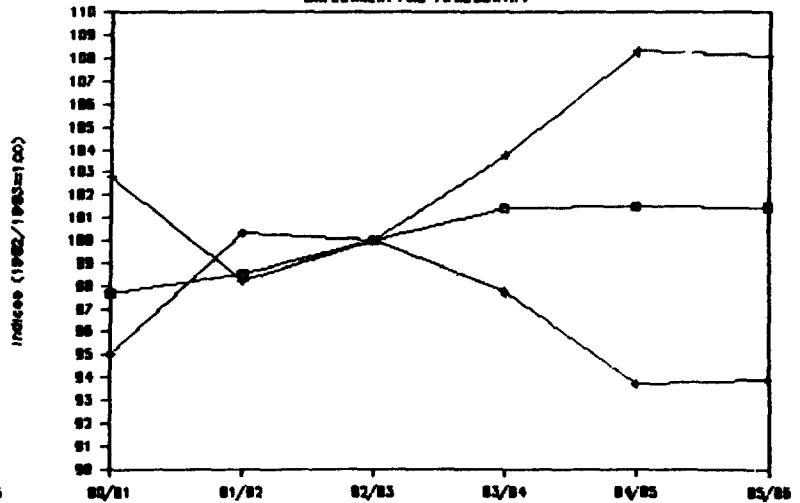
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PAK SAUDI FERTILIZER: PRODUCTION, EMPLOYMENT AND PRODUCTIVITY



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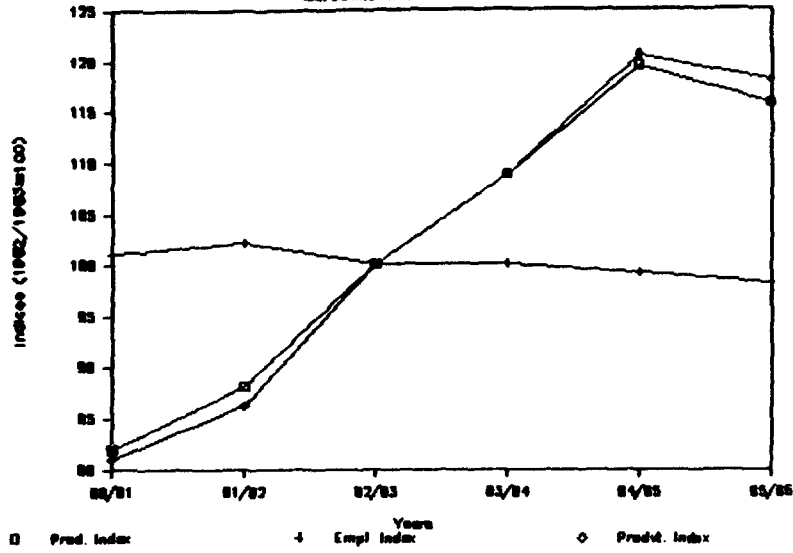
LYALLPUR CHEM. & FERTIL.: PRODUCTION, EMPLOYMENT AND PRODUCTIVITY



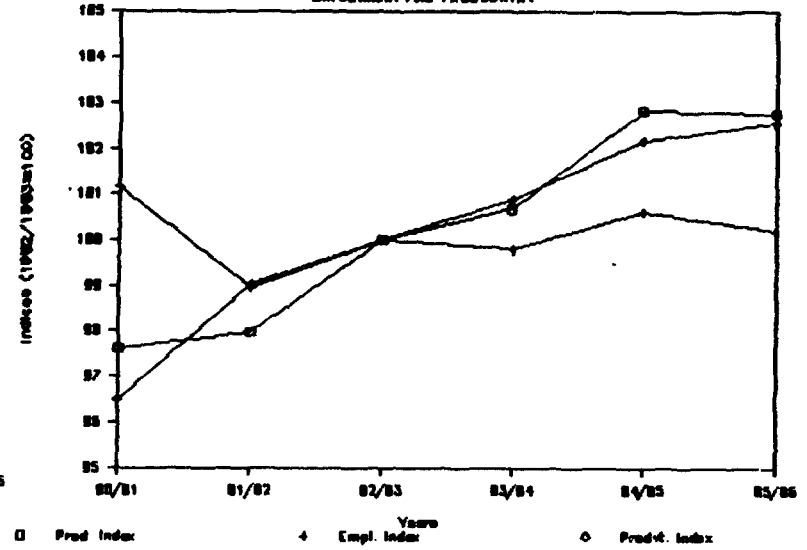
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SOURCE: Tables 18-20 of the Statistical Appendix.

