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Toward Defining and Measuring the Fiscal Impact  
of Public Enterprises

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Abstract

In many countries, the activities of public enterprises have an important fiscal impact. While the precise nature of this impact is often obscured, it is important that it be reflected in measures of overall fiscal activity. The paper is intended to raise and clarify some of the issues involved in this task.

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Summary

This paper argues that two characteristics allow a demarcation to be made between public and private entities. One is the potential impact of the enterprise's operations on the overall government accounts. While virtually every firm has an impact on the government's revenue and expenditure flows, certain enterprises are much more closely linked to government, either through direct ownership by government or through explicit or implicit loan guarantees. Although deficits incurred by such enterprises, if covered by borrowing in the private market, will commonly not be recorded as part of the government's fiscal position, should it be necessary for the government to make transfers to cover enterprise losses, there will clearly be a fiscal impact. In theory, this impact is properly measured when the loss-making activity occurs. Therefore, such "public" enterprises--whether they be government owned or not--should be analyzed when calculating the government's fiscal impact.

The second distinguishing feature is the behavior of the enterprise. Publicly owned and publicly regulated enterprises often behave quite differently from private, profit-maximizing firms. Understanding how an important sector is likely to behave in response to shocks or policy changes can be crucial to the proper design of adjustment policies. The policymaker must be careful to identify a possible third category of economic agent in between government and the private sector. If there exists a significant public enterprise sector, reliance on indirect measures, such as interest rate or exchange rate policies, may have to be supplemented with direct controls if this sector is unlikely to respond adequately to indirect signals.

After the public enterprises in the economy have been identified, the matter of exactly how to measure their fiscal impact arises. Owing to their nature as quasi-government agents in the production of goods and services, they can be treated neither as private firms nor as government departments. Proper enterprise accounting would be on an accrual basis, with depreciation representing the cost of capital. This is in contrast to conventional accounting for government, which is on a cash basis. Public enterprises often carry out government policy, however, and consequently must be examined more closely than representative private enterprises. Public enterprises often are involved in implicit subsidy and/or tax policies, sometimes making their operating results a poor guide to their efficiency. Cross subsidies also may lead to inaccuracies in government expenditure and tax figures. The paper therefore argues that in order to develop policy recommendations for reform of the public enterprise sector, it is necessary to closely examine the operations of individual enterprises.



## I. Introduction

Public enterprises in many countries have an important fiscal impact. This impact may be indirect, through the implication of the overall financial performance of the public enterprise sector on government finances; or direct, through specific policies carried out by the enterprises. This latter aspect may take various forms, from the generation of monopoly profits to finance government operations, to the direction of resources toward certain sectors in accord with government expenditure policy. As noted by Short in Floyd, Gray, and Short (1984), the large size of the public enterprise sector in many countries suggests that they have been a major cause of stabilization problems and have contributed significantly to inflation and balance of payments difficulties.

The purpose of this paper is to outline components of a conceptual framework for analyzing the fiscal impact of public enterprises and to point out what are likely to be the important issues to arise in such an analysis.

The paper has five sections. In the second section, the conceptual similarities and differences between public and private enterprises and between government and public enterprise operations are discussed. This section discusses the lines of cleavage along which various entities may be separated into analytically useful constructs. The third section treats various measurement issues that arise when merging public enterprise and general government operations. The fourth section discusses the need to analyze the determinants of public enterprise deficits before arriving at policy conclusions, especially when the enterprises are not facing market prices or when the government imposes constraints on their behavior. The last section summarizes the paper's main conclusions.

A theme underlying this paper is that different measures of public enterprises are appropriate for different purposes. One particular focal point in this paper will be the implications of public enterprise behavior for aggregate demand and adjustment during a macroeconomic stabilization program.

## II. Distinguishing Government, Public Enterprises, and the Private Sector

The reader hoping to find here a definitive taxonomy of economic entities will be disappointed. Such hopes are bound to be disappointed, however, owing to the very nature of the problem. It is not possible to give a satisfactory definition of the concepts: public enterprise, government entity, private enterprise, that would serve at all times in all countries for all purposes. While it is tempting to have in mind a single definition, the various avatars of these definitions may not share readily identifiable characteristics that are consistent through time or across purposes.

This introduction should not be understood to suggest that objective definitions are not useful nor that lines of demarcation need not be drawn. On the contrary, definitions are useful, but it is necessary to recognize that the lines of demarcation change depending on the purpose of the definition.

As the title of this paper suggests, the distinguishing characteristic of public enterprise to be considered here is the fiscal impact. Whether a firm is legally public or private or whether its manager is a political appointee or not is not particularly relevant for this purpose.

This fiscal criterion immediately raises some questions. It is true that most private enterprises have a fiscal impact through, at least, their role in generating tax revenue. On the other hand, there are public enterprises that have relatively little fiscal impact. Both considerations point out the difficulty in isolating factors inherent in various entities that would lead to a satisfactory delineation.

#### 1. Government and enterprises

Prior to developing the two features of public enterprises that are thought important for this paper, it will be useful to review a definition presented in the International Monetary Fund's A Manual on Government Financial Statistics. The manual separates general government from nonfinancial public sector enterprises on the basis of the nature of the activities they perform rather than legal or institutional classification.

