University of the Philippines
SCHOOL OF ECONOMICS

Discussion Paper No. 8515 November 1985

# SOME CONSIDERATIONS IN THE PERFORMANCE EVALUATION OF STATE-OPERATED ENTERPRISES

by

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## ABSTRACT

This paper describes a framework for evaluating the financial performance of state-operated enterprises (SOEs). The proposed framework maintains the distinction between commercial enterprises and service-oriented enterprises. In the first case, the sponsoring government is assumed to be concerned with the financial profitability of the enterprise; in the second case, the concern is with the provision of service at reasonable cost-recovery levels. It argues that the financial performance of the enterprise may be attributable to both exogenous market factors and constraints that are controllable through public policy, and that one of the objectives of any performance appraisal should be to identify these barriers to profitability or cost-recovery.

# SOME CONSIDERATIONS IN THE PERFORMANCE EVALUATION OF STATE-OPERATED ENTERPRISES*

*Benjamin E. Dioknos***

## I

In recent years, there has been enormous growth of public enterprise activities in both the developed and developing countries. An unwanted consequence of this phenomenon is the increasing commitment of scarce public resources for the use of the public enterprise form.

The Philippines is, of course, not an exception. Available information from various official sources support the general suspicion that the flow of public resources to public enterprises has been increasing over the years. Consider the following facts:

. There has been a marked increase in the number of public enterprises in the Philippine economy. As of May 1985, based on the compilation of the Philippine Reorganization Commission, their number increased from 35 in 1970 to 243 (consisting of 89 parent corporations and 154 subsidiaries). Of the total, 175 have been established during the period 1970 to 1984.

. Resources committed to the public enterprise sector were much higher than those committed to the national and local government sectors combined. As of 1982, the reported public enterprise assets totalled P379.6 billion compared to the P178.4 billion for the national and local governments. In terms of public debt, the public enterprise sector accounted for 73 per cent of total outstanding foreign public debt compared to the national government share of 27 per cent. 1/

. The public enterprise sector has been a heavy drain on national government resources. During the period 1975-1984, the national government has extended to public enterprises a total of P50.4 billion in budgetary subsidies and P46 billion in equity contributions. 2/

This state of affairs has increased the interest of policymakers on public enterprises in general and the efficient use of public resources through public enterprises in particular.

This paper deals primarily with issues related to the financial appraisal of public enterprises. It is argued that a good financial evaluation is a necessary requisite for any higher level system of performance evaluation. It is also argued that it is important to maintain the distinction between service-oriented enterprises (e.g., water supply, telephone systems and other public utilities) and purely commercial enterprises (e.g. mining and oil

exploration, manufacturing of heavy equipment, cigarette manufacturing, etc.) It is assumed that the latter is undertaken to generate revenues for public purposes, the former to deliver service at substantial cost recovery levels.

The proposed financial evaluation system requires the quantification of both explicit and implicit subsidies. Ignoring these in any appraisal system would be a mistake for a number of reasons. A few of these should be mentioned.

1) The general public is entitled to know where government resources (whether raised through taxation, public borrowings, or inflationary finance) are going. In fact, it matters how the subsidies are financed. For example, in an economic environment where subsidies are financed through general taxation and where the tax system can be characterized as regressive, then it could be argued that the poorer taxpayers are subsidizing the beneficiaries of some public enterprise activities.

2) Full disclosure of the explicit and implicit subsidies may force the public enterprise manager to behave in a manner consistent with cost recovery or cost minimization.

3) Knowledge of explicit and implicit subsidies allows one to evaluate whether the social objective attributable to a service-oriented public enterprise's is worth the amount of subsidy. If total subsidies exceed the social valuation, deficits due to the enterprises' own inefficiency is partly subsidized.

4) A system that fails to disclose the full costs of enterprise operation may result in overinvestment in some public enterprise activity. That is, by ignoring government subsidies, a picture of profitability may be projected when in fact the enterprise is losing.

## II

The proposed framework will focus on the objective function and the market factors and policy constraints which may significantly affect the performance of state-operated enterprises.