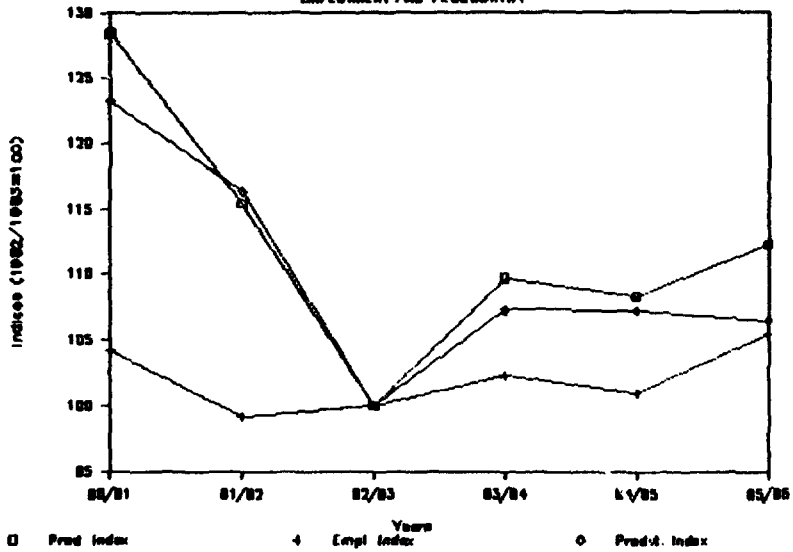
JAVEDAN CEMENT: PRODUCTION,  
EMPLOYMENT AND PROFITABILITY



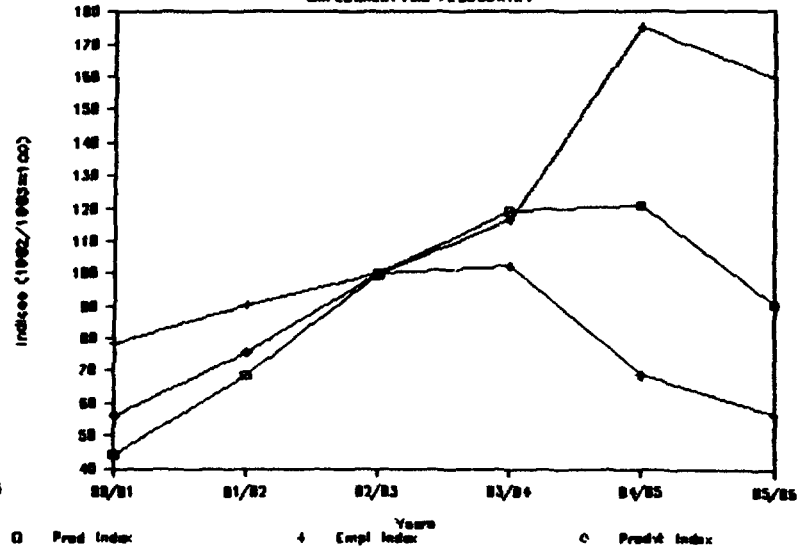
GHARIBWAL CEMENT: PRODUCTION,  
EMPLOYMENT AND PROFITABILITY