"Nonfinancial public enterprises are government-owned and/or government-controlled units which sell industrial or commercial goods and services to the public on a large scale or are corporate...they may also include government agencies which are mainly engaged in selling industrial or commercial goods and services to the public on a large scale...." (International Monetary Fund (1986), pp. 20-21.)

Compare this with the function of government:

"...the implementation of public policy through the provision of primarily nonmarket services and the transfer of income, supported mainly by compulsory levies on other sectors." (International Monetary Fund (1986), p. 2.)

Therefore:

"Nonfinancial public enterprises are separated from the general government sector because they are engaged in activities different in nature from government and encounter production, cost, and financing problems involving nongovernmental considerations." (International Monetary Fund (1986), p. 21.)

It is interesting to note here that government departments that act in the market should be classified as falling within the sphere of nonfinancial public enterprises. Similarly, the manual goes on to argue that if the nonfinancial public sector enterprises are active in executing government policy, then the nonfinancial government sector, which includes both the general government and the enterprises, may be an analytical construct superior to general government.

"The nonfinancial government sector consists of the general government sector plus the nonfinancial corporate and quasi-corporate public enterprises.... It is founded mainly on the belief that government influence and impact on the economy operate also through the enterprises it owns and/or controls and which it may use as instruments for the execution of significant government policies." (International Monetary Fund (1986), p. 25.)

The distinction between enterprises and government therefore lies in the nature of the goods and services provided. Naturally, any transaction occurring between the general government and public enterprises, for example, transfers to cover operating losses or tax revenue received, would be included in the general government accounts. The fundamental question is to what extent transactions taking place outside the general government framework should be incorporated into an analytical measure of fiscal activity. For example, should enterprise deficits that are financed by the domestic banking system or foreign sources be counted as part of the overall fiscal balance? Similarly, should an enterprise surplus that exceeds the revenue surrendered to government be subtracted from the overall deficit?

This paper accepts the separation of government and enterprise that is derived from both the nature of the goods and services supplied and the differing character of tax revenues which are compulsory levies and income from sales in the market. This separation is not without grey areas, however. For example, many governments have mandatory social security or retirement schemes. The revenues and expenditures of the system are typically considered as part of government operations. This classification in most cases is correct as contributions are not voluntary and the amount received as a benefit may be determined by political considerations rather than by the amount contributed or investment result achieved. In its actual functioning, however, government social security administrations may closely resemble private retirement plans.

## 2. Two rationales for defining public and private

Having drawn a distinction between government and enterprises it remains to define public and private. First, one must ask why it is important to make this distinction. In this paper two motivations are given for distinguishing between public and private enterprises. The first relates to differences in behavior or nature, and by nature is

meant the underlying structural reasons explaining the differences in behavior. The second is the impact of the enterprise on the distribution of wealth and income in the economy.

a. Public and private enterprises: The behavioral dimension

Although it would be conventional to begin by claiming that state ownership is a necessary condition for an entity to be classified as a public enterprise, for analytical purposes it may not be. State ownership may be a common element in a number of public enterprises, it need not be found in all. As pointed out above, the proper way to categorize enterprises will depend on the purpose envisaged. Along the behavioral dimension, publicly owned enterprises exhibit behavior anywhere from precisely what a private enterprise would do under similar circumstances to clear disregard for profit maximization. <sup>1/</sup> From the legal standpoint, the degree of government ownership can vary considerably. Adding a further layer of complexity is the separation of legal ownership and control. There is not an exact relationship between the degree of ownership and the degree of control. Majority ownership is clearly not a necessary condition for effective control.

The dividing line between public and private ownership has shifted over time. Adam Smith criticized, in 18th century Britain, the concession by the state of private trading monopolies. These monopolies were privately owned but bear a significant similarity to many contemporary state-owned trading monopolies found in socialist states. Similarly, modern state-regulated utilities may exhibit the same behavior as state-owned utilities. On the other hand, some state corporations, notably petroleum companies that are active in international markets, act much like their private competitors. State ownership is not a sufficient condition for making the distinction between public and private enterprises that is suggested here.

Making a distinction on the basis of behavior rather than ownership is important for answering several questions. One is comparing economic performance in economies with large and small public sectors. Another is in modelling the reaction of the economy to government economic policy or external shocks. If it is known that a certain set of enterprises reacts in a distinctive way that can be separated from the standard private response, it is important for policy purposes to model this sector separately. Models constructed to predict reactions to policy measures are predicated upon a certain behavioral reaction of enterprises outside direct government control. Public and private firms will react differently to market signals. It is therefore important to know the relative importance of these two sectors in the economy.

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<sup>1/</sup> In many cases, laws designed to protect shareholder interests prevent managers of private firms from engaging in nonprofit maximizing behavior. In Israel, managers of public enterprises are explicitly permitted to take into account other than strictly business considerations in making decisions.

If an analytical category, "public enterprise," exists between government and private enterprise, then special concern will have to be directed toward this sector. This strategy is already employed with government and private enterprise. In formulating financial adjustment programs an asymmetric approach is often taken toward the appropriate adjustment mechanisms adopted by the government on the one hand, and the private sector on the other.

