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Approaches to Performance Evaluation of Public Enterprises

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The need for a comprehensive framework for evaluating public enterprises performance is underscored in view of the complex mix of commercial and social objectives pursued by public enterprises as well as their multi-dimensional impact in the environment. The framework is defined in terms of the basic criteria of efficiency and effectiveness. The efficiency criterion distinguishes between economic/managerial efficiency and allocative efficiency. Specific measures of efficiency include public and private profitability, net present value, and internal rate of return. Effectiveness, as the other dimension of performance, focuses on the relationship between enterprise output and specific goals in society which the public enterprise aims to address. The extent to which an enterprise accomplishes its intended goals through the convergence of official and operational activities, and the extent to which targets are reached would in turn affect significantly the direction of managerial and allocative efficiency measures.

Introduction

The study attempts to formulate a comprehensive framework for evaluating the performance of public enterprises in the Philippines. A comprehensive framework is necessary because public enterprises generate multi-dimensional impacts in a complex environment. The weaknesses and dangers of relying upon a single criterion or a limited set of criteria also provide an argument in favor of a comprehensive approach.

In assessing the performance of public enterprises, the criteria of efficiency and effectiveness are employed. The efficiency criterion is understood in both its economic and managerial as well as allocative efficiency aspects. Measures of managerial efficiency include private and public profitability, present values, and internal rates of return. Effectiveness, on the other hand, is defined by the congruence between official and operative goals, and the extent of goal accomplishment. Figure 1 presents the framework for evaluating public enterprise performance.

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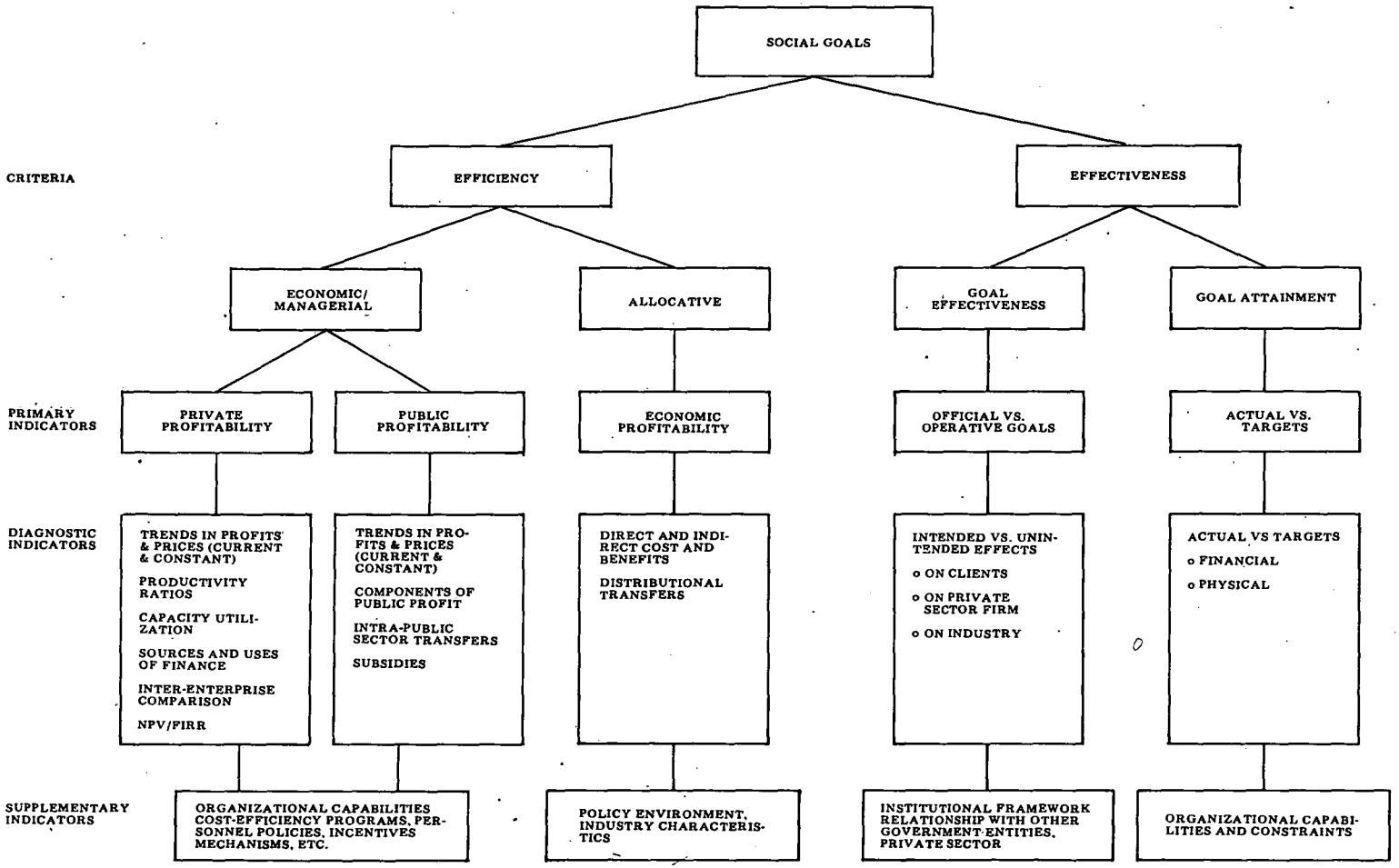
Figure 1. Framework for Evaluating Performance of Public Enterprises



The framework suggests the use of the concept of public profit as a method of adjusting private profit for the effects of intra-public sector transfers, including subsidies. It illustrates how comparisons of indicators at current versus constant prices can isolate for exogenous effects. It also suggests the use of net present value (NPV) as a performance (ex post) criterion as differentiated from its conventional application as an investment (ex ante) criterion.

The applicability of the evaluation techniques to the various categories of government corporations still has to be determined. Thus, while the methods suggested consist of the application of the general principles of financial and economic analyses, they may have to be adjusted in practice to suit the specific nature of the enterprise activity.

Key Concepts in Performance Evaluation

Performance Criteria

Efficiency. Broadly defined, efficiency refers to the relationship between outputs and inputs. Scholars of public administration, notably in the United States, have been preoccupied with the concept of efficiency as a measure of organizational performance ever since the early 1900s. According to Ilchman, no question other than that of the relative productivity of public organizations has so preoccupied students of public administration.[1] Waldo expresses the stronger view that efficiency has in fact become the central objective of the administrative discipline, such that even books claiming to bear on other questions have used increasing productivity as the final clinching argument for some changes in organizational form or power relationships.[2]

Productivity is sometimes synonymously used with *efficiency* as it also relates to the relationship between output and input(s). C. Y. Wu, however, makes this useful distinction: efficiency expresses the relationship of output to *all* the inputs in aggregate form (weighted in terms of real money costs); productivity, meanwhile, is input-specific, hence, one refers to labor productivity or capital productivity.[3] This distinction is adopted in the study.

Another useful distinction in understanding the concept of efficiency is the concept of *technical efficiency* vs. *economic efficiency*. Technical efficiency refers to the minimization of the quantity of inputs and/or the maximization of output. Economic efficiency refers to the same relationship but in pecuniary or money terms; hence, it is sometimes referred to as cost efficiency.[4] *Managerial efficiency* is a related but broader concept which generally involves the elimination of waste, the maximization of output and the exploitation of technological and market opportunities.

In this study, the terms *economic*, *managerial* and *cost efficiency* are used synonymously to refer to the relationship between outputs and inputs. The study also makes a distinction between two levels of economic efficiency: firm-level or micro efficiency and macro-efficiency. The former concept corresponds to the definition of economic or cost efficiency, i.e., output is maximized by minimizing unit cost of production or by achieving a least cost combination of factors.[5] The latter concept refers to the maximization of society's welfare through the proper allocation of resources, or what is generally referred to as *allocative efficiency*.