ZEAL PAK CEMENT: PRODUCTION,  
EMPLOYMENT AND PROFITABILITY

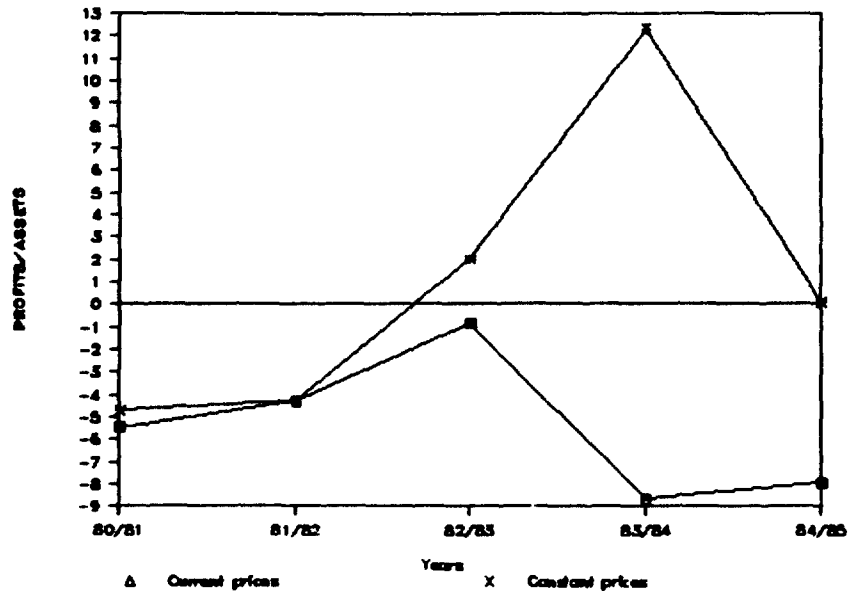


MILLAT TRACTORS: PRODUCTION,  
EMPLOYMENT AND PROFITABILITY

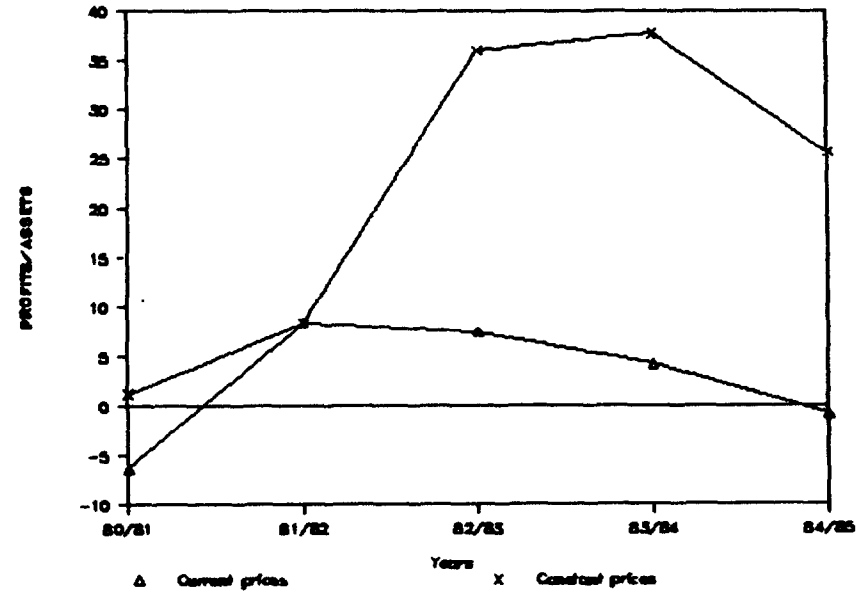




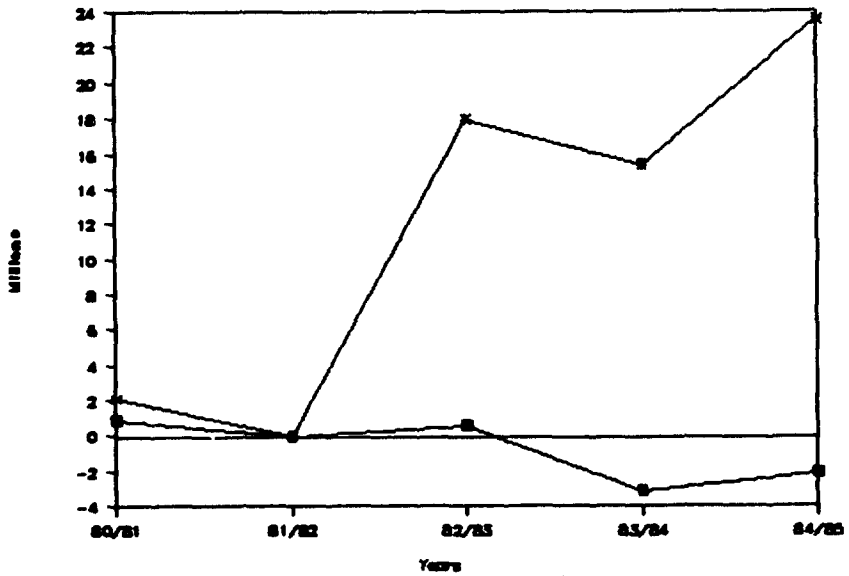