This asymmetric approach--emphasizing direct control in government and indirect controls in the private sector--is a natural outcome of the fact that one sector is more closely in tune to and responsive to market signals. Changes in monetary policy that influence interest rates are enough to influence demand in the private sector where firms will quickly incorporate the new price in their decision-making. The government, on the other hand, although in principle it should respond to the opportunity cost of capital, is less likely to, owing to the administrative structure of government. Government departments are generally set up to achieve their policy functions with the least possible expenditure. With this goal in mind it is clear that changes in government expenditure will not automatically result from a change in the marginal cost of borrowing. In order to engender the increase in government saving that is usually a goal in adjustment programs, it is necessary to impose specific changes in expenditure and revenue policy. Such specificity is not desirable with private sector adjustment as it should, in general, be more efficient to allow the private sector to make the macroeconomic adjustments corresponding to the change in price signals.

An important question in countries where public enterprises play a significant role is the reaction of public enterprises to the change in price signals--most often exchange rates and interest rates. Although this paper argues that the terms "public" and "private" should not be strictly related to ownership, it should be noted that there are important incentives for private firms subject to taxation to behave differently from publicly owned ones. Since the after tax return is the variable private shareholders care about, there exists an incentive to adopt strategies to reduce tax liabilities that is not present in the case of government ownership. Furthermore, in the case of government ownership, the government, as shareholder, would be able to exert direct influence over firm policy.

At the other extreme, the publicly owned enterprise may be completely insensitive to price changes. This is possible because such enterprises are frequently not held accountable for their operating result--for reasons that will be discussed below--to the extent that private sector firms are. A devaluation of the real exchange rate, for example, may not lead to a shift in the input mix away from tradables toward nontradables, as would be the case with a private firm, but rather to an increase in borrowing by the public enterprise. This would be the opposite result of the intention of the policy and would serve to crowd out other firms. If the public enterprise were in competition

with private firms, it might experience increased sales owing to relatively inflexible prices and thereby increase its market share exactly at a time of growing inefficiency. 1/ The increased borrowing would, as well, crowd out government borrowing or increase the cost of credit to government.

In addition to the interest rate effect, credit rationing may play a role in allocating credit. The extent to which nonprice credit rationing takes place at high interest rates is an important topic of macroeconomic research. It has been suggested that as interest rates rise, the probability of default rises and lenders may therefore choose, rather than raise interest rates further, to ration credit instead. 2/ In these circumstances, enterprises that have explicit or implicit government guarantees are likely to receive favorable treatment.

In designing an adjustment program, it is important to ensure that both government and enterprises react to the program in the intended fashion.

b. Public and private enterprises: Impact on the distribution of income and wealth

The second aspect of the distinction between public and private enterprises is less a function of behavior than of the ultimate impact of the entities' profit result on the public treasury. Changes in the value of the government's future revenue or expenditure streams have important fiscal implications.

The operating result of any firm has the most direct impact on the factors of production employed. With respect to capital, the firm's shareholders and creditors are directly affected by any change in the firm's fortunes. The government as shareholder would clearly feel the impact of a publicly owned firm's profit outcome. However, governments may lend, subsidize, or give explicit or implicit credit guarantees to privately owned as well as publicly owned entities. The treasury or state banking system would suffer a loss had it given a firm credit or credit guarantees that subsequently went bankrupt. For example, had the Chrysler Corporation gone bankrupt after receiving credit guarantees from the U.S. Government, the loss would have been borne by U.S. taxpayers and recipients of U.S. government services. The distributional consequences of this event would have been difficult to

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1/ If relative prices change, the optimal point on the transformation curve changes implying a change in the optimal mix of inputs. If the public enterprise has not changed its choice of inputs, then it will be off the correct point on the transformation curve.

2/ See, for example, Stiglitz and Weiss (1981).

calculate. In this circumstance the stockholders and prior creditors of Chrysler received an implicit transfer, a transfer that never appeared in the government cash accounts. 1/

Loan guarantees are fairly common with public enterprise debt. The economic consequences for the treasury regardless of whether the firm is public or private are quite similar. Therefore, both public and private enterprises may have an important impact on government finances.

### 3. Implications

Two separate motivations have been given for separating enterprises into two groups that we have called public and private. Enterprises could very well be categorized as public for one purpose but private for another. One is based on the behavior of enterprises and is important in predicting the economy's reaction to policy changes and external shocks. The second is based on the implications of enterprise operations on the distribution of wealth and income within the economy. The net personal benefit that one receives from transactions mediated through the government differs from individual to individual and changes the market's distribution of resources. Consequently, changes in government versus private wealth imply redistribution among individuals.

Both of these notions are related to the concept of the "soft budget constraint" developed by Kornai. 2/ In contrast with the archetypical private firm, public firms often are immune from bankruptcy and therefore need not emphasize the importance of operating in a fashion that generates enough revenue to cover costs. The behavior of such a firm will likely differ from that of a firm with a strict budget constraint.

The widespread existence of soft budget constraints could lead to macroeconomic problems. If many firms plan, and then execute expenditure well beyond their revenue, this publicly generated aggregate demand would bring about current account problems, price pressures, and shortages. While private firms may also plan expansion that exceeds the available finance, the response of market signals is likely to be more rapid--through the credit markets, for example--and the adjustment quicker by the firm with a hard budget constraint. Public enterprises may also carry out an important part of a country's total investment. Tanzi (1987a) argues that, for a number of reasons, public investment may lead to a lower-than-potential growth rate. For these reasons alone it is important to estimate the extent of public enterprises in the economy.

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1/ The U.S. Government currently prepares Special Analysis F of Federal Credit Programs which includes federally guaranteed loans.