Allocative Efficiency. Allocative efficiency is generally concerned with the optimal allocation of resources to bring about the maximization of social welfare. The problem of allocative efficiency has been defined in terms of the Pareto criterion which postulates the general condition by which optimal resource allocation can be achieved, namely, that a given economic arrangement is efficient under condition whereby no one can be made better off without making someone else worse off.[6] To fulfill this condition, marginal social costs must equal marginal social benefits for all activities in society. In the real world, however, this condition is not possible. While the Pareto criterion provides a logical starting point for assessing the efficiency of a given policy package, it has remained as a pure theoretical construct. For one, it has not been possible to make inter-personal comparisons of utility.[7] Also, marginal cost pricing may obtain only in certain sectors of the economy partly because of technical considerations (as in the case of decreasing-cost industries or monopolies), or externalities (as in the case of a firm whose activities generate pollution, the costs of which do not enter the firm's price calculation). The latter is one instance when the collective results of welfare maximizing individual actions do not necessarily correspond to a maximization of social welfare. In these two cases, the market, by itself, cannot be relied upon to produce Pareto-efficient results. There is then an argument for government intervention to establish arrangements as may be necessary towards increasing social welfare maximization. Public enterprise is one form of this intervention. To assess public enterprises as a form of intervention to achieve allocative efficiency, the benefits and costs to society of its activities are compared at their scarcity value or opportunity cost.

Effectiveness. Another criterion for measuring organizational performance that has caught attention in recent years is *effectiveness*. There are a number of effectiveness models which have been developed to analyze organizational behavior.[8] This study uses the goal model because it is the most appropriate for the subject of performance appraisal. In its broadest sense, the goal model defines effectiveness as the degree by which an organization's goals are achieved, hence, the term *goal-effectiveness* is also invariably used.[9] The concern with effectiveness coincided with the theoretical works in public administration which placed emphasis on the organization's role in and impact on the environment, and the genesis of a new body of literature called development administration which focused on planned

interventions calculated to raise aggregate levels of output in the economy.[10] At about the same time, the preoccupation with goal achievement in business was also prevalent. Under the management-by-objectives (MBO) concept, the indicator of performance is the extent to which set goals are achieved.

Goal-effectiveness implies a link between the output of an organization and a given set of goals. The goal model, however, is more complex than its simple definition would suggest. Thus, a more precise understanding of the nature of goals may be necessary. This aspect is discussed in more detail in the latter part of this study.

Performance Indicators

Performance indicators are the quantifiable expression of standards as they relate to a specific goal or objective. By definition, indicators are to a large extent goal-specific. Thus, it is relatively easier to find general acceptance of a specified set of performance criteria rather than peformance indicators.

Figure 1 lists the performance indicators in relation to the performance criteria of efficiency and effectiveness. It is important to note that the system of indicators addresses both the issues of enterprise (micro) efficiency and allocative (macro) efficiency and effectiveness. The former focuses on managerial efficiency while the latter zeroes in on the contribution of the enterprise to the economy and to social welfare. Managerial efficiency is affected by both endogenous and exogenous factors. Endogenous factors are those which can be controlled by enterprise managers; exogenous factors are those which cannot be controlled. Exogenous factors are identified and, where feasible, their effects are isolated, as in the case of price changes. Managerial efficiency is a significant factor contributing to allocative efficiency, although it is possible to have a situation where managerial efficiency is traded off for social objectives. But while trade-off situations may arise, it does not necessarily follow that less managerial efficiency would lead to more allocative efficiency. Managerial efficiency therefore remains an important aspect of public enterprise assessment, if not the more immediately relevant concern of decision-makers in the public enterprise sector.

The system of efficiency indicators consists of primary, supplementary and diagnostic indicators. Primary indicators include private, public and economic profitability indicators for assessing economic/managerial and allocative efficiency; and goal attainment for assessing effectiveness. Diagnostic indicators are used to explain movements in primary indicators. Supplementary indicators cover dynamic aspects which can only be rated subjectively, but not quantified. In this study, supplementary indicators focus on organizational capabilities, more specifically on the adequacy of the planning system, the existence of an incentives system for personnel, and performance evaluation practices, among others.

Among the primary indicators used for assessing managerial efficiency, private profitability derived from conventional commercial accounting system is the most commonly used. Although the Commission on Audit (COA) has attempted to institutionalize the use of these concepts since 1982 through the system of comprehensive audit,[11] the extent of its application has been very limited. This could be explained partly by the lack of personnel adequately trained for this purpose, the difficulty of identifying specific data requirements and the setting up of systems required for such a comprehensive review.[12]

Criterion Values

Criterion values are weights assigned to standards to aid in judging the performance of an enterprise. It distinguishes between "bad," "average" and "good" performance. Implicitly, the criterion value recognizes the existence of enterprise-specific constraints which affect the ability of the enterprise to attain a certain level of performance. Jones suggests some practical approaches to the setting up of criterion values:[13]

1. A scale of values may be drawn up based on standards applied to similar firms in the industry and the average value be made the criterion value;

2. Performance indicators may be compared to a past and an expected or future value in order to determine the magnitude and composition of change over time;

3. Professional judgment of government officials, industry and financial experts may be solicited.

The problem with the first approach is that the number of "similar" firms (public as well as private) relative to a public enterprise is usually small. Where it is feasible, however, some caution must be exercised in paying attention to the peculiarities of the firm in terms of size, nature of activities (e.g., multi-product lines) and firm-specific problems (e.g., unions).

The second approach (i.e., comparing present indicators with past or future values) already presupposes that an allowable deviation has been determined, either arbitrarily or based on some technical comparisons.[14] Jones suggests that the best comparison to be made is to compare the enterprises with itself in different periods. The enterprise most similar to enterprise A in year t is generally enterprise A in year t-1.[15] Here, the trend in performance becomes the criterion value against which the enterprise is judged. Jones cautions, however, that even under this type of comparison, the evaluator should consider that the changes occurring between two periods may significantly affect enterprise performance. Also, a poor performance last year can hardly be the best gauge for judging performance this year.

The inherent limitations of each approach require the use of professional judgment in defining the criterion values. To minimize the element of subjectivity, close consultations with the public enterprise and its supervising ministry are necessary.

Measures of Managerial/Economic Efficiency I: Private Profitability

Meaning of Private Profitability

Private profitability refers to the measurement of financial surplus derived from the conventional accounting systems used for private firms. Profit is the surplus that results from an efficient management of the firm's resources and from appropriate and timely decisions calculated to overcome constraints and take advantage of opportunities in the environment. Profit can be measured before or after interest and taxes, and can be related to sales or investment to gauge the profitability of the firm's operations.

Private profitability indicators are commonly used for performance assessment of public enterprises based on the expectation that they are supposed to generate surplus, either to finance their own operations or to contribute to overall resource mobilization objectives. The same logic used for private firms is applied, that is, a public enterprise will be profitable if it is efficiently managed.

Primary Indicators

The primary indicators cited to measure private profitability are as follows:

1. *Net income after taxes.* This indicates the firm's ability to cover expenses, including claims of government (taxes) and debtors (interest), and to generate surplus for distribution to stockholders and/or for reinvestments.

2. *Private profitability rate of return.* This measures the return to total assets employed by the firm. The more appropriate numerator to use in this case is net income *before* interest and taxes. Since interest is deducted as an expense, it is added back in order to take into account the fact that part of the firm's assets is financed by creditors.

3. *Net present value (NPV).* This measures the present worth of the firm's net cash flows. The discount rate used is the required rate of return which represents the cost of equity and debt in the capital market.

4. *Financial interest rate of return (FIRR).* This is the rate of return on the firm's investments that equates the present value of cash inflows with

the present value of cash outflows. If the FIRR is greater than the required rate of return, then the investment is worthwhile.

The use of the last two indicators, i.e., NPV and FIRR, as performance (*ex post*) criteria rather than as investment (*ex ante*) criteria will be discussed subsequently.

Diagnostic Indicators

A number of diagnostic indicators are used to trace the sources of profits or losses and to account for managerial inefficiencies. These include the level of capacity utilization, factor productivity ratios, sources and uses of finance, and inter-temporal and inter-enterprise comparisons.

