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"TOWARDS A PERFORMANCE EVALUATION METHODOLOGY FOR PUBLIC ENTERPRISES: WITH SPECIAL REFERENCE TO PAKISTAN"

This paper, prepared by Leroy P. Jones of Boston University, was originally presented at the International Symposium on Economic Performance of Public Enterprises held in Islamabad, Pakistan, November 1981, and sponsored by United Nations - DTCD.

CONTENTS

I. Overview

Public enterprise inefficiency imposes great costs in terms of foregone social welfare. For example, improving the real efficiency of the public enterprise sector by only five percent would[1]:

1) In Egypt, free resources amounting to about five percent of GDP, equivalent to seventy-five percent of all government direct taxes or enough to triple government expenditures on education;
2) In Pakistan, free resources amounting to one percent of GDP, equivalent to half of direct taxes or enough to increase government expenditures on education by fifty percent; and
3) In South Korea, free resources amounting to 1.7 percent of GDP or over one billion dollars in 1981.

If such gains are both significant and feasible, then how are they to be achieved? This paper argues that a major part of the answer lies in improving performance evaluation systems (Sections II and III).

The body of the paper then specifies the elements of such a system. A basic indicator of efficiency is first derived (Sections V and VI) and then modified to account for some of the exogenous factors beyond the control of management (Section VII). Given a criterion (a metric) which is broadly applicable across enterprises, it remains necessary to establish criterion-values (standards) which demarcate "good" from "bad"

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1 Leroy P. Jones, "Improving the Operational Efficiency of Public Industrial Enterprises in Egypt (Report for the U.S. Agency for International Development, August 1981). _____, Efficiency of Public Manufacturing Enterprises in Pakistan". (Report for Pakistan Ministry of Production and World Bank, February 1981.) _____, Comments on Development of a Performance Evaluation System for the Korean Public Enterprise Sector, ("Seoul: Korean Development Institute, June 1980.)

performance and which vary according to the specific circumstances of individual enterprises (Sections VIII and IX).

The next step is to extend the system to allow for non-commercial objectives and for dynamic effects (innovation and growth). The earlier focus on static operational efficiency is justified by the argument that its improvement takes first priority. That is, an enterprise which is not using its existing resources efficiently is not a likely candidate for new resources and is unlikely to have the ability to make a maximum contribution to non-commercial objectives. Nonetheless, it remains essential to incorporate indicators of non-commercial and dynamic performance (Sections X and XI).

Performance evaluation of public enterprises is not a simple matter and a workable system cannot be imposed arbitrarily from above overnight. Rather, it must be the product of an evolutionary process involving both enterprise managers and government supervisors. Accordingly, a phased system of implementation is proposed (Section XIII). Finally, the feasibility of the proposed methodology is examined by its application to one Pakistani public enterprise (Section IV).

II. The Importance of Performance Evaluation

Internationally, many of the problems of the public enterprise sector are traceable to inadequacies in performance evaluation. This is not surprising. Public enterprise goals are difficult to specify due to the problems of multiple objectives (including commercial versus non-commercial) and plural principals (different control organs having different perceptions of what the goals should be). If goals cannot

be specified, then "good" performance cannot be distinguished from "bad", managers cannot be rewarded on the basis of performance, and inefficiency can result.

What if the goal area were eliminated in a soccer football league and no alterantive means of keeping score was subsituted? What would be the effect on the quality of play? Initially, players might continue to exhibit their old skills through professional pride or force of habit. Eventually, however, new forms of behavior might be expected to emerge. Selfish show-boating might yield rewards in crowd applause without its old penalty of reduced teamwork and scoring. Movement without the ball would cease as the old costs of being out of position would have been eliminated. Being out of condition would incur few penalties and practice might become perfunctory or cancelled altogether. The coach would have little reason not to indulge his whims and play his favorites regardless of their skills. Better players would yearn for recognition and the satisfaction of playing to win and would move to other leagues and be replaced by weaker players. At best the game would become quite different — akin to a Sunday afternoon game of frisbee at the beach — pleasant and occasionally incorporating some spectacular moves, but with marginal appeal to competitive, goal-oriented individuals. In terms of efficiency, one can imagine the results if a member of this league were to play a competitive game with a conventional team.

While the situation of public enterprises is by no means as bleak as this little analogy might suggest, it remains true that organizations without meaningful quantifiable objectives have great difficulties in controlling efficiency. Compare government agencies

and private enterprises in this respect. The outputs of government departments are generally difficult or impossible to quantify: how do you measure the performance of the Ministries of Finance or Defense? For private enterprises, on the other hand, long-term profits and growth provide quite reasonable first approximations to performance. The relative difficulty with which performance can be measured is one major piece of the explanation of the widespread view of governments as inefficient.

Public enterprise is a hybrid, sharing characteristics of public governmental institutions and private enterprise. Like government, some of its goals (non-commerical, for short) are difficult to quantify; like a private enterprise, some of its objectives (commercial, for short) are readily qauntifiable. If "poor" commercial performance can be readily explained away in terms of "non-commercial" objectives and if no effort is made to distinguish between legitimate reasons for poor commercial performance (e.g., government pricing policies) and illegitimate reasons (e.g., incompetence leading to high costs), then even the quantifiable objectives lose their power for guidance, motivation evaluation and control. The enterprise then in effect becomes just like a government agency rather than a hybrid. The public enterprise manager plays a game without a score.

For some public enterprises this is perhaps inevitable. In a regional development bank the non-commercial objectives may so outweigh the commercial ones that quantification is not feasible. For most public enterprises, however, the bulk of their services to society come through their commercial activities and systematic performance evaluation becomes feasible.

In short, most public enterprises are in fact evaluated like a public institution (which is to say, not at all) and if they are to be made more efficient, they must be made more like private enterprises, with quantified performance indicators to serve as a first approximation to performance. This is not to say that they are to be evaluated like a private enterprise, but rather that, like a private enterprise, they must be evaluated.

III. Autonomy and Decentralization

Performance evaluation is critical in its own right, but its importance is compounded because it is a precondition to reform of the autonomy structure. Many of the better public enterprise managers in Pakistan, asked how to improve the system, respond: "Give us clear objectives, then give us the autonomy to pursue those objectives, and judge us by the results." They are right in linking the signaling system to autonomy, because without clear objectives and an incentive system, autonomy cannot be delegated.