2/ See, for example, Kornai (1986).

Kornai has emphasized the importance of the budget constraint but it should also be pointed out that the impulse for efficiency is derived not only from the threat of bankruptcy but also the possibility of management replacement. A firm operating in a less than perfectly competitive market may make profits without subsidies or transfers of any kind, but not be as efficient as possible. In a private market such performance could lead to a corporate takeover or a replacement of management. This potential for replacement is usually not present for public firms. Nor, as argued in Section IV, is it generally easy to properly judge the performance of a public firm.

The impact of the soft budget constraint on the allocation of resources is also important. Firms with implicit government backing--whether they are nominally public or private--create potential claims on public resources. Contingent government backing for certain selected enterprises is valuable in that it gives the firm's suppliers, creditors, and customers security that the publicly supported firm will remain in business or, if it fails, its debts will be paid. This allocates resources toward these industries and away from less favored firms and sectors. Part of the cost of such policies is borne by the government.

Many enterprises would correctly be labeled public in both definitions. In some cases they would not. A publicly owned corporation that has government-guaranteed debt, and operates in an efficient way in competition with private enterprise, may have important implications for the government's finances yet act in a fashion quite similar to a private firm. By the criterion outlined above, it would be considered private from a behavioral point of view but public from the standpoint of the distribution of income and wealth in the economy. On the other hand, a publicly regulated private utility may exhibit behavior that is not attuned to market forces but not be a direct drain on the public treasury if it is able to adjust its selling prices and has sufficient market power. From a behavioral standpoint it would be considered public but not necessarily from the standpoint of the distribution of income and wealth. Separate measures will therefore be necessary depending on the ultimate purpose of the analysis.

#### 4. Public production versus public provision

One way to arrive at a distinction between public and private enterprises is to ask why there are public enterprises at all. The reasons for government intervention are well known. The government has a role in the provision of public goods where it is impossible or inefficient to exclude individuals from consumption. In cases where exclusion is a problem, a private firm would not be able to capture the full benefits of production, the market would not provide the correct amount of the good, and, therefore, the government has a "raison d'être." The government, rather than attempting to charge individuals who consume the good or service the full cost, finances its provision of the public good through compulsory levies on other sectors. The classic

example of this is national security. Exclusion is not possible and the market would not generate the optimal amount of the good. 1/

The cases of pure public goods are rare. Most goods and services provided by governments lie in the spectrum between pure public and pure private good. If the unregulated market cannot be expected to generate the optimal provision of the good or service, public enterprises may be called upon to execute the government intervention.

If the good bears the characteristics of a private good, and exclusion is desirable, then the price of the good should fluctuate in relation to marginal cost. As marginal cost changes, the price charged should be changed. Earlier, it was pointed out that there exists an important distinction between government agencies and enterprises from a managerial standpoint. Government agencies are typically charged with accomplishing their policy assignment with a budget representing the minimum amount of expenditure necessary to achieve the task. Budget allocations are made for a specific purpose based on a detailed accounting of projected expenditures. This type of management tends to become embedded in public corporations as well. As argued in Levy (1987), the enterprise's task may be defined through the outcome of an interplay of a number of constituencies--legislators, bureaucrats, interest groups, and competing government agencies. In contrast, private enterprises typically operate with a great deal more flexibility in changing their product prices and input mix during the course of the fiscal year. This is rational if the enterprise is faced with rapidly changing relative prices for inputs and, correspondingly, a rapidly changing mix of optimal inputs. This added flexibility is frequently quite an important factor when the enterprise is involved in the actual production of the good.

Government practice in the production of goods and services varies widely from country to country and across types of goods. The extent of public production of public goods as distinct from public provision combined with private production has varied widely over time. Although privatization is usually thought of as a modern phenomenon, in 17th century Europe, it was, in a certain form, quite common. "The sale of offices was common to many states, but nowhere did it figure so prominently as in France. Tax assessors, refuse collectors, registrars of births, marriages, and deaths, mayoral and other municipal offices (after 1692)--in short, every imaginable office--was sold." 2/ Even in the military sphere the private sector was important. Prior to 1600, Europe's standing armies were relatively small, and those armies put

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1/ James Buchanan and others have argued that one should not be too quick to conclude that a government could bring about a superior allocation of resources. Their's is a theory of government failure which complements that of market failure.

2/ See De Vries (1976).

into the field, "...consisted chiefly of mercenary soldiers and recruits brought together by a military contractor; they would be released at the end of the campaign."

Perhaps the most infamous of these practices was that of the "tax farmer" who purchased the right to collect taxes and who could keep all money collected over a specified amount that was owed to the treasury. According to De Vries, this system, as it existed in the Dutch republic in the 17th century, generated such social discontent that it led to the most significant riots in the republic's history.

Public opinion as to what is appropriately in private hands has changed over time and varies, at the same point in time, from country to country. Baumol (1984), in sketching the outline of a theory of public enterprise, argues that there are some areas, such as tax collection and the armed forces, where private incentives may be incompatible with the public welfare. The notion of a bureaucratic armed forces seems preferable to one that is interested in generating business, presumably through the instigation of wars. Why a public armed forces would not be interested in the same unsettled world situation is not that clear, however. Alternative explanations are possible. If one accepts that there are important economies of scale in organizing military command and control systems, then one would suggest that this is a natural monopoly. But why should this monopoly be reserved for the government? A possible reason relates to strategic considerations. Defense secrets play an important role and strict controls would have to be placed on such information. Another problem would be potential conflict between shareholder interests and the national interest. In theory, a private firm could be purchased by individuals who oppose the state. The power to wield the nation's armed forces may be too great to delegate.