It is widely recognized that one of the difficulties in the evaluation of public enterprises is the absence of a clear statement of the objectives of the enterprise. In most cases, there is no clear charter for a public

enterprise stating the objectives behind its establishment which could form the basis for an evaluation of performance. In the proposed methodology, it is assumed that the objective of the commercial enterprise is financial profitability. In the short-run, this objective may be expressed as generating surplus in excess of full costs. In the long-run, the objective becomes one of maximizing the present value of the enterprise.

Let us consider the long-run objective in detail. Define the present value of the firm as the difference between the discounted value of the stream of cash flows--revenues, $R_t$, minus current operating costs, $C_t$, -- and the initial capital outlay. Formally, define cash flow at period $t$ as

$$p_t Q_t (L_t, A_t, K_t) - w_t L_t - s_t A_t \qquad (1)$$

where for any given period $t$, $p_t$ is the price charged; $Q_t$ is output which is assumed to be a function of the quantities of labor ($L_t$), other (intermediate) inputs ($A_t$) and capital ($K_t$) used during the period. The current operating costs are assumed to consist of labor costs, $w_t L_t$, and non-labor current operating costs, $s_t A_t$; where $w_t$ is wage rate and $s_t$ is the per unit cost of other inputs taken collectively (e.g., utilities, materials, supplies, etc.).

If, indeed, the objective of the sponsoring government is to maximize the present value of the enterprise, then the problem becomes one of maximizing the following expression:

$$\text{Max } V = -K_o + \sum_{t=1}^{n} (1+r)^{-t} \{p_t Q_t (L_t, A_t, K_t) - w_t L_t - s_t A_t\} \quad (2)$$

For any given public enterprise, how could long-run profitability be enhanced? Focusing on the arguments in Equation (2), one may argue that, other things equal, profitability could be enhanced by increasing p or Q, or both, or by lowering any components of costs such as wages rates, level of employment, price of intermediate inputs, and use of intermediate inputs. There are, of course, several possibilities for increasing the present value of the enterprise, such as: (a) $K_o$ could be reduced (plausibly) by choosing a relatively less expensive but 'appropriate' scale of plant; (b) the time horizon of the project, $t$, could be extended by more efficient utilization of the facility or plant; and (c) the rate of interest could be reduced.

For public enterprises which are undertaken to provide a service, it is assumed that the objective is to provide a service at substantial cost recovery level. A

higher level of cost recovery is consistent with the goal of revenue mobilization either in the sense of increased inflow of resources to the general treasury or in the sense of reduced outflow of the public monies in the form of subsidy.

Ideally, the level of public subsidy should correspond to the social valuation of the social objectives imposed on the enterprise by the sponsoring government and that the sponsoring government should define in advance a set of rules for deficit reimbursement. This set of rules may be applied to service-oriented enterprises such as those engaged in the provision of public housing, mass transport, and medical care. Since deficits could be attributable either to inefficiency or the social objective imposed by the sponsoring government on the enterprise, defining the rules in advance has the advantage that it sets the record straight on which deficit can be reimbursed and which cannot. This is important since as a United Nations report states: "The very expectation that the treasury will cover the actual deficit is apt to induce a pattern of behavior which is least oriented to its elimination".[3/]

Let us define more formally these various cost recovery concepts and the implied subsidies. Consider the following simple case of a public enterprise with debt

financing at an interest rate set by government. Its assets are divided into operating assets ($K^o$) and non-operating income yielding assets ($K^n$) in the form of securities, land, etc. Define accounting profit at market prices as:[4/]

$$\Pi^*_t = \Pi^a_t + R^t_t + R^p_t \qquad (3)$$

where

$\Pi^a_t$ = net cash flow of the enterprise in period $t$

$R^t_t$ = transfers from earmarked revenues

$R^p_t$ = property income (dividends, interest, rent)

$K_t$, $K^d_t$, $K^e_t$ = total, debt, and equity capital

$T_t$ = tax and tariff abatement

$\alpha$ = ratio of non-operating assets to total assets of accounting valuation

$\beta$ = opportunity cost of capital

Let

$$\Pi^a_t = pQ_t - wL_t - sA_t - (1-\alpha)r^* K_t \qquad (4)$$

where $r^*$ is the annual cost of capital, $K_t$ is the quantity of capital used in period $t$, and the other terms are as defined earlier.