To illustrate, consider the determination of the level of working capital, a decision which many Pakistani managers point to as being among their most difficult since they believe they have insufficient autonomy. In a private enterprise the power to set the level of working capital is almost invariably delegated to the chief executive officer by the shareholders and the Board of Directors. The assumption is that the manager will keep as much working capital as necessary for efficient operation, but no more, since the funds could otherwise be used to generate income directly (in economists' jargon, he will acquire working capital only up to the point where its marginal cost equals its

marginal revenue product). The reason that this is a safe assumption is that the manager is judged and rewarded on the basis of profit, which will rise or fall (in part) according to the correctness of decisions on the level of working capital. The board can therefore exercise its control function by examining outcomes (profit) rather than the process by which the outcome is generated. If, on the other hand, the manager has little or no reason to be concerned with raising the profit of the firm, then he might not be expected to make the correct decision on the level of working capital. He might divert funds from more productive uses by keeping levels of inventory and cash far beyond the level necessitated by prudent management so as to reduce risk and avoid any possible difficult decision — it is after all easier to keep all your funds in a checking deposit account than to constantly shuttle them between short and long-term interest-bearing deposits. Or, he might wish to use the working capital to absorb possible losses and hence disguise inefficiency and keep the enterprise from being shut down. In such situations, the shareholder cannot wholly delegate the working capital decision.

In the case of public enterprise in Pakistan, there are two reasons for government involvment in the working capital decision. The first is macroeconomic control of the aggregate level of credit. This, however, could be accomplished by setting an overall credit ceiling to be allocated by price rationing. This effective delegation would fail, however, if it were feared that managers would take "too much" regardless of the price. As a result of this second reason, various representatives of the government — often high level — find themselves involved in trying to take detailed decisions as to just what constitutes

legitimate working capital levels for individual firms. The difficulties are that the process is time consuming, that the ministries often lack the information and the business expertise to know just what levels are "reasonable" and that scarce ministerial talent could be better used elsewhere. In sum, by any standard of modern management, the working capital decision should be delegated to the enterprise, but given the inadequacies of the signaling system it often cannot be.

The foregoing is merely one instance of a general proposition. When the principal cannot control outcomes, he must control processes. Delegation of operational process decisions to an agent presupposes effective control of outcomes. This in turn requires that desirable outcomes be quantified and that there is some incentive mechanism to insure that the manager cares about the outcome. In sum, if more decisions are to be delgated to the enterprise in Pakistan, then there must be reform of the signaling system to insure that those decisions are made in the public interest.

The link between autonomy structure and the signaling system is illustr by Pakistani experience in the early days of the People's Party. Several interviewees told the following story. In 1972, it was assumed that the nationalized enterprises could be run by putting "good" people in charge and telling them to run the companies in the national interest. All too often this resulted in excesses, with managers pursuing individual, political or group interests at the expense of the nation. The Ministry and the B.I.M. came to recognize the problem of measuring performance and called in a Dutch consulting group which produced a massive report, but whose recommendations were eventually held to be unworkable. The natural response was the imposition of confining controls and more and more decisions were

centralized. The resulting difficulties were in part responsible for the current efforts at decentralization. The swing of the autonomy pendulum is bound to be repeated yet again unless there is a concomitant reform of the signaling system. If autonomy is to be efficiently and permanently delegated to the enterprise, then accountability must be insured by a signaling system which specifies and rewards socially desirable behavior.

The Existing System

Unfortunately, the existing signaling system in Pakistan is imperfect both in specifying and in rewarding socially desirable behavior. This sectio merely sketches the existing system. Most commentary is incorporated into the subsequent normative sections.

There is no explicit system for guiding and evaluating the performance of managers though there are some explicit means of rewarding workers. The implicit system was revealed by asking a selection of enterprise managers how they were judged by their superiors and by asking corporations and ministry officials how they judged their subordinates. Answers naturally varied, but three elements dominated in that few other criterion were even mentioned and in that many respondents mentioned all three, (though with great divergence in priority). These were:

1) profit,
2) production, and
3) avoiding labor strife.

The concern with keeping labor happy should be viewed as a constraint impose by political considerations, rather than as an objective. The frequency with which it was mentioned as a factor in evaluation simply emphasizes the importance of the constraint.

The striking thing about the two true objectives on the list is their strictly "commercial" character. Only one interviewee even mentioned the

possibility of there being non-commercial objectives as well, and he was outside the public enterprise chain-of-command. This is perhaps a natural response to the excesses of the People's Party period in which vague concern with "doing good" is said to have meant an absence of "financial discipline" and massive deficits. The list is then simply a reflection of the current Ministry policy of reversing earlier excesses so as to restore the financial health of the sector.

The opposite extreme occurs in other countries where the same question on objectives has been met with lengthy lists (often in the form of impassioned speeches) of enterprise contributions to the community ranging from sponsoring mosques to building roads and improving worker welfare. Non-commercial considerations dominate.

Forced to choose between the two extremes, the Pakistani version can be viewed as healthier in the long run. However, an intermediate position -- recognizing some non-commercial objectives as legitimate -- might be healthier still, and reduce the possibility of another future swing of the evaluation pendulum to the opposite extreme.

There are several other shortcomings of the current list. First, profit is measured in the privately relevant rather than the publicly rele sense. Second, it is not really possible to evaluate managers on the basi of profit since in many cases (e.g., fertilizer, cement, ghee) profit is overwhelmingly determined by output and input pricing decisions of the government; or, in the case of the vehicles sector, by foreign exchange allocations, which are again outside the control of managers. Third, the weaknesses of profit leads to a focus on production (reflected in the annual sector report) and this totally ignores the cost component. The point of these observations is not that the Pakistani system is "bad"

by international public enterprise standards, only that it can be improved upon. Suggestions in this direction will be made in subsequent sections.

1. Objectives and Performance Criterion

A performance criterion is simply a quantifiable expression of the objectives of the enterprise. Since public enterprise objectives are multiple, does it necessarily follow that multiple criteria are necessary? The answer is no. Multiple objectives can be routinely handled by aggregation if they are individually quantifiable and if agreement can be reached on the relative weights to be assigned to each. The simplest private company has multiple objectives in the form of earning as much revenue as possible from sales of its various outputs while keeping down the costs of its various intermediate and factor inputs. A composite performance indicator is then created by applying positive weights (prices) to each of the benefits (outputs) of operation and negative weights to each of the costs (inputs) and adding them up. The result is a single indicator called profit, but which is constructed by weighted addition of multiple subsidiary indicators.

The problem with constructing a performance criterion for public enterprise is not that its objectives are multiple, but that some of the objectives are difficult or impossible to quantify, and that agreement cannot be reached on the trade-offs (relative weights or prices) to be used in aggregation. In dealing with these problems it is useful to think in terms of two sets of objectives: commercial

and non-commercial. Commercial objectives are similar to those of private firms and reflected (albeit imperfectly, as will be explained below) in commerical accounting procedures. Non-commercial objectives concern external effects of enterprise operations (e.g., the benefits of opening up a backward area, or the costs of pollution) which are not reflected in private accounting procedures. Non-commercial objectives are particularly troublesome because they are typically difficult to quantify (e.g., the benefits of opening up backward areas) and/or difficult to put weights on (the degree of pollution can be measured in terms of various particulate counts, but how can this be converted to dollars and cents?)