Level of capacity utilization. High profits combined with a low level of capacity utilization may indicate that the firm is charging too high a price because it finds itself in a monopolistic situation. On the other hand, losses accompanied by high levels of capacity utilization may indicate that prices are set too low, or fixed costs are too high. Under this situation, the trend in variable costs may also be examined considering that the rise in variable cost may have been faster than the adjustment in output price. This may establish the case for the firm to raise prices. However, a faster increase in variable cost relative to fixed cost may also be a result of managerial inefficiency which could be explained by examining: (a) the trend in the share of raw material inputs to output to determine wastage; (b) inventory turn-over ratio to determine excessive stockpiling which could add up to costs; and (c) the trend in productivity.

Factor productivity ratios. In general, factor-productivity ratios indicate the relative efficiencies in the use of capital or labor in the production of the firm's output. A firm can either be capital— or labor-intensive, depending upon the production technology that it applies. Labor productivity is measured by the ratio of output to employee compensation and is used to indicate how much output is generated by each monetary unit paid to labor. As the capital-labor ratio increases, it is expected that labor productivity will also increase regardless of whether or not capital productivity increases. Capital productivity is measured by the ratio of output to net fixed assets to indicate how much output is generated by capital (net of depreciation). Output-input ratio is measured by the ratio of output to input. It indicates the relative efficiency of the enterprise in the use of material inputs to production.

Sources and uses of funds. An analysis of the firm's major sources of funds indicates what portion of its growth is financed internally or externally. An analysis of the financing mix of the enterprise relative to its requirements, i.e., whether for fixed assets or for working capital, also indi-

cates its capabilities to service debt. The source of operating revenues is important in determining the thrust of the firm's activities and their relative contribution to income, while the trend and composition of operating expenses indicate relative expenditures on inputs and the likely results of management's efforts to keep them at efficient levels.

Inter-temporal and inter-enterprise comparisons. Private profitability indicators can be compared with those of similar public or private enterprises operating within an industry or sector. Such comparison controls for external factors to some extent, the assumption is that the firms being compared are faced with the same market and policy environment. Inter-enterprise comparisons, however, must be approached with caution because the number of similar firms are very few in reality. Aside from differences in size, there are firm-specific advantages and disadvantages which may account for different levels of performance. Jones' proposition that the enterprises most similar to enterprise A at time t would be no less than enterprise A at time $t-1$ suggests that the trend in profitability is a better indicator of managerial efficiency than inter-enterprise comparisons.

Limitations of Private Profitability Indicators

Although private profitability indicators can be used for assessing managerial efficiency, there are a number of reasons why they are inadequate for assessing public enterprise performance from the point of view of government.

1. *Subsidies.* The first limitation involves the hybrid character of public enterprises. Since they are instruments of national policy, public enterprises frequently combine both commercial and non-commercial objectives. Public enterprises are usually created to promote social objectives that would be consistent with social profit maximization but inconsistent with private profitability.[16] To support this hybrid role, government provides implicit and explicit subsidies either to offset market distortions and/or bring about cost advantages as a result of some distributional considerations. For instance, public enterprises often enjoy implicit subsidies in the form of tax and tariff exemptions on material inputs or explicit subsidies such as price support on output. Under such circumstances, the actual prices paid by the enterprise for inputs and outputs will not reflect the true cost of these items to society. These transfers are "hidden" in conventional accounts, thus making profitability indicators an inadequate measure of performance.

2. *Accounting Categories.* Conventional accounting is not reflective of stocks and flows that would enable the government to measure the economic value generated by the enterprise. A public enterprise is comprised of a stock of assets which yield flows of value to different sectors. From the point of view of government, it is important to measure and trace the direc-

tion of these flows of value to the different sectors in the economy. To do this, the transactions of the enterprise as reflected in its financial statements may have to be reclassified into relevant economic categories.

3. *Economic vs. Allocative Efficiency.* Private profit may only be indicative of market imperfections. Under perfectly competitive conditions, efficient industries can earn only "normal profits", i.e., that quantum of profit that would just induce the entrepreneur to remain in business.[17] In the absence of perfect competition and Pareto optimal conditions, profit maximization can be a misleading gauge of enterprise behavior. Monopolistic conditions obtaining in an industry can lead to excessive profits and thus to inefficient allocation of resources. This brings out the central problem of resource allocation efficiency as distinguished from economic or managerial efficiency.

4. *Valuation at Opportunity Costs.* Accounting prices of inputs and outputs do not reflect their scarcity value in the economy, i.e., they do not measure the value of output foregone if the same resources were put to their best alternative use. Thus, from the point of view of government, the correct valuation of inputs and outputs would be their economic price or opportunity cost. To make the necessary adjustments, shadow prices can be applied to the enterprise's major resources operating in markets characterized by price distortions, namely, labor, land, foreign exhange and capital. To be sure, there are also benefits foregone due to the subsidies being provided by government to public enterprises. These foregone benefits — or what is called opportunity subsidies[18] — are the converse of opportunity cost. It reflects the benefits foregone by other sectors as a result of the subsidy enjoyed by the public enterprise. As with opportunity cost, the opportunity subsidy must be compared with its best alternative use in the economy (e.g., an income transfer to the poor).

5. *Exogenous Factors.* Private profits may not correlate directly with managerial performance if managerial decision-making is constrained to a large degree by pressures in the environment. For instance, a public enterprise may be pressured to price its output at lower than market prices because of government's desire to subsidize, say, the farmers. Other exogenous factors like the sudden rise or drop in international commodity prices would affect the level of profits without necessarily reflecting on the efficiency of the enterprise manager.

Supplementary Indicators

Supplementary indicators are intended to capture the dynamic elements affecting managerial performance within the enterprise. They focus on processes which have been set in place to help the enterprise move towards a certain performance level in the future. The concern for future

effects, however, may not be as pressing for the public enterprise manager whose control of the firm is divorced from ownership and longer-run expectations of reward. To the extent that this concern is limited, there is a case for examining processes that will aid the evaluator in explaining the trend in primary and diagnostic indicators and help him anticipate future levels of performance of the enterprise manager.

Measures of Managerial/Economic Efficiency 2: Public Profitability

Adjusting Private Profit to Account for Social Objectives

Most public enterprises have a mix of commercial and non-commercial (social) objectives which must be directly dealt with in evaluating the performance of enterprise managers. For as long as social objectives continue to be used as an ex-post justification for poor performance, the signalling system for enterprise managers is bound to fail. The important question therefore arises as to how the achievement of non-commercial objectives can be quantified and incorporated into the performance evaluation system.

Jones suggests a system of social adjustment accounting by which the costs and benefits of meeting non-commercial objectives are quantified and explicitly entered into enterprise accounts.[19] The nature of the adjustments may vary depending on the mix of commercial and non-commercial objectives as specified in the enterprise charter.

Although the public enterprise charter specifies only commercial objectives, non-commercial objectives may be mandated by government in the course of the enterprise's operations. One way of dealing with this case is for the enterprise to enter into a bargain with government for the latter to compensate it for the incremental costs incurred in pursuing such non-commercial objectives.[20] This has actually been done under the Program Contract System in France. The advantage of this system is that it allows the pursuit of non-commercial objectives, controls the costs involved, and exonerates the manager from making this mandate an excuse for poor performance on the commercial side.

A variant of the compensated approach is for public enterprise not to be reimbursed for the cost of pursuing the non-commercial objective but to reflect the costs incurred as a transfer *below* the profit line.[21] The expenditure may be treated as a dividend paid in kind to the government. This uncompensated version is a form of internal cross-subsidization. The advantage of distinguishing the costs incurred for commercial and non-commercial objectives, however, is kept in the consciousness of the evaluator as well as the enterprise manager.

In some cases, the public enterprise charter specifies both commercial and non-commercial objectives and enjoys both implicit and explicit subsidies from the government. Consider an enterprise with mixed objectives which sells its output at lower than market price because of a conscious government decision to subsidize a special group and purchase its inputs also at a preferential price. In the case of outputs, the enterprise receives an explicit subsidy from the government in terms of price support; in the case of inputs, the enterprise may enjoy implicit subsidies in the form of tax and tariff exemptions and/or preferential interest rates on loans.