Combining (3) and (4) and rearranging terms, we have

$$R_t^t - \Pi_t^* + (R_t^p - \alpha r_t K_t^*) = (wL_t + sA_t - pQ_t) + (1-\alpha)r_t^* K_t \qquad (5)$$

The left-hand side gives the explicit subsidies by means of provision, while the right-hand side gives them in terms of costs to be covered. Consider the subsidies by means of provision: the first term ($R_t^t$) is subsidy via budgetary transfer, the second term ($-\Pi_t^*$) is subsidy via loss of government equity capital while the term ($R_t^p - \alpha r_t K_t^*$) is subsidy via property income less costs of property income. Consider next the right-hand side: the first bracketed term is the amount of subsidy required to cover the gap between the market price of current output and the current operating costs while the second term is the subsidy required to cover the contractual cost of capital used to hold operating assets.

It should be obvious that in addition to these explicit subsidies there may be other implicit subsidies. One is tax subsidy. In general, public enterprises in developing countries are exempt partially if not fully from taxes (e.g., income taxes and tariffs and customs duties). In some countries, however, SOEs are subject to taxes (especially income tax) applicable to private firms. Among

these countries are Colombia, India, Indonesia, Tanzania and Syria.[5/] The tax subsidy can be expressed in terms of tax revenues foregone which for simplicity is assumed here in the form of profits tax foregone. Formally, with $\tau$ as the profits tax rate, the implicit subsidy then is:

$$\tau \Pi_t^a = \tau (pQ_t - wL_t - sA_t - (1-\alpha) r^* K_t) \qquad (6)$$

Another form of implicit subsidy is the difference between the opportunity cost of capital and the actual cost of capital faced by the public enterprise. Public enterprises, in general, have access to low-interest loans through government financial institutions and in addition can, with few restrictions and depending on the degree of financial autonomy, make use of surpluses. Designate the former debt capital ($K_t^d$), the latter as equity or internally generated capital ($K_t^e$).

Let $\beta$ be the opportunity cost of capital. Define the implicit subsidy in terms of concessionary loan, i.e., the opportunity cost of capital less the observed annual cost of capital as:

$$\beta K_t^d - r^* K_t^d \qquad (7)$$

Note that the annual cost of capital, $r^{*} K_t^{d}$, is its value based on existing government policies. It is, in general, not equal to, and one can argue much lower than, the opportunity of capital. Define next the implicit subsidy in terms of equity financed capital as opportunity cost of government capital less the net cash flow of the enterprise in period $t$, that is

$$\beta K_t^{e} - E_t^{a} \qquad (8)$$

Total explicit and implicit subsidies can then be written as

$$S_\Sigma = (1-\tau)wL_t + (1-\tau)sA_t + \beta K_t - r^{*} K_t^{d} \qquad (9)$$

$$- E_t^{a} - (1-\tau)pQ_t + (1-\tau)(1-\alpha)r^{*} K_t$$

If $S_\Sigma > 0$, one can then ask whether the society's valuation of the social objective imposed on the enterprise is roughly equivalent to the amount of subsidy. If the subsidy, $S_\Sigma$, exceeds the social valuation, deficits due to the enterprise's own inefficiency is partly subsidized. If less, there is then a net gain to the sponsoring government.