Fortunately, for purposes of performance evaluation, the problem of non-commercial objectives can be substantially reduced by recognizing that many non-commercial objectives are existential rather than operational. That is, they are achieved by the very existence of the enterprise and do not alter operational goals. They affect investment decisions but not operating decisions. Project evaluation criteria are altered, but not performance evaluation criteria. For example, the decision to build an integrated steel mill might be influenced by such non-commercial objectives as the desire for national autonomy in a strategic material. Nonetheless, once the plant has been built, the non-commercial objective has been achieved (so long as steel is produced) and the operational objectives are only commercial — to produce as much steel as possible at minimum cost. Similarly, a plant may be located in a backward region in part to achieve the non-commercial objective

of regional equity, but once it is built, this objective has been achieved and strictly commercial considerations dominate.

In both of the foregoing cases, of course, the commercial success of the enterprises will presumably be less than for enterprises built without reference to non-commercial objectives. Assuming for the moment that profit captures commercial objectives, this is equivalent to saying that it will be expected to earn a lower rate of return. Nonetheless, the operational goal is to maximize that rate of return (or minimize the loss). The level of profit which represents "good" performance will be lower but profit remains the criterion. This raises the important methodological distinction between the general performance criterion and a particular criterion value. The first step in performance evaluation is to select a criterion (e.g., profitability) which allows firms to be ranked on a continuum. The second problem is to select a criterion value (e.g., ten percent) which differentiates "good" from "bad" performance. A separate section below will be devoted to the problems of criterion values. Here we are still in the first stage search for an appropriate criterion, and the point is only that many non-commercial objectives are existential and can be ignored in constructing an operational criterion. The next section focuses on determining an appropriate criterion for dealing with commercial objectives and a subsequent section deals with the problem of adjustments for remaining operational, non-commercial objectives.

VI. Enterprise Performance Criterion: Public Profit

Assume an enterprise has no non-commercial operating objectives. Does it follow that standard private accounting profit serves as a performance criterion? The answer is emphatically "no". Publicly relevant profit is quite different from privately relevant profit for two sets of reasons: first, publicly relevant accounting categories are different from privately relevant categories; second, publicly relevant prices differ from privately relevant prices.[2/]

Accounting differences occur because private costs are often public benefits and vice versa. As one example, consider corporate income taxes. There is a private cost and a private manager should

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[2/] For more detailed critiques of private profit, see: Amartya Sen, "Profit Maximization." Text of lecture at Kerala University (Trivandum, March 31, 1970).

A more detailed description of the public profit concept is found in Chapter III of Leroy Jones, "Performance Evaluation of Public Enterprise: A Methodology and an Application to Asian Fertilizer Plants"(Boston: unpublished work-in-progress).

be rewarded for reducing taxes in favor of increasing dividends and/or retained earnings. For a pure public enterprise, however, taxes are not a cost but merely one form in which the benefits are distributed to the government shareholder. A public manager should be neither rewarded nor penalized for reducing taxes while increasing dividends, retained earnings or the depreciation allowance. This is not to say that the distribution of the enterprise's disposable surplus is irrelevant, as there are important financial and motivational implications.3/ Rather the point is that the purpose of performance evaluation is to encourage the maximization of the socially relevant profit, and the determination of the distribution of that surplus is a separate question. Taxes are a privately relevant cost but not publicly relevant; public performance should be measured before taxes, and private performance after.

As a second example of the divergence between public and private relevance, consider a situation in which a manager takes advantage of multiple interest rates to borrow from one government bank at, say, six percent, while depositing in another government bank at, say twelve percent. The shareholders of a private firm should certainly reward a manager for such interest arbitrage activity, but from the

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3/ See: Malcolm Gillis, Glenn Jenkins, and Donald Lessard, "Public Enterprise Finance in Developing Countries: Towards a Synthesis", in Public Enterprise in Developing Countries, edited by Leroy Jones with Richard Mallon, Edward Mason, Paul Rosenstein-Rodan and Raymond Vernon. (New York: Cambridge University Press, 1982). Also, see: Leroy Jones, "Determinants of the Debt/Equity Ratios in Public Enterprises". (paper presented at United Nations Conference on "Investment Decision-Making in Public Enterprise", International Center for Public Enterprise in Developing Countries, Ljubljana, Yugoslavia, October, 1980).

standpoint of a government shareholder, such behavior should be neither rewarded nor penalized.[4/] This sort of arbitrage-earning constitutes a private benefit but a public transfer.

These are but two of many examples of differences between publicly and privately relevant accounting categories. All arise because the private manager is charged with looking out for the interests of only one economic actor (the shareholder) while the public manager should be concerned with the interests of all domestic actors. The performance indicator which reflects this broad interest will be termed "public profit". Briefly, it is defined as single-period variable social benefits less variable social costs; that is, the difference in the value to society between what the enterprise takes out of the economy (costs) and what it puts back in (benefits) in any one period. More precisely, this is the quasi-rent generated by the fixed capital owned and operated by the enterprise. Operationally, in terms of a standard profit and loss statement, public profit is:

Sales

± Inventory Changes

- Manufacturing Costs

- Administrative and Selling Costs

- Total Employee Costs

+ Depreciation and Ammortization Allowances

- Opportunity Cost of Working Capital.

4/ Recall that the assumption is that both banks are wholly public. If they are foreign, then the conclusion is reversed, and if they are wholly or partially held by private domestic parties, the conclusion might be modified.

The second source of divergence between public and private performance criterions lies in the relevant prices.[5/] Often, an enterprise is forced to sell its output in a price-controlled market where the price to the enterprise is less than what society is willing to pay; or, it is allowed to acquire imported inputs at a preferential exchange rate below the real value of the foreign exchange to society. In both cases, the actual price received or paid is the relevant price for shareholder evaluation of private enterprise since these are the prices which are relevant in determining their return. From the viewpoint of a government shareholder as custodian of all national resources, on the other hand, the relevant price is that which reflects economic scarcity. In principle, the solution is simple: revalue the accounts using shadow prices, just as is common with project evaluation. In practice, this is unlikely to occur. Shadow prices are complex and controversial at best and it would take a government with great faith in economists to fire a powerful retired general, politician or bureaucrat based on whether the shadow multiplier for unskilled labor was, say, 0.1 or 0.7. My own judgement is that the first-best solution of actually making market prices reflect social scarcity is more likely to become reality than the second-best solution of using shadow prices to evaluate performance. If neither the first nor second-best solutions are likely to eventuate in the near future in Pakistan, then how can public enterprises be evaluated?