The case of tax collection is also interesting. Under the system described by De Vries, the private collector had the correct market incentive to collect tax revenue. Unfortunately, however, the marginal revenue collected went not to the state, but to the private agent. In such a system, the tax collector has an incentive to expand resources until the marginal revenue garnered is equal to the marginal cost of collection. As shown in Stella (1989), this incentive structure is quite inefficient from society's point of view as it leads to overexpenditure on revenue collection.

In other areas, public production is specifically designed not to allocate resources according to market mechanisms. Public hospitals in some cases do not charge according to cost, and space is often rationed by nonprice mechanisms. These services might be provided under a similar rationing mechanism by charitable or nonprofit organizations but are atypical of private firms.

Fundamentally what may be important is accountability. Society must choose those areas where it will hold political leaders accountable and those it will leave to the private sector. When there is

competition among producers of a particular good or service, the market can operate very well in holding producers responsible for their product simply through consumer response to product price and quality. In cases where purchases are large and infrequent, automobiles, appliances, and homes, the market may not function as smoothly--a consumer may not have the opportunity to punish or reward individual producers at frequent intervals--nevertheless, the market will tend to reward good producers. With monopolies, however, this mechanism is deficient. In cases of restricted competition when the management is appointed by government, the political system may operate to allow the public to replace bad management or bring about changes in goods and services produced. The armed forces and the execution and formulation of foreign policy may be areas where it is sensible to grant a monopoly, but a strong desire for accountability may keep them under political rather than private control.

Although these theoretical considerations are illustrative, there are many practical reasons why some enterprises are publicly owned. While economic theory is often employed to argue that any given system of redistribution can be carried off better through the market mechanism and appropriate lump sum transfers, in practice, cruder redistributive systems are often employed. Such nonmarket mechanisms may be inconsistent with private production of services although it cannot be denied that in many cases public production is not necessary.

At the other end of the spectrum from the 17th century privatization of the state lie those modern states where virtually the entire economy is state owned and run. In state-controlled economies what is important from the behavioral standpoint is the extent to which the enterprise responds to market signals versus centrally directed planning. It is likely that only those companies with international competitors are likely to exhibit market-directed behavior. <sup>1/</sup> From the standpoint of the impact on the public finances, since the economy itself is publicly owned there would be little distinction between public and private.

In many cases the production technology in relation to the size of the market dictates that the efficient number of firms is one or several. In markets characterized by monopoly or oligopoly, price will not be set equal to marginal cost <sup>2/</sup> by unregulated firms and a lower-than-optimal amount of the good will be sold at a higher-than-optimal price. Although there are several ways to approach this problem, a common one is state production through public enterprises. The conflict between efficient production with natural monopoly and efficient pricing explains, in part, why it is more common to see governments involved in

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<sup>1/</sup> See Hall (1988) for empirical justification.

<sup>2/</sup> For an interesting discussion of recent Chinese efforts to induce profit-seeking behavior among enterprises, see Blejer and Szapary (1989).

the production as well as the distribution of electricity than it is in the production of agricultural goods where the production technology is more likely to approximate constant or declining returns to scale (given a fixed supply of land).

The origin of government involvement in many cases is that the industries required large capital investments which in many countries could only be financed by government. Apart from the large magnitude of the investment, private investors in many cases were concerned that future pricing policy would not generate the average return on capital. This would be a natural fear if there were substantial fixed cost and where marginal cost is declining, as the point at which price equals marginal cost will be one where average cost exceeds marginal cost and the firm will make a loss if compelled to charge efficient prices. In this case the government would be forced to choose a price between marginal and average cost and decide whether it would rather subsidize a private firm to produce at the point chosen or keep the decision-making process under the control of government.

There are other ways for the government to intervene in cases of monopoly and oligopoly. One is to regulate the private firm by imposing a maximum price on the product. Another option is to control the amount produced by the firm. Both of these techniques suffer from the problem that they may put the firm at an unprofitable point (where price equals marginal cost but is less the average cost)--leading to an eventual erosion of the capital invested. Another method is to guarantee the firm a specific rate of return. This has the drawback of not giving any incentive to innovation or cost reduction. For these reasons many governments have attempted to solve these problems through direct control or government ownership.

It is important to recognize the difference between equity and debt in this context. The private investor will be willing to accept the additional risk associated with equity only if given the opportunity to realize higher returns. In a situation where it is likely that the government would not permit the firm to generate high returns, that is, there is likely to be political interference in the setting of prices, investors may prefer to finance the project or firms with debt, leaving the government as equity holder. This proposition is not inconsistent with the existence of cases of private ownership of publicly regulated utilities. In many cases, particularly in those where pricing is on a cost plus basis, the characteristics of publicly regulated utility equity are very similar to fixed interest debt. In any event, where production of the good is important to government it is likely that the additional flexibility in the choice of inputs allowed by the managerial structure of public enterprises 1/ will dictate that production will be

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1/ For government agencies it is often easier to measure inputs than outputs. It is only natural, therefore, that management stresses control of inputs.

organized under the direction of a semi-autonomous entity rather than by a government agency.