One way to make accounting profits truly reflect managerial performance in this case is for the government to compensate the enterprise by a per unit subsidy on input or to levy a per unit tax on the output. Actual compensation by the amount of a per unit tax or subsidy may, however, be a very cumbersome process.[22]

Another practical alternative would be simply to adjust revenues and expenses by crediting output subsidy to sales and debiting input subsidy to manufacturing cost, with the net effect entered *per contra* as a social dividend paid in kind to the government.[23] In this manner, accounting profit would reflect a more accurate level of surplus by which managerial efficiency can be better judged.

There are also public enterprises organized purely for non-commercial objectives but with financial viability still as a goal. Diokno suggests that financial viability in this case should mean cost recovery rather than the realization of profits or surplus.[24] Essentially because of its social orientation, the public enterprise may be required to recover only its current costs (including the imputed value of subsidies) and interest expenses.

If performance is below cost-recovery level (i.e., subsidy is positive), the government may have to decide whether this is due to managerial inefficiency and, if so, what improvements can be instituted within the firm, or, if not, whether society's valuation of enterprise objectives is at least equal to or greater than the amount of all subsidies, in which case the public enterprise's operations can still be subsidized; or whether a regular line agency rather than a public enterprise may be a more cost-effective means of providing the service.

The problem with the second decision is that it is usually difficult if not impossible to measure the entire stream of benefits arising from the provision of a social service. Thus, instead of comparing benefits with costs, a comparison of average cost per unit of effectiveness (cost-effectiveness) may have to be applied.

The Concept of Public Profit

Jones introduces the concept of public profit as the more relevant measure of public enterprise performance. He defines public profit as a single

period measure of variable social costs less variable social benefits, that is, the difference in the value to society between what the enterprise takes out of the economy (costs) and what it puts back (benefits) in any one period.[25] It is a measure of the firm's surplus less the opportunity cost of generating that surplus. In terms of conventional accounting categories, public profit is defined as:

Private profit

\+ Taxes

\+ Depreciation

\+ Interest payments

— Subsidies and other non-operating sources of income

— Opportunity cost of working capital

It should be noted that public profit measures financial surplus from the government's point of view by the following adjustments to private profits:

1. Adding back taxes and interest expense which are due to the public sector (for interest expense, the assumption underlying Jones' definition being that the creditors are publicly—owned banks);

2. Adding back depreciation which is conventionally treated as an expense but which under the public profit concept is a source of surplus to the firm; this is so because there is no actual cash outlay for depreciation;

3. Deducting subsidies and other non-operating sources of income; in the case of subsidies, these represent real resource costs to the government, while in the case of non-operating sources of income (i.e., interest and dividend earnings), these represent surplus generated by the public enterprise as a financial intermediary rather than as a producer of value; and

4. Deducting the opportunity cost of working capital which represents the benefit foregone from alternative uses of the capital employed by the firm for the year.

In essence, what the measure of public profit does is to reclassify the costs and benefits of the enterprise's operations from the point of view of government by adjusting the accounts for intra-public sector transfers and subsidies.

Public Profitability Indicators

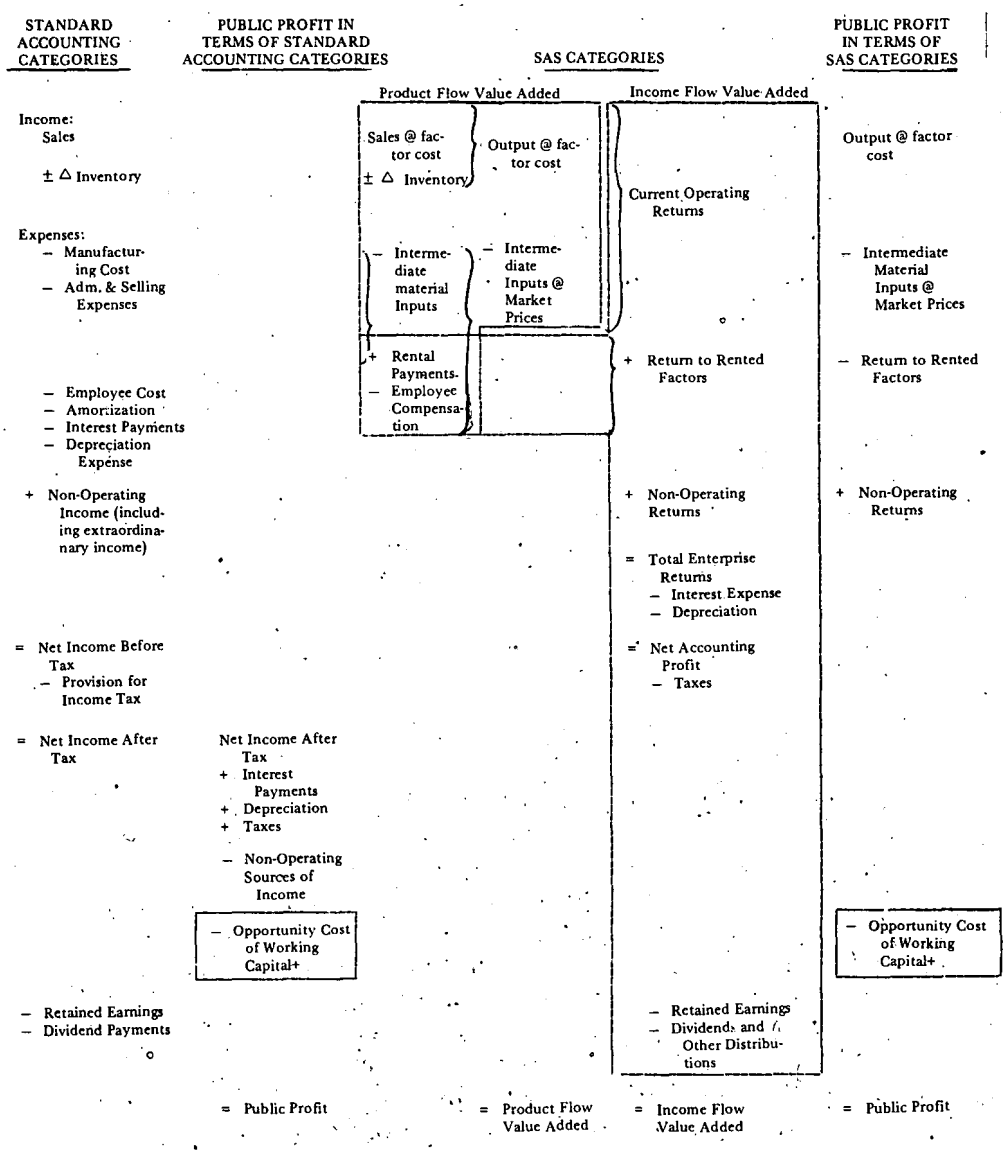
Like private profit, public profit can be used as a measure of performance by examining its trend over a period of time. Intertemporal analysis enables the evaluator to isolate firm-specific constraints based on the reasoning that the enterprise most similar to enterprise *At* is enterprise *At—1*. Public profits can also be related to operating assets to measure the public returns to the operating assets employed by the firm. Since public profit is basically a measure of the current operating surplus of the firm, its relationship to operating assets indicates the relative efficiency of the firm as an owner of assets used as factors of production. To use public profit as a basis for inter-enterprise comparison, one must therefore use the net operating income-to-operating assets ratio of the private enterprises being compared.

Like private profitability indicators, public profitability indicators valued at current market prices can be converted into constant prices to isolate for the effects of price changes. It can also be converted to shadow prices to reflect the scarcity value of inputs and outputs to the economy. Public profits valued at shadow prices would indicate the magnitude of the enterprise's contribution to basic socio-economic objectives at a given period and the result of marginal changes in the availability of outputs and inputs involved in enterprise activity.