HEAVY MECHANICAL: PUBLIC PROFITABILITY



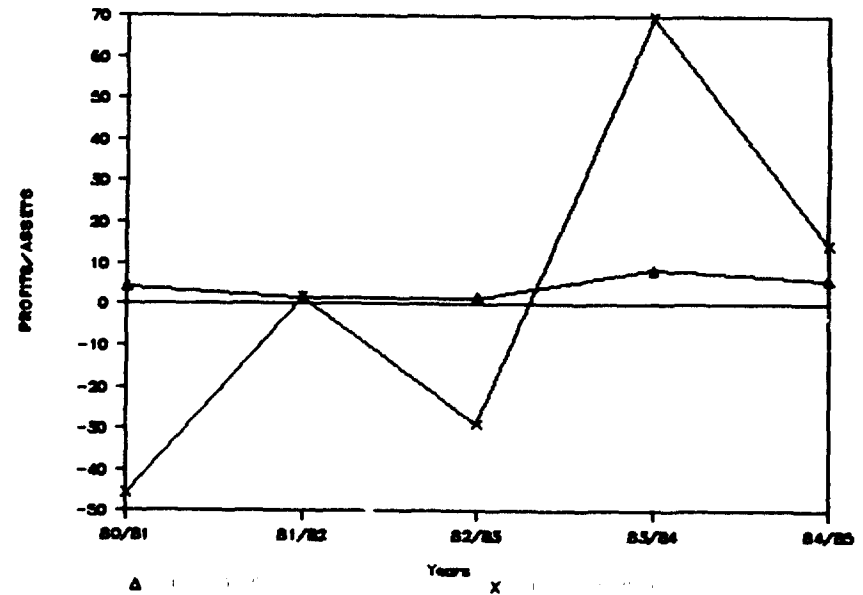
PAKISTAN ENGINEER: PUBLIC PROFITABILITY



PAKISTAN MACHINE: PUBLIC PROFITABILITY

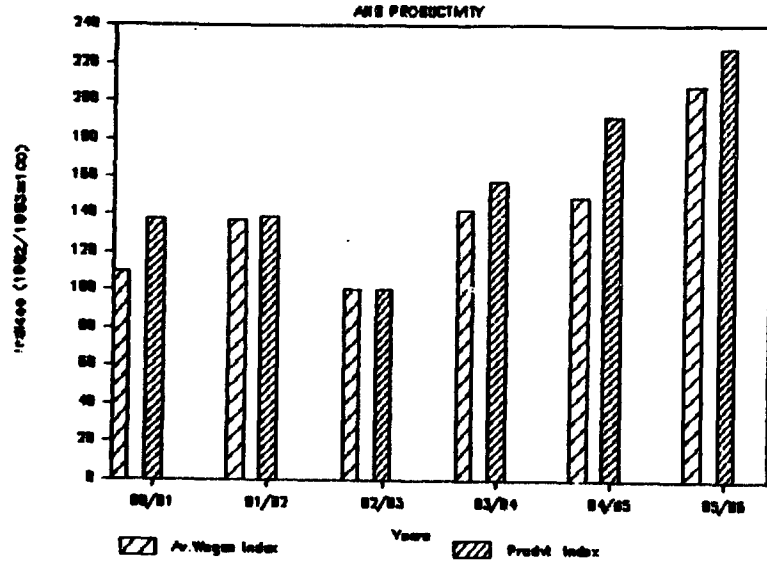