Often there is a distinction between publicly and privately owned enterprises even when government policy forces them to behave similarly. For example, it is fairly common that governments require enterprises to service certain high cost areas of a country or region at fixed prices that imply a subsidy. The U.S. Post Office, for example, charges the same price for first-class delivery of letters throughout the country although the per-unit cost varies substantially. For the private sector, according to Stiglitz (1988), the American Telephone and Telegraph Company, prior to 1983, was required to provide service to anyone paying a fee set by the government even if this meant the company lost money doing so. The difference in the two cases is that while the government is often willing to directly subsidize a public enterprise providing such a service, it usually will not do so with a private firm. Instead the private firm will typically be permitted to make monopoly profits in other areas if the government wishes to maintain the stock of capital and level of investment in the industry. Therefore, while the loss of the public enterprise would be paid through the fiscal system, the loss of the private firm may be paid by the consumer of the product as well as by taxpayers indirectly through the implication for tax revenue of a lowered return on capital.

For the purposes of this paper, it is largely irrelevant how the enterprise became publicly owned. Two identical firms if they were operated in identical fashion would fall--according to the reasoning above--under the same behavioral category whether owned by government or private individuals. <sup>1/</sup> Similarly, two enterprises with the same impact on the public finances, whether publicly or privately owned, should be considered equivalent from the analyst's point of view.

### III. Measuring Public Enterprise Activities

#### 1. General considerations

Once it has been determined that a meaningful distinction exists between public and private enterprises, the question of measurement arises. The two motivations for making the distinction require different measures.

When classifying enterprises according to behavior it is correct to take value added as the measure. For questions such as, what is the importance of the public sector in production, the natural criterion is the fraction of value added produced in each sector.

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<sup>1/</sup> The entire discussion presumes transactions between government and enterprises would be reflected in the government accounts.

The measurement of the impact of enterprises on the public finances is more complicated. For this purpose value added is not the relevant measure. What is important is the identification of the gross flows of government-like activities and their fiscal impact. Take, for example, the case of the telephone company cited above. Correctly measured, those customers receiving services at less than cost receive transfers from government and those who pay prices above economic cost (which includes the normal rate of return on capital) as a result of the government granted monopoly should be classified as paying taxes. Although these adjustments might leave the fiscal balance unchanged, the government's gross revenue and expenditure figures would be understated unless a corrective measure were constructed.

The position that implicit subsidy and tax calculations should be carried out for some private as well as publicly owned enterprises is substantially at variance with current practice. Indeed, in practice, particularly in macroeconomic analysis, no attempt is made to separate the tax and transfer elements. However, as discussed in Section IV, this knowledge is often essential for judging enterprise performance and for constructing policy remedies. Although one might not wish to adopt the somewhat radical position of Kotlikoff (1989) that conventionally defined deficits are largely irrelevant, there are certainly serious problems interpreting the significance of public enterprise operations using only a single summary statistic. Therefore, it is important to calculate implicit expenditure and revenue flows.

To the extent that policies required by government of enterprises reduce their taxable income, the impact of such measures is already partly realized by government. In order to prevent entry by a competing firm the government must either restrict entry or require that all firms make the same expenditures. In those cases where entry is restricted by governments, monopoly profits may be used by firms to cover losses in other areas. This type of operation would not appear in the government accounts. The appropriate way to rectify this deficiency is the tax expenditure approach. When it is known that government policy requires enterprises to subsidize certain consumers or suppliers, the amount of this subsidy should be taken into account. The extent to which a policy of mandated expenditure or subsidy affects the government accounts is often unclear. If the effect is a reduction in tax revenue then the overall government balance already reflects the policy although the gross revenue and expenditure figures are understated. If the firm is allowed to change monopolistic prices as the result of government restrictions, then the government's accounts will probably not reflect the social cost of the program. In this latter case, consumers of the product that is priced according to the monopolist's profit maximizing criteria experience a lower level of welfare. Here again the gross subsidy and revenue figures would be understated.

There are two conceptually separate issues. One is the measurement of the net impact of enterprises, the other is the gross flows of revenue and expenditure that are comparable with those of government.

There are interesting issues with measuring the gross flows. Clearly gross sales revenue generated by the enterprises is not comparable to revenue generated by government taxes. However, it could be argued that public sector prices contain implicit subsidies and taxes. The Fund's A Manual on Government Financial Statistics, p. 102, states, "Taxes also include the profits transferred to government from fiscal monopolies...which reflect use of the government's taxing power to collect excise-like revenue...." As argued in this paper, these fiscal monopolies may be publicly or privately owned.

A problem exists, however, when the enterprise does not transfer profits to the treasury. In many cases this is the result of an intricate system of subsidies and transfers within the organization. In others, profits wind up being paid to employees. Even if profits are made and transferred, they may be lower than potential profits owing to hidden subsidies. In the case of enterprise losses, the subsidy element may remain obscured through the ability of an enterprise to borrow from domestic and foreign sources apart from the government.