Public Profit and the Social Accounting System

As earlier described, public profit can be estimated through a series of adjustments in conventional financial statements. Alternatively, it can also be estimated through the use of the Social Accounting System (SAS) for public enterprises developed by Jones and II Sakong.[26] While the study primarily relies on the first method, it is also useful to understand the additional applications that could result from the second. Although public profit as a measure for evaluating managerial efficiency can result from firm-level estimates, it is important to note that the SAS, much like national income accounting, works best in comparing the relative economic contribution of the public enterprise sector to the economy. This is so because the SAS translates business accounts into relevant economic categories: it measures the value added by the enterprise in the exercise of its role as a producer and as a renter of factors and relates the value-added flows to relevant asset stocks in the sources-and-uses of funds accounts. Thus, by using the SAS, one can have an idea of the distribution of public profit into the different components of value—added (Figure 2).

Figure 2. Schematic Diagram of Public Profit in Terms of Standard Accounting and SAS* Categories



* Social Accounting System
\+ Derived Account

Measuring Allocative Efficiency Through Benefit-Cost Analysis

Economic analysis involves the determination of the desirability of an investment activity in terms of its net contribution to society. The decision rule for public sector activities subjected to economic analysis is this: an activity is economically desirable if its benefits exceed its costs. This rule implies that if such a decision is consistently applied to all activities in society, the largest possible benefits could be generated to maximize social welfare. Public profit at shadow prices is one form of benefit-cost measure except that only monetary receipts and expenditures are involved and benefits and costs are not made comparable across time.

The Methodology of Benefit-Cost Analysis

Benefit-cost analysis involves 1) the identification of benefits and costs at the time when they occur; 2) the valuation of these benefits and costs at shadow prices; and 3) the application of the social time preference rate.[27]

Identification of Benefits and Costs. Benefits and costs are of two types: direct and indirect. Direct costs and benefits refer to those accruing to the enterprise directly. The logical starting point for their identification is the firm's financial cash flows where monetary receipts and expenditures are recorded. Indirect costs and benefits, on the other hand, are those accruing to entities other than the enterprise itself.

In using the financial cash flow as one source document for the identification of direct benefits and costs, some adjustments similar to those undertaken in the application of benefit-cost analysis to projects are made as follows:

1) Indirect taxes on inputs are deducted from costs because they merely represent transfers to government; subsidies on inputs are imputed to input costs because they represent the use of real resources;

2) Indirect taxes on outputs (or benefits) are not netted out of market prices since they are part of the consumer's valuation of the product; subsidies are not added to market prices;

3) Payment of interest, amortization and other financial charges are not considered since they merely represent financial transfers from the enterprise to the lender.

Indirect costs are those which the public enterprises does not pay for, and indirect benefits are those which other units in society outside of the public enterprise enjoy. Externalities may be positive (treated as benefits)

or negative (treated as costs). Externalities can normally be determined by examining the linkages between the activity and the extent to which it affects output and prices paid by other activities. There is danger, however, in over-expanding the valuation of the economies or diseconomies of an economic activity. The rule of thumb suggested here is that they should be measured with prudence, and that measurement should only be done if the data collected are comprehensive enough.

Because of the inherent difficulties involved in identifying and quantifying benefits and costs, only direct ones are usually considered in economic analysis. Where the cost of data collection is far too great, a practical solution is always to limit the list of costs and benefits. In order to avoid logical errors in deciding which benefits and costs to include, the guiding principle is to list all parties directly and indirectly affected by the enterprise, determine the extent to which they are significant to the analysis, and establish the extent of quantification which is both possible and practical for each item.

Consumers Surplus. An alternative approach to the measurement of direct benefits and costs using financial cash flows is the use of consumers' surplus analysis. The literature broadly defines consumers' surplus as the difference between the maximum amount the consumer would be willing to pay for a given output or what the producer would charge (if he could practice perfect price discrimination in a perfectly segmented market), *versus* the amount that he actually pays at a market or regulated price.[28] The question now arises as to how consumers' surplus as a measure of direct benefits can be used to evaluate public enterprise performance.

Valuation of Benefits and Costs. Shadow prices are used in place of market prices to calculate the benefits and costs associated with a project or an enterprise in order to reflect their relative scarcity value or opportunity costs. Squire and van der Tak define shadow prices as "the value of the contribution to the country's basic socio-economic objectives made by any marginal change in the availability of commodities or factors of production."[29]

For most commodities, the estimation of shadow prices often begins with the exclusion of the tax components built into the price of the commodity. In the absence of additional information regarding the market situation concerning the commodity, the without-tax price of the good is taken as the shadow price. Conversion factors are then computed, with the shadow price as numerator and the market price as denominator.

The Social Time Preference Rate or the Social Rate of Discount. Benefits and costs occur at different points in time, in which case the problem involves a temporal dimension, namely, how to make the stream of benefits and costs in the future, or in the past comparable to benefit-cost values in a particular reference time period (say the present). To make benefits and costs comparable across time, their present values are estimated with the use

of a social discount rate. A discount rate is then applied to all future benefits and costs to make them comparable to present benefits and costs, where the discount rate is simply the additional amount which wil make money in the following year (say year 1) equal in real value to society of the original money value in the previous year (year 0), divided by the nominal value in the previous year.

Using the rate-of-return to manufacturing approach, the incremental capital-output ratio approach, and the international borrowing rate approach, Medalla and Power have suggested three different estimates of the social discount rate (under an optimum savings regime). The estimates ranged from 13.8 to 14.5 percent, the latter being obtained from estimates of the international borrowing rate.[30]

The NPV as a Performance Criterion: Methodology

Net benefits at shadow prices discounted by the social time preference rate would yield the net present value (NPV) of a project or an enterprise. Since benefit-cost analysis evolved basically as a technique for project evaluation, the NPV calculations generally consider the *future* stream of benefits and costs accruing to the project. A decision is made to invest in the project as long as NPV is positive.

Conceptually, however, the NPV could also represent the present value of *past* and *future* net benefit flows especially when the unit of evaluation is an existing enterprise and not a future project. The estimate of the present value of the enterprise's *past* net benefit flows is simply the reverse process of estimating future net benefit flows. Given that the present value of a *future* stream of net benefits is:

$$NPV = \sum_{t=o}^{n} \frac{(B_t - C_t)}{(1+r)^n} - KO$$

where: B_t = benefits at time t

C_t = operating cost at time t

K_o = capital outlays at the initial period

r = social discount rate

n = last year of operation of the enterprise

the present value of a *past* stream of net benefits is:

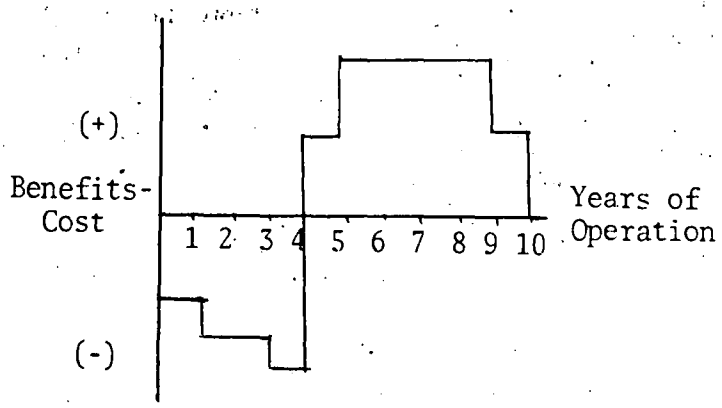
$$NPV = \sum_{t=o}^{n} (B_t - C_t - K_t)\ (1+r)^{n-t} = NCV$$

where n is the latest year of operation of the enterprise corresponding to the evaluation year.

The NPV in this case is what may be termed as the net cumulative value (NCV). The net benefit flows for each year in the past represent the additional amount which could have been reinvested to generate a stream of returns in the future. In bringing the value of such past net benefit flows to the present, one could simply compound such flows by the reciprocal of the discount factor (1 + r) to get the (NCV).