[5/] For a more detailed treatment of the price problem see: Glen Jenkins and Mohamed Lahouel, "Evaluation of Performance of Industrial Public Enterprises: Criteria and Policies." (Paper presented at UNIDO Expert Group Meeting on the Changing Role and Function of the Public Industrial Sector in Development, Vienna, October 1981).

Fortunately, there is a practial operational way out of the dilemma. It will be argued in Section VII that prices are generally beyond management's control and in Section IX that the best available standard for evaluating enterprise'A' in year 't' is provided by the same enterprise in year 't-1'. It follows that for control purposes, managers should be evaluated on the basis of the trend in public profit at constant prices. The solution to the dilemma lies in the empirical observation that while the levels of public profits will differ when evaluated at shadow as opposed to market prices, the trends will generally be similar. The basis for this result can be seen by considering the simplest possible case of an enterprise with only one output and no inputs. The trend in public profit would then be a quantity index of output which differs by only a monotonic transformation when evaluated at shadow as opposed to market prices. In this extreme case the two trends are strictly identical. Introduction of multiple outputs and inputs eliminates this simple identity, because of the usual index number problem. Nonetheless, it seems reasonable to assume, and there is some empirical evidence to suggest,[6/] that the resulting differences will generally be minor. In sum, the suggestion here is that the trend of public profit at market prices can provide a useful and practical approximation to the theoretically ideal, but practically unobtainable, idea of the trend at shadow prices. The logic is identical to that in looking at the trend in real GNP per capita as a measure of the trend in national welfare. The approximation can be further improved if major

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6/ Jones, "Performance Evaluation", Chapter Five.

differences between market and shadow prices are captured through the introduction of a "social adjustment account", as will be explained in Section X below.

VII. Management Performance Criterion

Many factors which determine enterprise performance are beyond the control of managers. The quantity of capital a manager has to work with and its quality (technology) and age affect relative performance, but were determined in previous periods, usually by someone other than the current manager. Prices are usually set by the government or by world or domestic market forces outside the control of management. Decisions such as hiring workers or procurement procedures affect performance, but in a public enterprise may be circumscribed by government policy. For such reasons, a clear distinction must be made between enterprise performance and managerial performance. There are four steps in the process.

The first step is to make a standard adjustment for two readily quantifiable exogenous factors — price changes and the quantity of capital. Simply divide public profit through by the quantity of fixed capital and convert to constant prices. The resulting indicator — public profitability at constant prices — is greatly superior to public profit (though still imperfect) as a measure of managerial performance and should be routinely computed as part of a performance evaluation system for all enterprises.

For some enterprises, a second step of industry-specific quantitative corrections can be taken. Engineering data on the effects of scale, vintage and technology can sometimes be used to generate adjustment

factors for the quality of capital. Low capacity utilization due to shortages of inputs or inadequate demand can sometimes be corrected for by an "as if" expansion factor.

A third step is to recognize that often one of the best ways to correct for a wide variety of enterprise-specific exogenous factors is to divide through by the achievement of the same enterprise in previous years. That is, by focusing on the trend in performance one certainly controls for the quality of capital and to some extent for the nature of output and input markets.

The fourth step is to have a review meeting in which managers are allowed to "explain" their level of performance. Even after a superb job is done of measuring performance, there will remain non-quantified factors affecting the result. The aim of quantification is not to replace the final judgement of superiors, but to aid it. The evaluation exercise quantifies as much as possible, and thus reduces the scope for discussion, but does not eliminate the need for individual judgements to account for special circumstances.

All of these steps (except the first) can be alternatively (and probably better) treated by incorporation into the criterion value specification, since they are necessarily industry or enterprise-specific.

VIII. Setting Enterprise-Specific Criterion Values

Given the choice of any performance criterion (be it private profit, public profit, labor productivity, capacity utilization, miles per gallon, seconds per hundred yards, or anything else) as appropriate for evaluating a particular endeavor, then the still more difficult task remains of selecting a particular criterion value. While the criterion establishes the scale, the criterion values establishes the point on the scale which distinguishes, say, "bad" from "average" from "good" performance. Consider sprinters. The natural performance crtierion is seconds per hundred yards. The criterion remains valid for men, women, children, senior citizens, and those in wheelchairs; what differs is the standards (criterion values) which distinguish meritorious performance. Similarly for public enterprises. Public profitability is an appropriate indicator for a ghee company be it in Karachi or the Northwest Frontier Province, but whereas a five percent performance might be "good" in the region which is far from the source of imported raw materials, it might be "bad" in Karachi where there are negligible transport costs for the raw material.

The function of the criterion value, then, is to allow for the plethora of enterprise-specific constraints which affect the ability of a particular unit to generate public profit. The number of such factors being large, this is no simple task. The sources of information which can assist in setting criterion values include:

1) comparisons with similar firms elsewhere;
2) comparisons with the same firm in previous years;
3) professional judgements by third parties;
4) professional judgements at the ministry level; and

5) professional judgements at the enterprise level.

If there are a large number of similar units operating in similar circumstances, then the problem is mechanical. Simply collect data on relevant variables for a sufficiently large number of units, estimate a regression plane (preferably of the "outer-bound" form) and individual unit performance is measured as a deviation from that norm (plane). If the number of observations is large relative to the number of discriminatory variables, this is a practical approach. A rowing race is run annually in Cambridge in which participation of different age groups is desired. Historical data on rowing time and age are collected, a regression is run, the effect of age on time is estimated, a correction factor in "seconds per year" is generated, participants actual times are accordingly adjusted to yield age-corrected times and awards are given on this corrected time. This allows seventy-year olds to compete with twenty-year olds.

The difficulty with this approach for public enterprises is that the number of "similar" enterprises is usually small. Pakistan has only one integrated steel mill and only two oil refineries. It has four public fertilizer plants but their technology is sufficiently different to make direct comparison difficult. Only in ghee (and to a lesser extent, cement) are there reasonable numbers of similar enterprises in Pakistan. It is no accident that the Ghee Corporation has probably the best cost control system in the public sector, precisely because of the ready availability of standards of comparison.

The number of observations can be increased by international comparisons, but now the number of control variables increases geometrically The Pakistan Steel Corporation has a sister plant of apparently

identical size and technology in Iran. Knowledge of its performance is of course useful in forming a judgement as to Pakistani performance, but there is no way to run a definitive regression. Similarly, in evaluating cement and fertilizer, it is essential to know that the international standard for operating days is 330 and that many LDCs in fact achieve these figures with plants similar to Pakistan. However, other exogenous factors (notably the availability, quality and price of energy) differ, making global comparisons difficult. The point is that while comparisons with other domestic or foreign plants can serve as useful partial aids to judgement in setting criterion values, they are in themselves insufficient.