NATIONAL REFINERY: PUBLIC PROFITABILITY

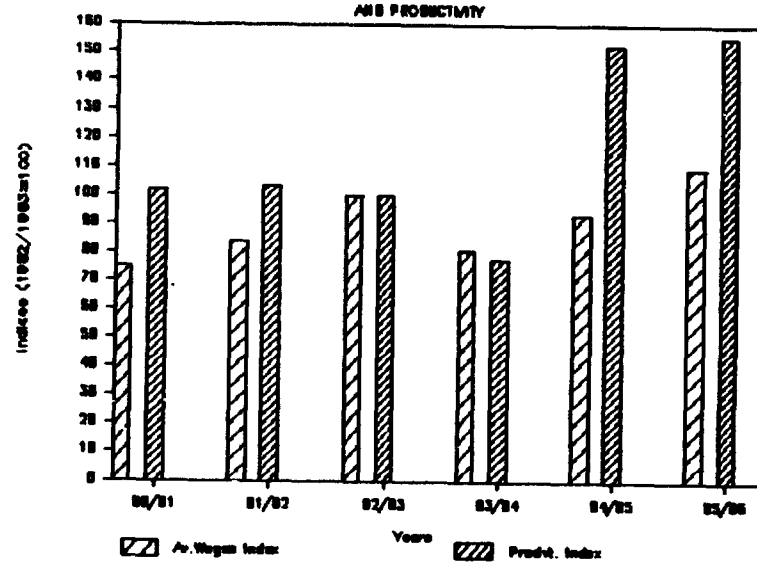


Graphs 25-28

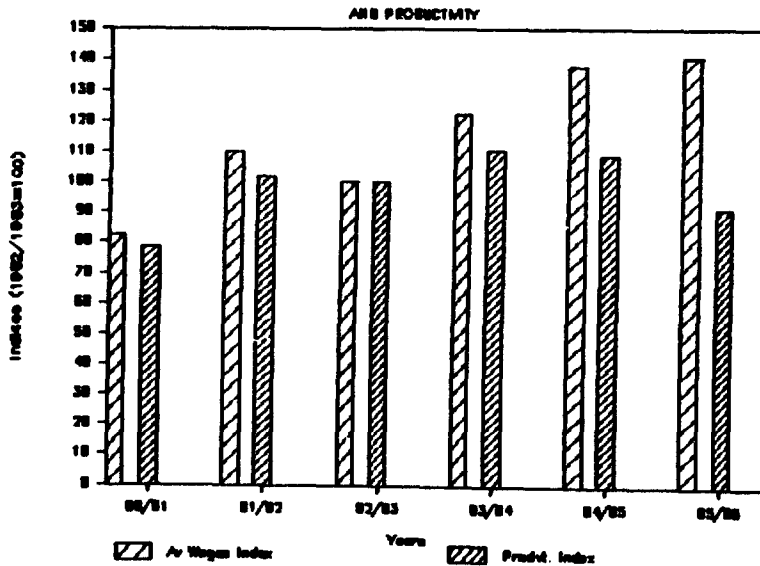
SIND ALKALIS: AVERAGE WAGES



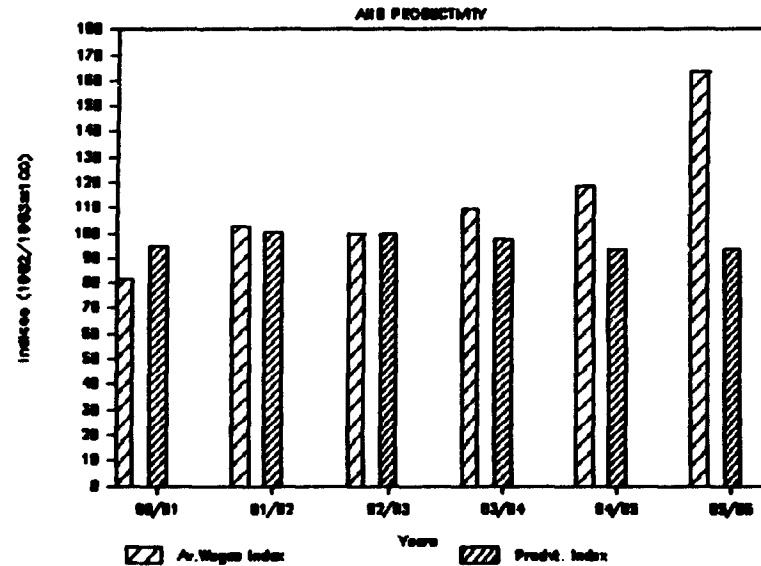
RAVI RAYON: AVERAGE WAGES