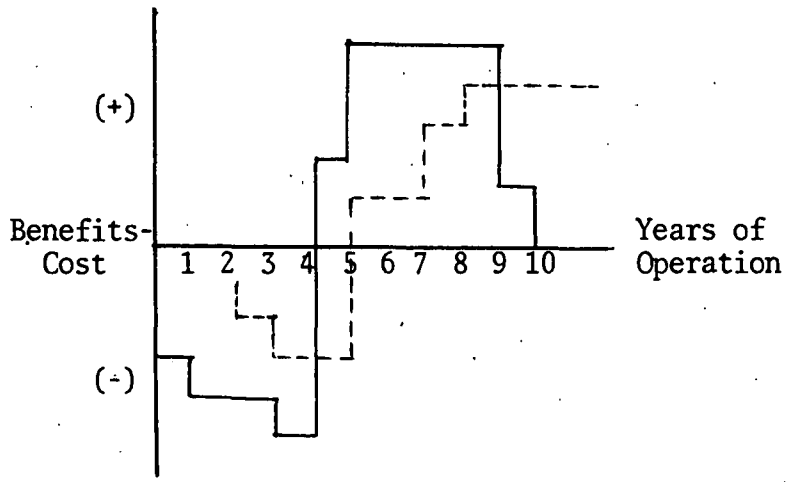
The estimate of future net benefit flows, however, poses a problem. Consider the simple case of an enterprise whose capital investment costs occurred at the initial years of operation. Assuming that the life of the assets is ten years and that no other capital investment outlays are incurred, the benefit (cash) flow profile of the enterprise would be as in Figure 3. If the evaluation takes place in year 7, the NPV of the enterprise would be the present value of the net benefits in years 0 to 7 and the present value of the net benefits from years 8 to 10. In this example, the benefits for the remaining three years would have been easily projected or estimated.

Figure 3. Benefit Profile of a Public Enterprises with No Additional Capital Investment Outlays



In the real world, however, the benefit (cash) flow profile of a public enterprise is more complicated. Capital outlays are incurred throughout the years of its operation and while it can be done, the last year of its asset's useful life is difficult to determine. More difficult is the estimate of benefits or revenues accruing to the existing capital stock. The benefit (cash) flow profile of an enterprise in this situation is shown in Figure 4.

Figure 4: Benefit (Cash) Flow Profile of a Public Enterprise with Additonal Capital Investment Outlays



-------- Flows of capital investment project # 1
———— Flows of capital investment project # 2

The sum of the two flows constitutes the net benefit profile of the firm.

Given these characteristics, the most evident problem becomes one of estimating the future stream of benefits and costs for the enterprise. Even if the terminal year of the enterprise operations can be established (which is highly improbable), the problem of having to project benefits still remains a formidable task under a system of imperfect information.

One way out of this dilemma is to let the average annual net benefit flows of the enterprise estimated from prior years, $B_t - C_t$, represent the average yield of the enterprise's existing capital stock forever, assuming that no new investments are made. The NPV of the enterprise would then be $(B_t - C_t/r)$.

The problem with this approach is that it assumes that the existing capital stock would yield a uniform series of benefits in the future. It also assumes that pricing and investment decisions in the future will be based on the same parameters used today. Under a system of imperfect information, these assumptions become untenable because one is not able to determine the actual benefit flows resulting from a given quantity of capital stock.

A more practical solution is to simply add the salvage value to the sum of discounted past net benefit flows and assume that the evaluation year is the last year of operation of the enterprise. Thus:

$$NPV = NCV = \sum_{t=o}^{n} (B_t - C_t - K_t)(1+r)^{n-t} + SV$$

where SV = salvage value

This implies that capital expenditures are added to costs (deducted from benefits) at the time that they occur. Since we assume that the evaluation year is the terminal year of the project, the remaining value of the enterprise's assets is added to benefits. However, this still leaves us with the problem of obtaining the present value of the remaining assets.

One approach is to simply estimate the market value of the assets by hiring an appraiser. An alternative approach would be to use the remaining book value of the remaining assets provided revaluation of assets is undertaken at reasonable frequency. This approach needs to be qualified by certain limitations. If the undepreciated (accounting) book value, which is based on historical cost, is used, the estimate of the asset to be liquidated may either be: 1) *undervalued*, if between the period the asset was bought and liquidated there occurred a substantial increase in the general price level (e.g., a major devaluation), in which case the asset should be revalued corresponding to the increase in the price level; or 2) *overvalued* if there were no major price increases, but the asset has been misused, overused or poorly maintained, thus accelerating its depreciation (e.g., transport rolling stock). It must be noted however, that in both approaches, the appreciation or depreciation of the asset would be due largely to market developments and not to managerial efficiency or foresight.

The method of depreciating assets should take into account the peculiar nature or characteristics of the asset in order for the book value to be truly reflective of its remaining economic or useful life.

Applications of NPV as Performance Criterion

In using the NPV as an investment criterion for projects, the rule is to accept projects as long as NPV is positive. In cases where budget constraints do not make it possible to undertake all projects with positive NPVs, the investment rule becomes one of selecting projects within the budget where combined NPVs are maximized. In cases where there is no budget constraint, and a choice must be made between mutually exclusive alternative projects, then the one with the highest NPV is chosen.

In using NPV as a performance criterion, the level of NPV becomes the criterion value itself. The decision rule is not only to generate a positive NPV but to maximize it for the firm. The higher the NPV, the greater is

the contribution of the enterprise to social welfare leading to the direction of Pareto optimal conditions. Conceptually, the NPVs of all enterprises can be compared because all costs and benefits are valued by a consistent set of economic prices and are made comparable across time through the social time preference rate. Furthermore, the present value of the remaining assets is added to the sum of discounted net benefits.

As in project evaluation, however, there are certain peculiarities in the public enterprises which require the exercise of caution in making NPV comparisons. For one, the extent to which indirect costs and benefits can be quantified will affect the estimate of net benefit flows and may thus exert a bias against non-commercial (social services) oriented type of public enterprises. To minimize the dangers that may be caused by these factors, a practical solution would be to limit the comparisons to a sample which adjusts for these sensitivities. Also, NPV calculations on an ex-post basis are likely to be sensitive to the age of the enterprise as this will significantly have a bearing on the length of life of the assets.

In addition to its use as performance criterion, the estimation of the NPV suggested above allows the measurement of the marginal effect of new projects or additional investments to the NPV of the enterprise. Given a proposed project by the enterprise, all that is needed is to discount the net benefit flows and aggregate them to obtain the NPV as in conventional project appraisal. The NPV of the project may then be added to the estimate of the NPV of the enterprise as follows:

$$NPV_t^{e+p} = NPV_t^e + NPV_t^p$$

$$NPV_t^p = \sum_{t=0}^{n^p} \frac{(B_t^p - C_t)}{(1+r)\,t}$$

where: NPV^e = NPV of the enterprise

NPV^p = NPV of the project

$B_t^p - C_t^p$ = net benefit flows of the project

Thus, by using this approach, the project evaluator is able to judge the impact of projects relative to the enterprise's objective in maximizing its NPV.

Assessment of Goal Effectiveness

Performance evaluation is not complete without taking into account the effectiveness of an enterprise in achieving specific goals in a national

setting. The degree of effectiveness can be shaped by the design of programs and activities within the organization interacting with a complex and dynamic environment.

Effectiveness Models

A number of effectiveness models have been put forward to provide an explanation of organizational behavior. Four of them are presented briefly here, although some emphasis is given to the goal model for reasons that will be cited later.