How then is a "similar" enterprise to be found as a basis for comparison? In the entire world, the enterprise most similar to enterprise 'A' in year 't' is generally enterprise 'A' in year 't-1'. This leads to the use of last year's performance as the criterion value against which this year's performance is judged. The focus is on the <u>trend</u> in performance rather than the level. While this is a step in the right direction, it is not a final solution, for two reasons. First, even for a single enterprise things change from year to year. Most importantly, prices change. As already noted, this can (and should) be treated mechanically by shifting to constant price evaluations. However, other changes (e.g., in demand conditions or the availability of inputs) also affect performance and cannot be treated so simply. Moreover, a second factor needs to be considered, namely, that the room for improvement varies from unit to unit. In a plant which has historically been poorly run, a twenty percent improvement in the indicator might require ~~the same~~ level of managerial effort and skill

as that required to produce a two percent improvement in the indicator of a plant that has always been well run.

In sum, inter-temporal and inter-enterprise comparisons are essential inputs into the process of setting criterion values, but in the end a subjective professional judgement is required. Third-party evaluations can sometimes be used for this purpose. For a new firm, the project proposal provides some standards. It is also possible to commission detailed internal evaluations by consultants, but this is expensive and should probably be confined to weaker firms. In most cases, the ultimate judgement will have to be made at the corporation or ministry level, in consultation with the enterprise.

IX. The Disclosure Bonus: An Aid in Setting Criterion Values

The people with the best information as to what is feasible for a particular enterprise are the managers of that enterprise. Unfortunately, their unbiased judgement is generally not forthcoming because it is in their interest to have a low target. A manager negotiating a performance target with the Ministry naturally stresses all the difficulties and tries to achieve the lowest possible target so as to increase the ease of its accomplishment. The resulting process of negotiation between enterprise and ministry, well-known in Eastern Europe, will normally result in a target which is below the real potential of the enterprise.

To induce managers to reveal their own best estimate of enterprise potential, a "disclosure bonus" system can be used. Briefly, the process is as follows:

1) the ministry uses its judgement to set a target criterion value and an associated target bonus level;

2) the enterprise is then free to adjust the target criterion value, and if it does so, then the bonus is adjusted in the same direction by an amount calculated according to an adjustment formula; and

3) the actual enterprise bonus may be above or below the adjusted target bonus depending on whether actual performance is above or below the adjusted target criterion value.

The system is described in more detail in Figure One.

The purpose of the disclosure bonus is to induce managers to:

1) give their best estimate of enterprise potential at the beginning; and to

2) proceed to do their very best during the period, regardless of their original estimate.

In a single period case with no uncertainty, this is strictly accomplished, as suggested by the examples in Figure One, and proven elsewhere.[7/] The danger of a ratchet effect remains (this year's performance alters next year's proposed target/bonus relationship), but this can be reduced by setting targets several years in advance. This is not feasible for price-dependent criterion values, but may be feasible for constant-price criteria. Uncertainty is an unavoidable problem. The disclosure bonus is thus not a panacea, but does provide a useful aid in determining criterion values.

7/ M.L. Weitzman, "The New Soviet Incentive Model", The Bell Journal of Economics, (Spring 1976), pp. 251-257.

Figure One

THE DISCLOSURE BONUS

I. The Scheme

A. Variables

B = Bonus
T = Target (any criterion, say profitability)
α = Overfulfillment factor
γ = Underfulfillment factor
β = Bonus adjustment factor
G = Superscript indicating planning value set by government
E = Superscript indicating planning value set by enterprise
A = Superscript indicating value actually achieved.

B. Process

1. Government announces α, β, γ subject to constraints that $0 \leq \alpha < \beta < \gamma$
2. Government assigns preliminary B^G and T^G.
3. Enterprise chooses own T^E, which automatically yields a new bonus according to the formula:
$$B^E = B^G + \beta (T^E - T^G)$$
4. At the end of the period, the actual bonus is either:
$$B^E + \alpha (T^A - T^E) \quad \text{if overfulfillment; or}$$
$$B^A = B^E + \gamma (T^A - T^E) \quad \text{if underfulfillment.}$$

II. Example

A. Purpose: to give heuristic demonstration that under this scheme, it is in managers' best interests to both:

1. tell the truth (i.e., to reveal the T^E they think best represents enterprise potential); and
2. do their best (i.e., to maximize T^A regardless of what they predicted at the beginning of the year).

This assumes perfect knowledge (by managers) and no ratchet effect.

Figure One (cont)

B. Parameters .

1. Let $\alpha = .30$
$\beta = .60$
$\gamma = .90$

2. Assume $T^* = 100$ (the actual technologically possible maximum)
$T_{t-1} = 80$ (last year's accomplishment)
$T^G = 90$ (government thinks enterprise can do 10 better than last year)
$B^G = 5$ (bonus for doing 10 better).

C. Alternative Enterprise Strategies and Associated Pay-Offs

	Bonus
1. Do nothing (accept $T^G = 90 = T^E$ and actually produce $T^A = 90$)	5
2. Do not negotiate but do best (accept $T^G = 90 = T^E$ but produce $T^A = 100$)	8
3. Negotiate downward but overachieve (set $T^E = 85$, but produce $T^A = 100$)	6½
4. Brag and do best (set $T^E = 110$, but produce $T^A = 100$)	8
5. Tell the truth and do best ($T^E = 100$ and produce $T^A = 100$)	11

X. Allowing for Non-Commercial Objectives: Social Adjustment Accounting

How are operational non-commercial objectives to be dealt with? The central proposition is that they must be either dealt with explicitly or ignored altogether. Otherwise, the entire signaling system breaks down, and with it, the basis for a sensible autonomy structure. If a manager is allowed to get away with arguing that his poor commercial performance is due to pursuit of vague, unquantified non-commerical objectives, then it becomes impossible to distinguish between legitimate and illegitimate reasons for losing money. It is then impossible to hold managers accountable for achievement of either commercial or non-commercial objectives, and therefore undesirable to delegate autonomy.

If this proposition is accepted, then the question is how achievement of non-commercial objectives is to be quantified and incorporated into the performance evaluation system. It must be recognized that this is not a simple task and few countries have dealt with the problem successfully.