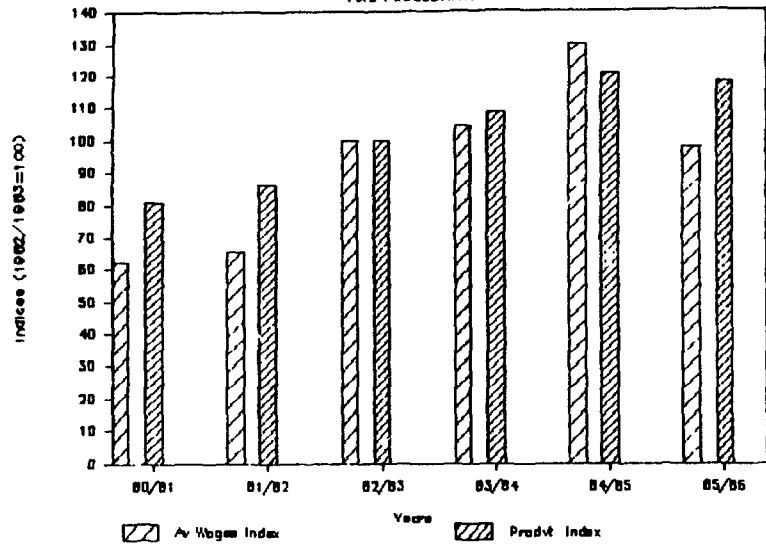
PAK SAUDI FERTILIZER: AVERAGE WAGES



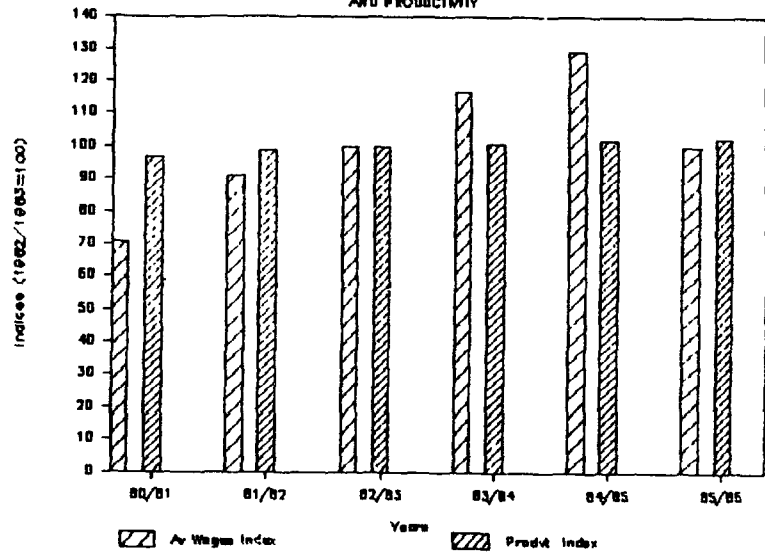
LYALLPUR CHEM. & FERTIL.: AVERAGE WAGES



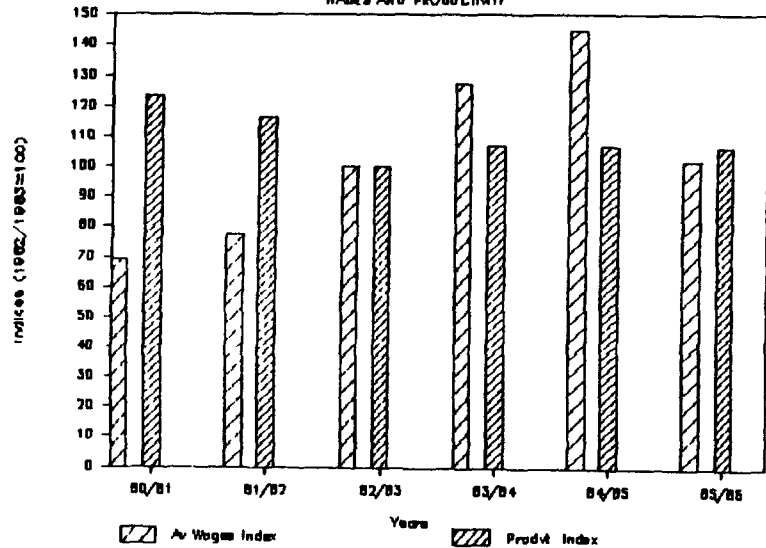
JAVEDAN CEMENT: AVERAGE WAGES AND PRODUCTIVITY