(1) PRIVATE FIRM BEHAVIOR. For subsidies, $S_\Sigma$, to be non-positive, a requirement that forces the enterprise to behave as private firm, the following conditions must hold:

$$1 \leq \frac{pQ_t}{wL_t + sA_t + (1/(1-\tau))\{\beta K_t - \Pi_t^a - r^* K_t^d\} + (1-\alpha) r^* K_t} \qquad (10)$$

(2) FULL COST RECOVERY. For full cost recovery requirement, i.e., that total revenues are sufficient to cover both capital and current cost, the implied explicit subsidy is

$$S_{fc} = wL_t + sA_t - pQ_t + (1-\alpha)\, r^* K_t \qquad (11)$$

This follows directly from the right-hand side of (5). For subsidies to be non-positive, the following requirement should hold:

$$1 \leq \frac{pQ_t}{wL_t + sA_t + (1-\alpha) r^* K_t} \qquad (12)$$

that is, that the ratio of total revenues to total costs be greater than one; alternatively, that total revenues for any given year exceeds the total costs, where total costs include current operating costs and an annual allocation of the cost of capital.

(3) CURRENT COST RECOVERY. It is sometimes appropriate to simply require that the enterprise cover its current costs. This implies subsidies including the annual cost of capital. The concern then is simply that the enterprise not be a drain on the public treasury on a year-to-year basis. Since operating subsidy is defined as ($wL_t + sA_t - pQ_t$) for the operating subsidy, $S_{oc}^t$, to be non-positive, it is required that:

$$1 \geq \frac{pQ_t}{wL_t + sA_t} \qquad (13)$$

In general knowing the amount of subsidy (or cost recovery level) in relation to the social goals mandated by the government on the enterprise facilitates performance review. On <u>a priori</u> basis, it could be argued that having some information on cost recovery level would certainly not prevent a more cost-conscious managerial behavior.

From the point of view of the sponsoring government, cost recovery is enhanced the higher is net cash flow ($\Pi_t^a$), the transfers from the earmarked revenues ($R_t^t$), and property income ($R_t^p$). Let us focus on <u>net</u> cash flow which is given in Equation (4) as:

$$\Pi_t^a = pQ_t - wL_t - sA_t - (1-\alpha)r^*K_t$$

It can be shown that the annual cost of capital, $r^*$, depends on the price of new capital goods bought in period $t$, $q_t$, the rate of depreciation, $d$, and the rate of interest, $r$. If so, we can then write net cash flow as:[6/]

$$\Pi^a_t = pQ_t - wL_t - sA_t - (1-\alpha)(r+d)q_t K_t \qquad (14)$$

Current cost recovery is enhanced if p or Q is increased, or both, and the current cost components such as wage rates, unit price of intermediate inputs, employment level, and use of intermediate inputs are reduced. Labor costs will be determined by conditions in the factor market and public policy restrictions on wages and employment. The use of intermediate inputs will likewise be governed by the prevailing conditions in the market, unless of course, there are effective government restrictions, e.g., supply regulations and requisition procedures that may limit the enterprise's procurement and use of non-labor inputs.

Cost recovery is also enhanced if the annual cost of capital, from the point of view of the sponsoring government, is reduced. This can be done by lowering the rate of interest, the rate of depreciation, the price of new capital and the quantity of capital.

## III

The performance of any public enterprise depends on market factors and policy constraints. Market factors include the resource endowment, technology, product and factor markets in which the enterprise operates, and individual preferences. These are viewed as given parameters, exogenous to the sponsoring government and the public enterprise, and are in general, at least in the short-run, not alterable by the Central government. Designate the totality of such parameters the environment.

The success or failure of an enterprise depends partly on the environment in which it operates. Consider the degree of competitiveness in an industry. The ability of a public enterprise to influence price depends on the competition posed by similar government sponsored enterprises and private firms. Under a competitive environment, the probability of generating profit or mobilizing resources for public purposes in the long-run is, on *a priori* basis, nil. Long-run profitability, however becomes probable if there are barriers to entry, plausibly (among others) due to lumpiness of capital or risk-aversion on the part of private entrepreneurs.

The financial performance of the enterprise may also depend on the state of the technology. The ability of the enterprise to respond to changes in demand is constrained by the existing plant capacity. This applies especially to enterprises where installed capacity is, by nature, relatively fixed. Such enterprises include water supply, electric power, telecommunications, and public housing.

Conditions in the factor markets are usually exogenous to the Central government and the public enterprise management. On the other hand, the financial success of the enterprise may depend on the competence of its management and manpower. To the extent that skilled manpower and trained personnel are in short supply, then public enterprises should have the resources to compete against other private firms for their services. Inevitably, the government's inability to compete in the labor market will reflect on its performance.