The first is the *system-resource model* which views organizational effectiveness as the "ability [of the organization] to exploit its environment in the acquisition of valued resources to sustain its functions."[31] Resource acquisition, however, is relative to the capacity of the environment to provide resources, i.e., some organizations operate on "rich" environments while others operate on "poorer" ones. One criticism against this model is the observation that organizations do not resort to resource acquisition for its own sake but rather on the basis of perceived organizational goals.[32] The view presented by this model is also perceived to be overly narrow in that it appears to focus solely on the interests of organizational managers in sustaining operations of their units.[33]

The second is the *participant-satisfaction model* which gives emphasis to individual or group judgments about the quality of an organization. Persons in the organization are the focal point of these models and organizations are seen as incentive-distributing devices. Barnard sets the tone for this model by putting emphasis on the motives of individuals participating in organizations as the critical element for effectiveness.[34] Cummings qualifies Barnard's view, implying that there should be a congruence between individual and organizational goals for effectiveness to be achieved.[35] The major criticism against this model centers around the psychological formulations made about individuals and their link to the organization. Etzioni, for one, argues that people's involvement in organizations could be alienative, calculative or moral and that therefore congruence might hardly take place.[36] A more serious criticism of this model focuses on its inability to recognize that organizations are responsible to a larger group of members in society; thus, the judgment or perception of those people inside the organization might necessarily differ from those outside.[37]

The third model is the *societal function model* which is based on the issue of what organizations do to or for the society of which they are a part. Parsons puts forward the view that organizations are social systems in their own right and are therefore a part of the goal-achievement system of society.[38] The model, however, fails to address the issue of conflict and competition among different interest groups which limit the effectiveness of

organizations as instruments of the larger society which it is supposed to serve.[39]

The fourth model is the *goal-effectiveness model.* Etzioni defines goal-effectiveness as the "degree to which an organization realizes its goals."[40] This study uses the goal model in analyzing organizational effectiveness because the extent to which an organization realizes its goal has a direct bearing on both managerial and allocative efficiency. The model is thus most appropriate for the subject of performance appraisal. The goal model, however, is more complex than its simple definition suggests. A more precise understanding of the nature of goals is therefore necessary.

1. *Multiplicity of goals.* The first and major difficulty with the goal approach is that there is likely to be a multiplicity of organizational goals for public agencies. A public enterprise which have both commercial and social objectives is a concrete example of this case.

2. *Specificity of goals.* The enabling law creating public agencies usually states the organization's goals in very broad terms. These broad goals become much more specific in actual operations as they become subject to the interpretation of implementing officials.

3. *Official vs. operative goals.* Perrow makes this important distinction between official vs. operative goals:

> Official goals are the general purposes of the organization as put forth in the charter, annual reports, statements by key executive and other authoritative pronouncements. Operative goals designate the ends sought through the actual operating policies of the organization; they tell us what the organization is actually trying to do, regardless of what the official goals says as the aim.[41]

Operative goals may be linked directly to official goals; at the same time, operative goals which are unrelated to official goals can develop. Because operative goals are developed and modified through ongoing interaction patterns within the organization and its immediate environment, they may in fact change over time.

4. *Temporal dimensions of goals.* Organization goals, by definition, are creations of individuals, singly or collectively, and constitute the standard by which organizational performance is judged. Operative goals are more likely than official goals to change over time although the latter is also possible. New considerations may deflect the organization from its original goals, thus not only changing the activities of the organization but also becoming part of its overall structure.

Goals of organizations may change for a number of reasons, including:

a. *Direct interaction with the environment.* An organization can have a competitive, bargaining, cooptative or coalitional relationship with the environment. Rivalry for markets or revenue allocation can cause an organization to change its goals to ensure continued support. Bargaining, or "giving a little in exchange for something else," can also cause a goal change. Cooptation which is the process of involving new elements into the leadership and coalition or mergers could also result in a similar change.

b. *Internal organizational changes.* Shifts in organizational goals can occur as a result of changes in the dominant groups (young vs. old employees, labor union vs. management, technocrats vs. politicians), a new professional ideology or styles of leadership or decision-making.

c. *Indirect pressures from the environment.* These include general economic conditions and/or technological developments which put pressure on the organization to change the nature and direction of activities.

Given the complex nature of goals, there are still a number of limitations which must be borne in mind when using the goal effectiveness model. The first problem is that of attribution. Granting that goals can be clearly identified, there still exists the problem of identifying in a precise manner those factors that contribute to the goal shift or change. One practical remedy is to make a considerable number of heroic assumptions concerning the details of the causal structure in the organization.

A second difficulty concerns the problem of time. The outcome of a goal that is beneficial in the short run may be disastrous for the long run or vice-versa. The test of this idea requires longitudinal data which is frequently not available or is difficult to obtain. Thus one is generally limited to short periods of observation which may fail to capture in a comprehensive manner, the outcome of a goal in terms of the organization and its environment.

The third problem concerns measurement. This involves both the problem of quantification of goals and the bias for quantifiable goals. The latter simply recognizes the problems associated with a situation where only those quantifiable goals are likely to be given important consideration in the analysis of organizational effectiveness.

Approach to Goal-Effectiveness Assessment

Subject to the limitations mentioned in the preceding paragraphs, the following approach in analyzing organizational goal-effectiveness is proposed.

An analysis of the public enterprise's official vs. operative goals should be made. An organization can be said to be effective if its operational goals provide the specific content of official goals; conversely, an organization can

be said to be ineffective if its operational goals are unrelated to official goals. The analysis of official and operative goals is a very important starting point in performance assessment, not only as a basis for corrective action in case they do not coincide, but also because the relationship affects the magnitude and direction of the efficiency indicators. In the process of analysis, changes in the official vs. the operational goals of the enterprise through time will be determined to the extent made possible by public documents and reasonable inferences from interviews. The reasons for these changes in goals should also be cited.

There may be cases, however, where operative goals are used to subvert official goals and in the process become the ends rather than the means to an end. This is what is generally known in the literature as "goal displacement." When this happens, the operations of the enterprise could result in unintended effects on the goals it has set out to accomplish in the first place. The results from this stage of the analysis is highly subjective and can be more appropriately handled by the supervising ministry or the agency in charge of evaluating public enterprise performance.

Where the operative goals are expressed in quantitative targets, organizational effectiveness will be measured in terms of the extent to which these targets have been met. The higher the rate of goal or target accomplishment, the more effective is the organization. For this conclusion to hold, however, it is a necessary condition that operative goals be related to and supportive of official goals. Otherwise, the higher the rate of goal accomplishment, the larger will be the deviation from, and necessarily the social cost involved in attaining the official goals.

Testing the applicability of the framework to corporations with a different mix of functions and objectives provides wide possibilities for future research in the area. A critical area that must be addressed is the issue of who should evaluate enterprise performance and what would be the most appropriate organizational/institutional arrangement for performance evaluation.

Recent literature on organizational effectiveness has moved away slowly from the concept of overall effectiveness, i.e., an organization can be categorically labelled as either effective or ineffective. Hall introduces a contradiction model of effectiveness which suggests that an organization can be effective in some aspects of its operations, and less so in others.[42] This approach agrees with the views of some scholars that effectiveness as an overall concept may have little or limited utility in inter-organizational comparisons.[43] This is especially true in the case of public enterprises which are generally characterized by a multiplicity of, sometimes conflicting, goals. Thus, it may happen that a public enterprise may be organizationally effective in pursuing, say, its financial viability objectives at the expense of its social goals.

Conclusion

Performance evaluation is not a simple task for public enterprises considering their hybrid role. To install a system would involve an evolutionary process that is best pursued through a step-by-step basis rather than the immediate establishment of an ideal configuration. The process presented in this study suggests some of the stages that could be followed:

1. Private profit could serve as a starting point;

2. Adjusments are to be made to isolate for exogenous variables and to differentiate commercial from social objectives;

3. Private profit is converted into public profit as a superior measure of performance; and

4. Adjustments are made to revalue all accounts in order to reflect real or social values.

The length of time required to implement each stage will vary depending on the capability of implementing institutions and the willingness of public enterprise managers to cooperate.

Endnotes

[1]Warren F. Ilchman, *Comparative Public Administration*, Sage Professional Papers in Comparative Politics, No. 2 (Beverly Hills, California: Sage Publications, 1971) p. 23.

[2]Dwight Waldo, ed., *Ideas and Issues in Public Administration* (New York: McGraw Hill Inc., 1953), p. 406. Waldo's book, as well as his other writings (see for instance, the *Administrative State*, New York: Ronald Press Co., 1948), reflect the prevailing concern for economy and efficiency in the US Federal Government at that time. The major administrative reform programs undertaken by the US Government had as its focus the evaluation and improvement of the productivity and efficiency of government operations.

[3]C.Y. Wu, "Refining Concepts of Performance in Development Effectiveness, Profitability and Productivity," *Philippine Journal of Public Administration*, Vol. 17, No. 3 (July 1973) p. 288. Wu states, however, that there is no uniform or standard way of differentiating productivity and efficiency. Productivity may be used in broader terms to comprise all aspects of performance (see Ilchman, *Comparative Public Administration*, p. 23), or in a narrower sense to refer only to output per manhour.