Take, for example, a case where the enterprise is undertaking government policy. Suppose it is subsidizing the consumption of a particular product. Were the subsidy paid straight from government to consumers or indirectly from government through a public enterprise to consumers, the expenditure would be reflected in the operating balance of the general government. Quite often, however, subsidies are carried out through public enterprises--with less transparent consequences--through controlled prices. If the enterprise is involved with a single good, it may market the good at a below-market price. If the enterprise makes a loss covered by the budget the subsidy is transparent. If, however, the firm has the ability to borrow from the domestic banking system or abroad, the impact of the subsidy policy may not be registered in the government's accounts. Furthermore, the enterprise will be able to borrow at a lower rate if it has the implicit guarantee of the government. Alternatively, government-owned banks or the central bank may be compelled to lend to it. If these financial institutions are not covered by the fiscal measure, the true deficit will be understated. <sup>1/</sup> In these cases the amount of the subsidy should be added to government expenditure.

If the enterprise is profitable in other areas, for example, owing to a monopoly granted by the government, it may use profits from some of its operations to cross-subsidize others. For example, it is not uncommon for state oil monopolies to tax gasoline but subsidize kerosene or other petroleum products that are believed to be consumed extensively by the poor. The government accounts reflect only the net revenue from this operation, resulting in a downward bias in both the revenue and expenditure flows. In another case, the state oil monopoly and the

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<sup>1/</sup> In certain countries central bank deficits are quite important; see Robinson and Stella (1988).

state lottery were well known as sources of undocumented financing of government expenditure. Only the net transfers/revenues were ever recorded in the government accounts. In this particular case, the treasury and the public enterprise engaged in a long running dispute over just what was the net amount owing to government. These subsidies can be difficult to detect but they may have important macroeconomic significance. To cite a last example, one government, through its agricultural marketing board, effectively used its producer pricing policy to transfer income to politically sensitive regions of the country where certain crops were grown.

Here it should be noted that our concern is not with showing the gross versus net activities of the enterprises, but rather with showing the gross flow of government-like activities. With an agricultural marketing board, for example, one would not--for most purposes--want to amalgamate the gross value of purchases from farmers with treasury outlays for civil service salaries, nor would one want to combine the gross value of receipts from agricultural sales with tax revenue. The policy is the subsidy or tax element, if any, and the quantitative measure of the subsidy is the difference between buying and selling prices as reflected in the operating position of the enterprise. If the operating result is a combination of effective subsidies and taxes (owing to the exercise of government-granted monopoly power), one would want to show the gross value of the subsidies and the gross value of taxes.

The effect of public enterprises operating directly with prices and exchange rates artificially set by government can seriously distort the interpretation of government statistics. When statistics are recorded converting foreign exchange items into local currency using an overvalued exchange rate, all revenues that relate to export earnings are undervalued. This may also affect airport taxes and domestic taxes on imported products, such as fuel, as well as customs duties. For public enterprises, many of which are export monopolies, the exchange rate may seriously undervalue the value of export proceeds. In addition, the value of the firm's capital stock and inventories will be undervalued making obtaining credit more difficult and understating economic depreciation and replacement cost. 1/

On the expenditure side, any allocations of foreign exchange received at the official rate understate the nation's opportunity cost. In general, the performance of any net foreign exchange earner

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1/ If much of the equipment and capital is imported, for example, in a mining operation, the replacement cost of heavy construction and extraction equipment, transport vehicles, and processing facilities as well as spare parts would be seriously undervalued. In economic terms, if the value of the asset is equal to the present discounted value of the future earnings it generates, the asset will be undervalued if the exchange rate is overvalued.

would be understated, while, on the other side of the ledger, any enterprise that is a net user of foreign exchange would have profitability overstated. This problem can lead to perverse situations.

For example, in one country there was a situation with high inflation where, given an unchanged nominal exchange rate, the real exchange rate had appreciated very significantly over a period of six months. The country's main export was an agricultural crop marketed by a state monopoly. The government set a price for farmers that was intended to generate a surplus for the marketing board after allowance for processing and marketing costs plus an operating margin. This surplus, a function of the world market price, was counted by government as tax revenue. Given that the sale proceeds were in dollars, they were converted at the official exchange rate, at the time, roughly one sixth of the parallel market rate. This resulted in a gross underestimate of the revenue from this tax. On the other side of the ledger, other public enterprises were being given foreign exchange at the official rate for the purchase of raw materials and intermediate inputs. Therefore, the costs of operation of these firms were greatly understated. With the general rate of price increase, the government was able to allow retail prices of the public enterprise products to rise by imposing substantial excise and sales tax increases. The net effect was to show declining real taxes from the agricultural export, and rising real taxes from goods produced by the public enterprises when the reality of the situation should have been reflected in rising export tax revenue, an increase in subsidies to public enterprises, and no change in revenue from excise taxes given that real goods prices had not risen.

Although the preferred solution to this type of problem is usually to bring the exchange rate in line with its actual relative price, how should the analyst treat cases where this is not an option? To analyze such a situation correctly and to generate a meaningful data time series, it would be correct to value flows of goods and services at shadow prices when shadow prices are available. <sup>1/</sup> For example, in the case of the exchange rate used to value allocations of foreign exchange by government or government-controlled financial entities, an alternative exchange rate might be used. One candidate is the parallel market rate although this rate might be quite different from the rate that would obtain were the market unified and allowed to operate freely. An alternative would be to make a real effective exchange rate calculation--based on a representative year--in order to calculate a shadow nominal exchange rate. This rate could be used to revalue transactions that are known to have taken place in foreign currency. Though this task may seem overwhelming, in many countries with histories

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<sup>1/</sup> For a discussion of integrating shadow prices into the theory of optimal policy and the appropriate method for calculating macroeconomic social opportunity costs, see Drèze and Stern (1988).

of overvalued exchange rates the practice of foreign exchange budgeting has arisen. Such budgets often specify the foreign and local components of many expenditures. This facilitates the conversion exercise which is often necessary. In many cases a proper understanding of the public sector, if not the entire economy, is vitiated by the use of the official exchange rate to value transactions. In such situations policy errors are quite likely and the effort invested in providing accounts with a sound economic basis can reap substantial benefits.