There are in addition to the exogenous market factors, constraints that are directly controllable by the Government. These policy constraints may be either primarily economic or institutional. The primarily economic constraints may include those policies relating to pricing, investment and finance, and wage and employment.

The institutional constraints on the other hand, are those policy-controllable instruments which affect enterprise performance in an indirect way, that is, through their influence on managerial behavior. These may include constraints on organizational structure (departmental management, public corporation, state company, operating contract, joint ventureship, private sector subcontracting, etc.), government accounting practices (current cost versus full cost accounting, cash versus accrual, separate versus common fund), and disposition of surplus and financing of deficits.

Obviously, the set of policy constraints faced by an enterprise may vary from one enterprise to another. It is instructive, however, to focus on one possible set of constraints that may apply to a particular public enterprise. Given in Table 1 is one such set of policy constraints.

TABLE I

POLICY CONSTRAINTS: SOME ILLUSTRATIVE EXAMPLES

| Aspects of Enterprise Operation | Illustrative Examples |
|---|---|
| Pricing | Price is set by the sponsoring government at below cost-recovery level. |
| | Pricing structure is inflexible, i.e., rate charges have to be legislated. |
| Investment and Finance | Amortization period of loan repayment is less than the project life or the useful life of the equipment or facility. |
| | Rate of interest is set too high. |
| | Project design subject to review by Central Government Ministry. |
| Wage and Employment | Wage scales are set by the Central Government. |
| | Enterprise workers are hired on the basis of Civil Service rules and regulations. |
| Institutional Structure | |
| Organizational Form | Joint ventureship is precluded. |
| | Enterprise are expected to be operated as regular department |
| Accounting Practice | Prescribed accounting system ignores depreciation and implicit and explicit subsidies. |
| Disposition of Surplus | All financial surpluses revert to the General Treasury. |

(1) *PRICING POLICY.* The price set by the sponsoring government, $p_g$, may be less than the competitive market price, $p_c$. The price may have been kept low for redistributional objective as is common in most 'basic needs' type of enterprises, such as public housing, mass transport, water supply, etc. Alternatively, prices may have been purposely set low for allocative efficiency reasons. For decreasing cost industries (e.g., telecommunications or electric power plant), pricing at less than full cost recovery level may be consistent with allocative efficiency considerations. In any case, whether the pricing policy to keep tariff rates low is undertaken on the basis of redistributional or allocative efficiency argument, the fact remains that such policy may be inconsistent with the objective of revenue mobilization for the public sector.

Should pricing authority be exercised by the sponsoring government or should it be delegated to the public enterprise management? Considering the various motives for undertaking public enterprise activities and changing economic conditions vary, it would seem reasonable to decentralize pricing decisions. For purely commercial ventures, and assuming a highly competitive environment and a regime where political decisions involve considerable

delay, there appears to be a strong case for delegating pricing decisions to the public enterprise. For some enterprises, pricing autonomy may spell the difference between failure and success.

(2) *INVESTMENT AND FINANCE.* A public enterprise established with debt financing at an interest rate set by the Central Government might face two constraints: (a) the amortization period of the project or the enterprise facility financed, and (b) the rate of interest may be too high. The drain on fiscal resources is higher the shorter is the length of the amortization period, and the higher the rate of interest.

*Ceteris paribus,* the government can influence profitability by reducing the rate of interest charged by government lending institutions or by increasing the number of amortization periods. In general, enterprise activities designed to serve some social objectives should be extended financing at subsidized rates. To the extent that government financial institutions do not discriminate between commercial ventures and service-oriented enterprises then, from the social viewpoint, less than the socially optimal level of service-oriented enterprises may result. From the point of view of cost recovery, the additional cost of borrowing funds imposes a heavier burden on the public treasury.