[4]*Ibid.*, p. 293.

[5]Lloyd G. Reynolds, *Microeconomics* (Homewood, Illinois' Richard D. Irwin Inc., 1979), p. 449.

[6]For more detailed expositions on the theoretical aspects of allocative efficiency, see Jack Hirshleifer, *Price Theory and Applications* (Englewood Cliffs, New Jersey: Prentice-Hall, 1976), Chapter 7: and Francis M. Bator, "The Simple Analytics of Welfare Maximization," *American Economic Review* (March 1957), pp. 22-59.

[7]In recognition of this difficulty, some economists have introduced the compensation principle. The compensation principle states that a desirable change occurs when the gainer can compensate the loser affected by the change by the amount of his loss. For a more rigorous discussion of the compensation principle, see Milton Friedman, "The Methodology of Positive Economics" *Essays in Positive Economics* (Chicago: University of Chicago Press, 1953).

[8]These models include: (1) the system-resources model; (2) the participant-satisfaction model; and (3) the societal-function model.

[9]Amitai Etzioni, *Modern Organizations* (Englewood Cliffs, New Jersey: Prentice Hall, 1964), p. 8.

[10]The evolution of the theory of development administration can be traced to the 1960s when concern was raised over the capabilities of institutions in developing countries to meet development targets and objectives they have set for themselves. It was basically a reaction to the advocacy of planning as an instrument of attaining social objectives. It was argued that planning, to be meaningful, must be accompanied by good implementation of programs and projects by public institutions. To do this, development administration capabilities must be strengthened to accelerate development significantly. Since administration is a means rather than an end, questions were raised as to how to assess the extent by which both ends and means are improved. Among the major scholars who have written extensively on the field are Fred W. Riggs, Dwight Waldo, and Edward W. Weidner.

[11]The comprehensive audit system had its legal basis dating back to as early as 1965 but it was only in 1982 that COA institutionalized its implementation. The system covers financial and compliance audits, economy and efficiency audits, and effectiveness audits. COA has prescribed a set of financial ratios among other performance indicators for financial and compliance audits. Effectiveness and impact indicators are left to resident auditors to develop in consultation with the corporation concerned.

[12]Interview with Sofronio Ursal, Manager, Corporate Audit Office, Commission on Audit, January 1985.

[13]Leroy P. Jones, "Towards a Performance Evaluation Methodology for Public Enterprises: With Special Reference to Pakistan," Paper prepared for the International Symposium on Economic Performance of Public Enterprises, Islamabad, Pakistan, 1981, p. 20.

[14]*Ibid.*, p. 22.

[15]*Ibid.*, p. 23.

[16]Amartya Sen, "Profit Maximization and the Public Sector," text of lecture at Kerala University, Trivandrum, March 1970, pp. 21-24. In the course of his extensive critique on the use of private profit as a performance criterion, Sen puts forward the view that as long as we permit the use of social objectives as an *ex post* justification for poor performance, then the prospect of efficiency in the public sector is remote.

[17]Jayawardena, "Public Enterprises in Sri Lanka," p. 98.

[18]Leroy P. Jones, "Public Enterprise for Whom? Perverse Distributional Consequences of Public Operational Decisions," Paper presented for the Conference on Problems and Policies of Industrialization in An Open Economy, Istanbul, Turkey: Bogazici University, 1981, p. 7-8.

[19]Jones, "Towards a Performance Evaluation Methodology . . ." *Op cit.*, pp. 27-30.

[20]*Ibid.*, p. 28.

[21]*Ibid.*, p. 29.

[22] *Ibid.*, p. 29.

[23] *Ibid.*, p. 30.

[24] Benjamin Diokno, "Some Considerations in Performance Evaluation," p. 6.

[25] *Ibid.*, p. 15.

[26] Jones and Il Sakong, "A Social Accounting System for Public Enterprises" (Seoul, Korean Development Institute: Working Paper 7604, July 1976), pp. 4-10.

[27] Richard Layard, *Cost-Benefit Analysis* (Baltimore: Baltimore Penguin Books, 1972), p. 12.

[28] For a formal discussion of consumers' surplus, see M. E. Burns, "A Note on the Concept and Measure of Consumers' Surplus" *American Economic Review*, Vol. LXIII. No. 3 (June 1973), pp. 335-44. See also E. J. Mishan, *Cost Benefit Analysis* (Unwin University Books, 1971). For the use of consumers' surplus in analyzing the benefits of a road transport project, see for instance Hernand A. van der Tak and Anandarup Ray, "The Economic Benefits of Road Transport Projects," *Benefit Cost and Policy Analysis* (Chicago: Aldine Publishing Company, 1972), pp. 132-68.

[29] L. Squire and H. A. van der Tak, "Economic Analysis of Projects," The World Bank, 1975, p. 26.

[30] Erlinda M. Medalla and John H. Power, "Estimating the Shadow Exchange Rate, the Shadow Wage Rate and the Social Rate of Discount for the Philippines," Philippine Institute for Development Studies Staff Paper Series No. 84. 03, pp. 23-24.

[31] Stanley Seashore and E. Yuchtman, "Factorial Analysis of Organizational Performance," *Administrative Science Quarterly*, Vol. 12, No. 3 (December 1967), p. 393.

[32] Richard Hall, *Organizations, Structures and Processes* (Englewood Cliffs, New Jersey: Prentice Hall, 1982), p. 277.

[33] Richard W. Scott, "Effectiveness of Organizational Effectiveness Studies," in Paul S. Goodman and Johannes M. Pennings, eds., *New Perspectives on Organizational Effectiveness* (San Francisco: Jossey-Boss, 1977), p. 67.

[34] Chester I. Barnard, *The Function of the Executive* (Cambridge, Massachusettes: Harvard University Press, 1938).

[35] Larry L. Cummings, "The Emergence of the Instrumental Organization" in Goodman and Pennings, eds., *New Perspectives . . . , op. cit.*, p. 59-60.

[36] Amitai Etzioni, *A Comparative Analysis of Complex Organizations* (New York: The Free Press, 1976) p. 138.

[37] Hall, *Organizations . . . . . op cit.*, p. 288.

[38] Talcott Parsons, *Structure and Process in Modern Society* (New York: The Free Press, 1960), p. 183-6.

[39] See, for instance, Nicos P. Mouzelis, *Organization and Bureaucracy: An Analysis of Modern Theories (Chicago: Aldine, 1967).*

[40] Etzioni, *Modern Organizations . . . op. cit.*, p. 8.

[41] Charles Perrow, "An Analysis of Goals in Complex Organizations," *American Sociological Review*, Vol. 26, No. 6 (December 1961), pp. 855-6.

[42] Richard Hall, *Organizations. . .op. cit.*, pp. 294-307. The appropriateness of the contradiction model is sustained by empirical findings on the highly contradictory and varied indicators resulting from several studies of organizational effectiveness. In an extensive review of literature by John P. Campbell and Others in *The Measurement of Organizational Effectiveness.* Final Report, Navy Personnel Research and Development Center Contract N00022-73-C-0023, Minneapolis: Personnel Decision, 1974, about thirty different criterion measures of effectiveness were identified. The variety and complexity of effectiveness measures were also highlighted in the matrix of sources and types of effectiveness criteria constructed by Kim Cameron in "Measuring Organizational Effectiveness in Institutions of Higher Education," *Administrative Science Quarterly*, Vol. 23, No. 4 (December 1978), pp. 604-32. Cameron arrived at the conclusion that effectiveness in one domain may not necessarily be related to effectiveness in another domain. Hall specified the boundaries of his contradiction model essentially on the basis of Campbell and Cameron's works. The model was basically designed to sensitize analysts to the multiple and conflicting environmental constraints as they affect organizational effectiveness.

[43] See, for instance, Michael T. Hannan and John J. Freeman, "Obstacles to Comparative Studies" and Robert L. Khan, "Organizational Effectiveness' An Overview" in Goodman and Pennings, eds. *New Perspectives . . . , op. cit.*