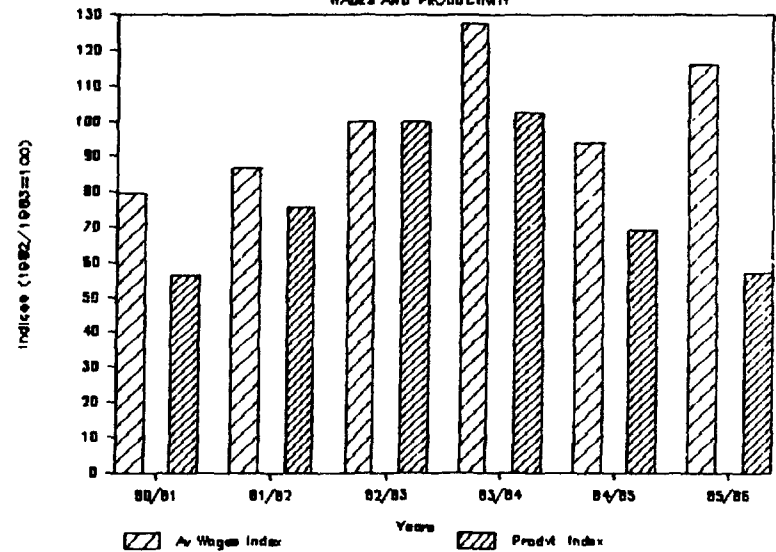
GHARIBWAL CEMENT: AVERAGE WAGES AND PRODUCTIVITY