(3) *WAGE AND EMPLOYMENT.* Oftentimes, the employment and wage policy are set by the Central Government. At the same time, state-operated enterprises may be required to hire workers in accordance with Civil Service rules applying to regular government employees. This inflexibility may serve as a barrier to the financial performance of the public enterprise. While flexibility in terms of hiring and wage determination may not be a sufficient condition for the success of the operation, the likelihood of success is enhanced whenever the enterprise manager can employ workers in accordance with the level of enterprise activity and compensate them at prevailing wage rate rather than at nationally prescribed rates.

There are, of course, various ways of going around this constraint. To the extent that contract management is allowed, the enterprise may hire top managerial officials on contractual basis. Another alternative is through an operating contract arrangement whereby the responsibility for running the enterprise is assigned to a private entrepreneur or company. Under such arrangement, enterprise workers are presumably no longer covered by government rules on wages and employment.

(4) *INSTITUTIONAL STRUCTURE.* The choice of the organizational structure, accounting system, and the mechanism for the disposition of surplus and the financing of deficits may also affect the financial success of the enterprise.

The choice of the organizational form--whether departmental management, public corporation, state company, operating contract, joint ventureship, private sector subcontracting --may be exogenous or endogenous to the sponsoring government. It should be emphasized that the type of organizational form may have ramifications on the other aspects of public enterprise activity. For example, an operating contract arrangement may provide greater latitude than a governmentally-managed one in terms of wage and employment and the disposition of surplus. That is, an enterprise which is to function as a regular department is at a disadvantage in the sense that its ability to respond to changing economic conditions is quite limited.

If the enterprise is to be expected to function as a private firm, an appropriate requirement for commercial enterprise is that it be granted political and managerial autonomy. Once objectives and production targets have been explicitly specified, the day-to-day operation of the

enterprise should be left to the enterprise manager. Requiring the enterprise to function as a regular department of the government would ignore the fact that unlike a regular department where the demand for public services is fairly constant throughout the year, the level of business activity of a commercial enterprise may fluctuate considerably during the year.

The accounting system becomes a barrier to financial success when it does not foster fiscal discipline. It could be argued that when the accounting system correctly measures performance, there is greater pressure for efficiency and accountability is enhanced. On the other hand, an accounting system that projects profitability when loss is incurred is not apt to induce a pattern of behavior consistent with cost recovery. Any of the following flaws in the accounting system may give erroneous picture of profitability: failure to take account of depreciation, valuing existing assets at historical, rather than replacement costs, and ignoring explicit transfers and implicit subsidies.

The system of deficits financing and disposition of surplus affects the financial performance of an enterprise indirectly through its effect on managerial behavior. It may or may not provide strong motivation for the enterprise

management to minimize public subsidy. However, a system whereby all deficits, regardless of source, are covered by the sponsoring government, and where all surpluses revert to the general treasury, is less likely to induce cost minimizing behavior.

An alternative system is one where part of the surplus goes to the management and employees in the form of incentive or performance bonus. The design of such performance bonus scheme would certainly be more complicated than what many governments in developing countries could handle administratively, but is an option that could be explored to make the compensation system, disposition of surplus, and managerial behavior internally consistent.

## IV

Summing up, this paper describes a framework for evaluating the financial performance of state-operated enterprises (SOEs). The proposed framework maintains the distinction between commercial enterprises and service-oriented enterprises. In the first case, the sponsoring government is assumed to be concerned with the financial profitability of the enterprise; in the second case, the concern is with the provision of the service at reasonable

cost-recovery levels. After formally defining explicit and implicit subsidies in their various forms, cost recovery concepts are then formally presented.

It is argued that the financial performance of the enterprise may be attributable to both exogenous market factors and constraints that are controllable through public policy, and that one of the objectives of any performance appraisal would be to identify these barriers to profitability or cost-recovery. A logical and promising area for future study would be the development of methodological tools and approaches for measuring the effect of different constraints on enterprise performance.

## NOTES

* Paper presented in the Seminar on "Economic Development in the Philippines: Analysis and Perspectives," School of Economics, University of the Philippines, Quezon City, December 5-6, 1985 and the 1985 Annual Meeting of the Philippine Economic Society, Philippine International Convention Center, Manila, December 7, 1985.

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