One straight-forward solution is to eliminate the problem by simply denying the validity of non-commercial objectives in public enterprises. Any worthwhile non-commercial responsibilities are to be hived-off to separate public institutions, leaving public enterprises free to operate according to strictly commercial principles. Some observers simply dispair of ever imposing effective commercial discipline on an enterprise which has recourse to non-commercial objectives as an excuse for poor commercial performance. This separation of commercial and non-commercial objectives is not uncommon in practice (e.g., it is explicit in contemporary Chile and implicit in much of the South Korean public enterprise sector). More importantly, it is also implicit in current Pakistani practice (as explained in Section IV above).

Ignoring operational non-commercial objectives (or transferring them to another agency) may well be a superior strategy as compared to the common nihlistic practice of recognizing both objectives but holding managers accountable for neither. It may well be a step in the right direction, but a further step is possible. This involves quantifying the costs and/or benefits of meeting non-commercial objectives and entering them explicitly into the enterprise accounts - a process I will call social adjustment accounting.

One variant of social adjustment accounting is reflected in the French "Program Contract" system. The basic principle is that the enterprise should pursue only commercial objectives unless specifically instructed to the contrary by the government. In such a case, a bargain is struck as to the incremental costs incurred in meeting the stated objectives, and the enterpise is compensated in this amount. The obvious advantage of this system is that it allows pursuit of legitimate non-commercial objectives, but controls illegitimate pursuits by subjecting them to an open discussion of costs (and thus of the trade-offs) involved.

One technical feature of this particular variant should be noted. Costs are measured rather than benefits. In principle of course, the ideal solution would be to base compensation on the benefits, allowing the enterprise to earn a social profit on the difference between benefits and the costs, and permitting decentralized, non-bargained decision making. The problem with this is obviously that most non-commerical benefits are difficult or impossible to measure. One does not attempt to measure the benefits of having a military unit of a particular sort: rather one measures the costs and asks only whether the (unmeasured) benefits are greater than the costs, not how much greater.

Alternatively, and more commonly, one compares the costs of different methods of achieving a particular set of benefits. Similarly, for the benefits of, say, keeping open a factory in a backward area, focusing on costs is a practical second-best alternative to measuring both benefits and costs.

The second variant is similar to the first in being based on a negotiat agreement as to the costs of meeting legitimate non-commercial objectives; it differs in that the compensation is not actually paid. Instead, the expenditure is entered not as a cost above the public profit line, but as a transfer below the line. That is, the expenditure is treated as a dividen paid in-kind to the government. The quantum of public profit is not affecte by the non-commercial activity, but some of that profit is distributed in-ki rather than as taxes, dividends or retained earnings.

Managers would naturally prefer the compensated to the uncompensated variant, because of the financial impact on retained earnings. Nonetheless, assuming the firm is financially viable, the uncompensated version is simply a form of internal cross-subsidization which avoids the unnecessary circular step of transferring funds up to the center as taxes and dividends, only to be returned as subsidies. The important point is that in both variants, a conscious decision is made as to which non-commercial objectives are worth the cost and which are not.

Social adjustment accounting can also be used to deal with incorrect prices on major inputs and outputs. If fertilizer is sold ex-factory at low prices as a result of a conscious government decision to subsidize farmers and/or wage-goods, then the enterprise can be compensated by a per unit subsidy. Similarly, if the factory is receiving underpriced natural gas or electricity, then a per-unit tax can be levied to make the price faced by the firm approximate real economic value. This is

of course a cumbersome second-best alternative to simply setting the right price in the first place, but in some situations it may be the only politically or bureaucratically feasible way to ensure that managers receive correct signals as to economic scarcity. If so, then it is desirable that the tax/subsidy combinations should be actually compensated, but they could also be uncompensated (via the below-the-line distribution method), if financial viability is not threatened. In the latter case the output subsidy would be credited to sales, the input debited under manufacturing costs, and the net effect entered per contra as a social dividend (levy), implicitly paid (received) in-kind. Public profit would then reflect the real economic surplus generated by the enterprise and managers could be rewarded according to their real contribution to society, independently of whether or not the right prices were actually paid.

The ultimate variant of social adjustment accounting is to create an entire set of shadow accounts altering each and every accounting entry by a multiplier reflecting the divergence between market and economic prices. While such an exercise is theoretically ideal and has major utility in research,[8/] it is unlikely to be feasible as an actual control device. If not, then the social adjustment account is a practical means of capturing the most important benefits of the theoretical ideal.

Remaining non-commercial benefits which are deemed critical can be evaluated in qualitative terms and entered into the system as supplementary indicators. This is discussed further in Section XII.

8/ For an example, see: Leroy Jones, "Public Enterprise Performance Evaluation: A Methodology and an Application to Asian Fertilizer Plants," (Boston: unpublished work-in-progress, February 1979).

XI. Allowing for Dynamic Effects

A major weakness of any single-period performance indicator (be it private or public profit, labor or total productivity) is that it ignores future effects. An enterprise is a living organism and many current decisions impose costs (benefits) in the present period but which generate benefits (costs) in the future. Deferring maintenance can increase outputs and reduce costs this year at the expense of lower output and higher costs next year. Current expenditures on research, training and planning increase costs in the present but generate benefits in the future. Single-period indicators capture only one side of the benefit/cost calculations for decisions which impact on more than one period. Performance indicators which only consider current flows can thus lead managers to neglect the future by devoting inadequate attention to innovation, planning, consumer good-will, and maintenance.

This problem is often more acute in public enterprises. In private enterprise it is less likely that the future will be sacrificed to the present for several reasons. In an owner-operated firm the self-interest of the decision-maker will lead him to value the future. When ownership is divorced from control, long managerial tenure and deferred managerial compensation (stock options) can tie decision-maker interest to future effects. Finally, the value of shares traded on the stock market is heavily determined by investor perception of future effects. For public enterprises in LDCs, however, management is divorced from capital, tenure is typically brief, there is no deferred compensation, and shares are either not traded at all or traded in an imperfect market where government-

imposed dividend policies dominate as a determinant of value. Accordingly, performance evaluation systems for public enterprises must explicitly incorporate indicators of future effects if innovation, planning, maintenance, etc., are to be encouraged.[9/]

What is needed are answers to questions such as the following:

1) Is preventive maintenance adequate?

2) How rapid is progress on implementation of investment projects?

3) Does the company have a coherent and up-to-date corporate plan?

4) Is the company devoting adequate attention to research and development?

5) Are training and motivation of personnel adequate for the future needs of the company?

Answering such questions will necessarily be a subjective process. One approach is to use a five point rating scale from "inadequate" to "superior". Initially, most companies might be rated at the mid-point level of "adequate" with attention devoted to identifying a few of the best and worst performers.

The set of relevant questions, and the weight attached to each, will vary from company to company. Many companies will have no ongoing investment projects, but for those which do, the rate of progress will be an important indicator of performance. In Pakistan, many of the innovation and training functions might be delegated to the Corporation level with the enterprises focussing on static efficiency plus such things as maintenance.