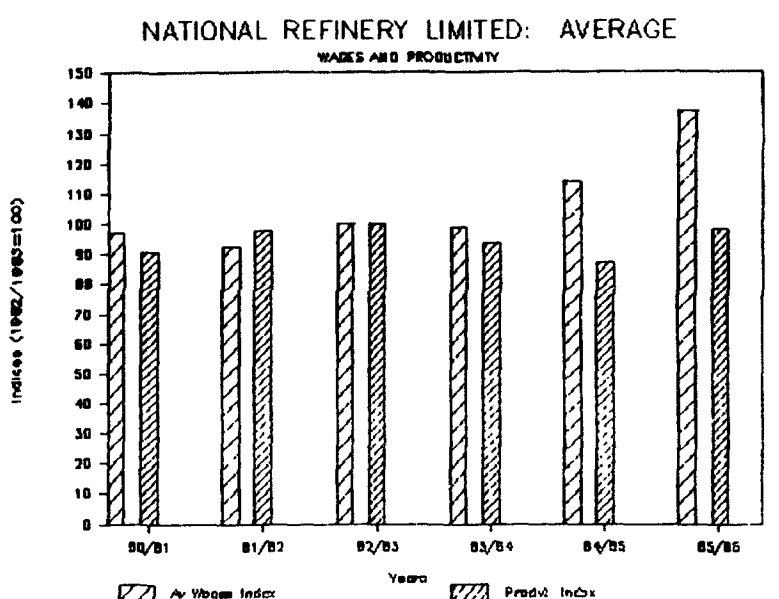
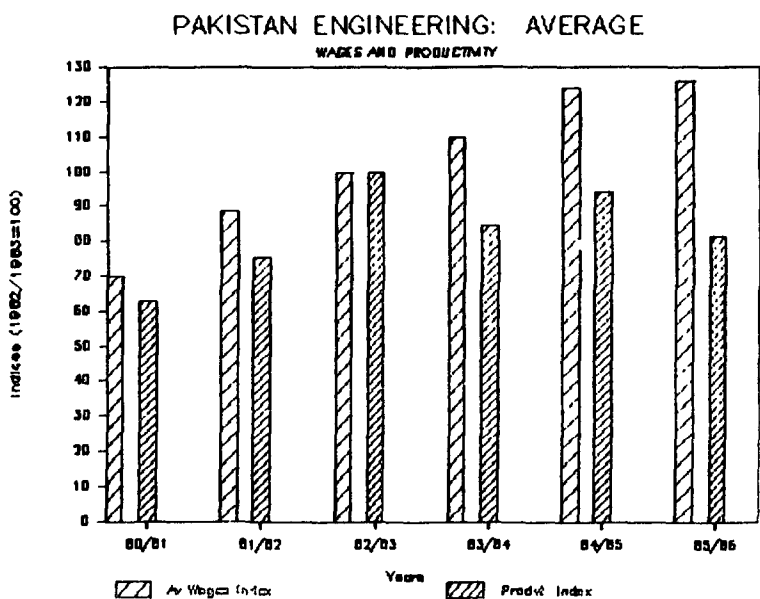
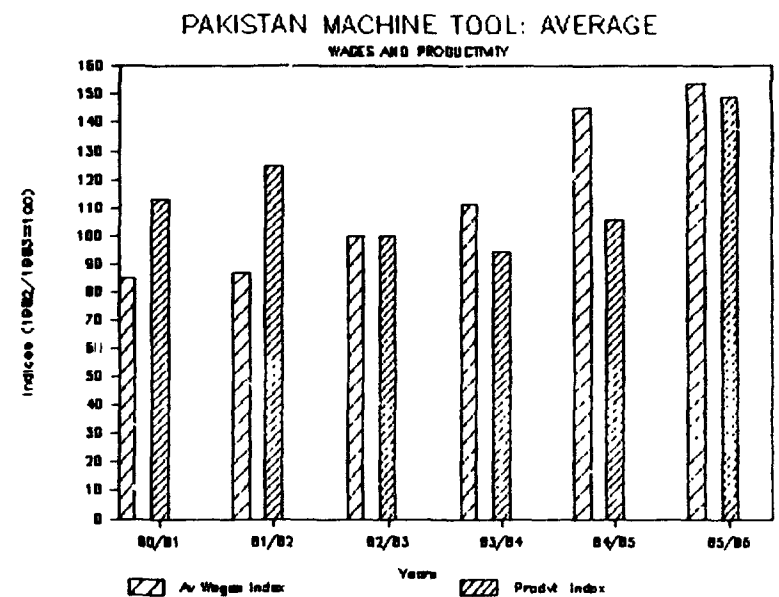
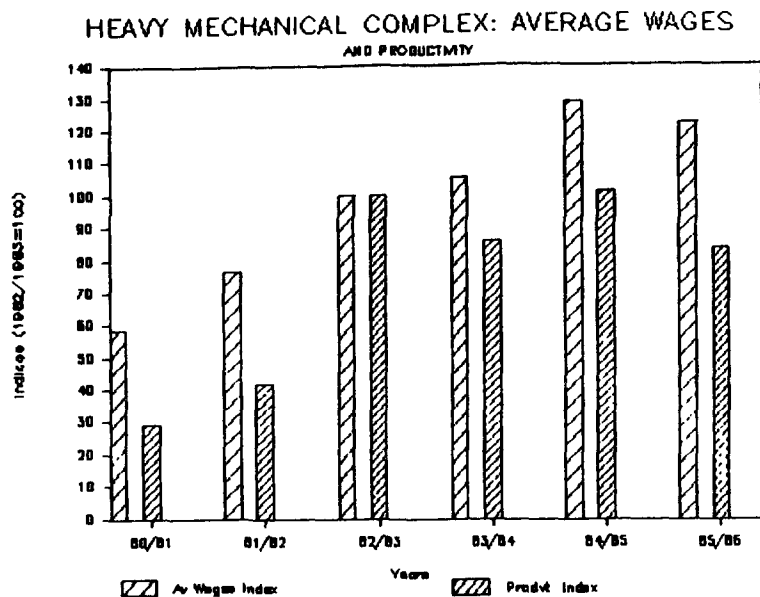
ZEAL PAK CEMENT: AVERAGE WAGES AND PRODUCTIVITY



MILLAT TRACTORS: AVERAGE WAGES AND PRODUCTIVITY



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