9/ For an example of the negative impact of single-period performance on evaluation, see: Joseph Berliner, The Innovation Decision in Soviet Industry, (Cambridge: M.I.T. Press, 1976).

XII. An Indicator System

Three sorts of performance indicators are necessary

1) Primary Indicator: (public profitability) covers static operational efficiency plus any non-commercial or dynamic effects which can be valued in monetary terms;

2) Supplementary Indicators: Cover dynamic effects and non-commercial effects which can only be rated, but not monetized;

3) Diagnostic Indicators: used to explain movements in the primary indicator (e.g., capacity utilization, inventory turnover).

Diagnostic indicators must not be given independent weight in the evaluation process. Otherwise, the evils of multiple counting occur. They are important however, in explaining performance trends and identifying causal factors. Supplementary indicators, on the other hand, must be given independent weight. They are not duplicative of the primary indicator, since they cover only factors left out of the primary indicator because monetary quantification is not feasible.

XIII. Implementation of a Performance Evaluation System

Performance evaluation is not a simple task in private enterprises and it is all the more complicated in public enterprises. In addition to appreciation of the technical analytic issues alluded to above, it requires a high-level political/administrative decision that a signaling system should be implemented, a sophisticated information system for monitoring performance, and a communication system in which the process and its results are discussed and modified in meetings between representatives of the enterprises, corporations and ministry. A system unilaterally and suddenly imposed from above without input, cooperation and appreciation of the operati units is likely to fail. Because of the difficulties involved, it seems

judicious to proceed sequentially on a step-by-step basis, rather than by rushing into a one-time imposition of some ideal system.

The approach suggested here is to begin with a very crude criterion and make a series of adjustments which lead to successively better measures of the contribution of the enterprise to national welfare. Each phase represents an unambiguous improvement in its own right. As experience is gained at each phase, as information to support the system is made available, and as training and review sessions make the strengths and weaknesses of each phase apparent to all participants, then the stage will be set for movement to the next higher and more sophisticated phase. Failure to proceed sequentially might over-tax the absorbtive capacity of the implementors and cause the whole effort to collapse.

Suggested phases, in terms of the operative criterion are as follows:

Phase I: Private profit is the crude existing starting point.

Phase II: Adjustments are made to reflect the differences between public and private benefits and costs (e.g., taxes are a private cost but a public transfer, as are interest-arbitrage earnings) yielding public profit at current market prices.

Phase III: Adjustments are made for two major factors generally beyond managers' control — prices and the quantity of capital he has to work with — yielding public profitability at constant market prices.

Phase IV-A: Adjustments are made for other factors beyond management control (e.g., operation in a backward region, a depressed industry, or using outmoded equipment) by

establishing different negotiated criterion values (targets) for different enterprises. That is, while public profitability at constant market prices is a good indication of managerial performance for most enterprises, different levels (say 15 percent for one enterprise in favorable circumstances, versus only five percent for one in a less favorable environment) might be taken to represent identical levels of managerial achievement. Introduction of a disclosure bonus system can aid in identifying reasonable targets.

Phase IV-B: Dynamic effects are incorporated by identifying relevant variables, establishing an evaluation scale, and assigning appropriate weights.

Phase IV-C: Adjustment can be made for non-commercial objectives by introducing a social adjustment account. This allows the costs of meeting non-commercial objectives to be entered as transfers of surplus (below the public profit line) rather than costs (above the public profit line). Negotiation between the Ministry, the Corporations, and the enterprises are required to identify just which costs are legitimately treated in this fashion. The negotiation process focuses attention on the subsidies implicit in such activities and admits legitimate expenditures, while allowing the government to hold the manager responsible for all remaining costs incurred in meeting commercial objectives.

Phase V: Adjustments are made to all accounts to reflect real social values. As already noted, this is unlikely to serve as a practical external control device, but could have major internal research and analysis utility.

The time needed to implement each phase will vary. Movement to Phase II would take no time at all. The ministry need only announce that henceforth "profit" will be measured at a somewhat different point on the profit and loss statement, to better reflect the enterprise's contribution to society. A seminar or two will be needed to explain why the new measure is an improvement. Movement to Phase III will take substantially more time, the constraint being the development of an information system to allow the necessary measurements.

Movement to Phase IV requires no new information-processing capability and can proceed as quickly as the negotiating environment permits. The forum for these negotiations would probably be the regular "review meetings" already conducted by the Ministry. Pressures for adjustments for environmental and non-commercial factors would presumably emerge in earlier stages. Initially, these factors could be allowed for in a subjective and informal way, and movement to Stage IV merely unifies and formalizes the adjustment procedures.

Phase VI requires more sophisticated analytic talents at the Ministry and has less direct relevance for control purposes. Its operational implementation might be delayed.

XIV. Illustration of Performance Evaluation Methodology

Is the performance evaluation methodology suggested above feasible in the Pakistani context? Is it useful? This section addresses these two questions for static operational efficiency by actually applying the method to a single public enterprise

over the last five years.[10/] Pak American is chosen simply because earlier work on this company (in 1976) meant that only updating was necessary. It should be stressed that this effort is meant only to be illustrative, as some of the price adjustments have been made with less than complete information. For example, actual prices received for the primary output have been used, but a general chemical products index was used for secondary products. Similarly, on the input side, the actual price of natural gas was used, but a number of other intermediates were grouped together as "imported" or "domestic" and general deflators used. A number of similar cases exist in which short-cuts were taken because the calculation was made in the United States and which would not have been necessary had the work been done in Islamabad. The results, then, while broadly accurate, require further refinement, and are presented here only as illustrative, rather than as a final commentary on Pak American. Also, in the interest of space, only the outputs of the process are presented here. Details of the calculations can be found elsewhere.[11/]

Section I of Table Two give the various measures of surplus, and the results suggest some of the limitations of the traditional measures. First, private profit is substantially higher than public profit and increases dramatically from 78/79 to 79/80, while public profit declines.

10/ The calculations have been done for the entire period since 1968. However, the change from coal to natural gas as feedstock created a discontinuity in 1973 and make it necessary to obtain a few pieces of information before these results can be reported. Also, some price data are missing for 79/80 and must be obtained before the constant price series can be completed for that year.

11/ Jones, Performance Evaluation.

Table Two

SELECTED PERFORMANCE INDICATORS:
PAK AMERICAN FERTILIZER IN THE 1970s

		75/76	76/77	77/78	78/79	79/80
I.	Flows (million rupees)					
	A. Private Profit[2/]	1.4	-4.1	7.9	5.6	38.8
	B. Public Profit[3/] @ current market prices	6.1	-9.7	-7.3	-16.1	-34.4
	C. Public Profit @ [4/] constant market prices	15.2	12.3	16.3	16.9	
	D. Public Profit @ current shadow prices	37.6	15.1	32.9	25.5	
	E. Public Profit @ constant shadow prices	48.6	44.1	47.1	47.2	
II.	Stocks (million rupees)					
	A. Fixed Assets @ accountants' prices	67.5	61.0	55.3	47.2	38.4
	B. Fixed Assets @ constant market prices	440	441	441	442	
	C. Fixed Assets @ rolling market prices[5/]	477	520	559	570	
		(percent)				
III.	Ratios: Profit over Fixed Assets					
	A. Private Accounting	2.1	-6.7	14.2	11.9	
	B. Public: current market	1.3	-1.8	-1.3	-2.8	
	C. Public: constant market	3.5	2.8	3.7	3.8	
IV.	Capacity Utilization (percent)	102	105	100	103	104

1/ Data for 72/73 are not available.

2/ After-tax profit as per profit and loss statement

3/ Public profit is strictly defeined as a quasi-rent.

4/ All constant price series use 73/74 as the base year.

5/ "Rolling price" series are stock aggregations in constant prices of ([illegible] '72 prices in '72, etc.).

The reason for this may be seen by looking at the reconciliation of public and private profit in Table Three. Public profit differs from private profit in three ways: first, it includes other distributions of the surplus (depreciation, taxes and interest); second, it excludes various non-operational sources of income (interest earnings, subsidies, net non-operational income); and third, it deducts the opportunity cost of working capital. Any of these factors can create a divergence between public and private profit, but the major difference in this case is in the subsidy paid to the firm. This rose from Rs. 40 million to Rs. 150 million, but half of this was taken back in increased taxes. The result is that public profit declined substantially while private profit increased. Now there is nothing wrong — and much to be said in favor of — an explicit government subsidy as a means of financing an enterprise whose output is underpriced as a result of government policy. However, it is essential that changes in this policy should not be interpreted as indicating better — or worse — enterprise performance. Private profit went up largely because of the rise in the subsidy, not because of greater efficiency.

Second, note that public profit at market prices has deteriorated while public profit at constant prices has risen. This shows that the prices of inputs have risen more than the prices of outputs. This means that the decline in the surplus is due to the enterprise not passing on all the price increases, but instead absorbing some of the increase in lower surplus. In constant market prices, efficiency has actually increased between 75/76 and 78/79.

Third, the surplus at shadow prices is substantially greater than at market prices. This is largely the result of two offsetting

Table Three

PUBLIC VERSUS PRIVATE PROFIT
PAK AMERICAN

	75/76	76/77	77/78	78/79	79/80
Private Profit	1.4	-4.1	7.9	5.6	38.8
Plus Other Distributions of Surplus					
Depreciation	6.9	7.2	6.5	10.5	10.7
Taxes	6.2	1.9	5.6	9.3	78.0
Interest Payments	1.0	0.9	0.5	0.5	0.2
Less Non-Operational Sources of Surplus					
Subsidies	0.0	5.6	17.6	39.9	150.4
Interest Earned and Misc.	2.2	2.1	2.3	-5.5	3.8
Less Op. Cost of Working Capital	7.1	7.8	7.8	7.4	8.0
Equals Public Profit	6.1	-9.7	-7.3	-16.1	-34.4

distortions. The market price of fertilizer is one-third of the shadow price, but most of the resulting rise in surplus is offset because the market price of the major input (natural gas) is one-sixth the shadow price.

Fourth, the trend at constant market prices is quite similar to the trend at constant shadow prices, as was predicted earlier. There is, however, one major difference. In constant market prices the surplus is greater in 78/79 than in 75/76 whereas in constant shadow prices it is lower. The reason for this can be seen from Table Four which breaks down the components of public profit. The difference is that intermediate inputs have risen at constant shadow prices while remaining almost unchanged at constant market prices. This in turn is because the biggest increase in quantity over the period has been in natural gas. Because it is underpriced, natural gas is only one third of total intermediate-input costs in market prices whereas it is two-thirds of total intermediate input costs at shadow prices. Accordingly the weight of the natural gas quantity change is twice as high at shadow prices and the increase at constant costs is greater.

Fifth, in this case, moving to profitability by dividing through by the quantity of capital adds nothing to the story because the quantity of capital is essentially unchanged over the period. In comparing across firms, of course, this adjustment would be critical. The only point worth noting is the egregiously misleading picture of asset stocks given by the accountants' measure. Because of exaggerated depreciation and failure to account for price changes, the accounting figure shows a continual decline in the quantity of capital, whereas in fact the manager has essentially the same stock of fixed capital to

Table Four

DECOMPOSITION OF PUBLIC PROFIT

	75/76	76/77	77/78	78/79
I. At Constant Market Prices				
Output	56.3	58.0	56.6	56.4
- Intermediate-Inputs	28.3	32.9	28.6	28.1
- Wages (and Rent)	7.5	7.5	7.1	7.0
- Op. Cost of Working Capital	5.4	5.2	4.5	4.4
= Public Profit	15.2	12.3	16.3	16.9
II. At Constant Shadow Prices				
Output	164.8	167.9	161.7	166.4
- Intermediate Inputs	101.9	109.7	102.0	107.6
- Wages (and Rent)	6.2	6.2	5.9	5.8
- Op. Cost of Working Capital	8.0	7.8	6.8	6.6
= Public Profit	48.6	44.1	47.1	47.2

work with over the entire period. This is of course not a criticism of the Pak American accountants, who are simply following the standard conventions.

Sixth, the figures illustrate the dangers of drawing conclusions from partial proxy indicators of performance. Capacity utilization is the highest in 1976/77 (Table Two, Line IV) whereas all the measures of surplus are lowest in that year. There are two reasons for this. First, capacity utilization only measures the output of the major product whereas the output of subsidiary products declined in 76/77, offsetting some of the primary increase. Much more importantly, in 76/77 the quantities of inputs consumed rose even more than the quantity of output, meaning that the firm's net contribution to the economy was lower, even though capacity utilization was higher.

These numbers do not tell the final story for Pak American. In part this is because some of the price indices need refinement. More importantly, account must be taken of special circumstances. Was there an unexpected shut-off of natural gas or electricity? Was there labor unrest due to external political factors? These are the kinds of questions that would have to be raised in a review meeting. The point is not that these indicators provide a final answer to the performance evaluation question. The point is only that if senior officials entered the review meeting armed with a page of such indicators, they would be far better equipped to judge managerial performance and to find ways of improving the enterprise's contribution to society.