Although similar problems in determining subsidies and implicit taxes also arise with private firms and with disequilibrium exchange rates, the special treatment often given public enterprises (for example, in their access to foreign exchange at preferential rates and/or requirement to surrender foreign exchange at official rates) implies a higher incidence of problems with public enterprises with close ties to government.

Thus far, two separate reasons for including the operations of the public enterprises in the overall measure of fiscal activity have been offered. One is that enterprises exhibiting nonmarket behavior should be included in measures of the size of government. The other is that enterprises which have explicit or implicit implications for public finances should be included in the measure of fiscal impact whether publicly or privately owned. Although most often one thinks of enterprise losses, in the case of public enterprises that generate profits beyond what is given to government, these profits may properly be counted as contingent assets of government. <sup>1/</sup> In general, it is not the gross value of expenditure and revenue that should be included in the government accounts but only those resulting from government-like activities or, in the case of firms that do not execute government policy, only the net change in the contingent liabilities of government.

The existence of contingent claims on government raises an important issue that will be treated in the following subsection. If the debt of a publicly owned enterprise is given explicit or implicit government guarantee, the stock of such debt outstanding becomes a contingent liability of government and cannot be ignored when assessing government net worth or the future tax effort that may be required. <sup>2/</sup> This is also true for private firms that issue government-guaranteed debt or operate under an implicit government guarantee. The important point to recognize is that regardless of the degree to which an

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<sup>1/</sup> Later in this paper an important distinction will be discussed with respect to the nature of public versus private capital gains and the accrual versus realization issue.

<sup>2/</sup> This is noted by Gray in Floyd, Gray, and Short (1984), p. 81: "Another set of parameters of policy interest are those relating to amounts and proportions of loans outstanding to public enterprises that are 'classified' or 'graded' by management or outside examiners as being of doubtful collectibility."

enterprise is executing government policy, if its debt has received an implicit or explicit guarantee by government, it must be considered a contingent liability. The potential importance of such liabilities is illustrated by the current savings and loan crisis in the United States.

## 2. Cash versus accrual accounting

A difficult problem that has not, so far, been addressed is that of cash versus accrual accounting. For several reasons, the Fund's A Manual on Government Financial Statistics recommends that government statistics be presented on a cash basis. The usefulness of cash statistics is enhanced by their close connection with the monetary and credit statistics. This in turn is a key area for the monetary approach to the balance of payments, an oft used tool in financial programming. The alternative approach, that of accrual accounting, has certain advantages--as well as drawbacks--for aggregate demand calculations although it is clearly superior for use in calculations of government net worth. The practical problem with accrual calculations is that many activities take place without the knowledge of the government. It is therefore not possible for its accountants to properly maintain accrual accounts. Transactions that imply tax obligations, for example, the earning of income, or imply future expenditure, for example, changes in the unemployment rate, are not known with precision by government.

The nature of the cash versus accrual issue is more problematic, however, for the enterprise sector. Cash accounting can be a very misleading guide to the operating performance of firms involved in the production and/or sale of market goods and services. One of the clearest examples of this is in the area of the treatment of capital expenditures.

In calculating the operating result of an enterprise, the cost of capital is determined by depreciation, not by the value of new capital purchases. This distinction can be quite important when large investment projects are being undertaken by government or the public enterprises. One proposal to clarify the accounts is to distinguish between current and overall balances of the public enterprises. The definitions of government and enterprise current and capital expenditure would not be consistent, however. The current account of the enterprise would include depreciation as an expense whereas the government would not. In the capital account, net capital accumulation would be reflected in the enterprise accounts whereas the gross figure would be shown in the government accounts.

There are a number of critics <sup>1/</sup> who decry the failure to account for government capital transactions in a manner consistent with business practice. What is the justification for this differential treatment? The reason for accounting for depreciation in business is to allow for

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<sup>1/</sup> See, for example, Boskin (1982) and Buiters (1983).

an accurate estimation of the firm's profitability. As capital expenditures include the acquisition of new assets that are not fully consumed in one financial year, it would not make sense to add the gross value of capital expenditure to other expenditure when calculating the total or unit cost of the good being produced. If one is not concerned, however, with the profitability of the government or its change in net worth, but rather its borrowing requirement and the impact on credit markets, then one would want to include the total value of expenditure. The primary motivation for constructing government accounts on a cash basis is an interest in the net borrowing requirement. Furthermore, it should be recognized that there would be practical obstacles to deriving government accounts on an accrual basis.

In comparing the enterprise operating balance concept with the conventional measure of the government deficit, the role of depreciation is, as mentioned above, very illustrative. Whether the cash system will show larger or smaller capital expenditures depends on the relation of the current to target capital stock. This is shown in the matrix below. If the desired government capital stock is greater than the current stock, and assuming the government is trying to achieve the desired stock, gross investment must exceed depreciation implying that the government deficit on a cash basis would be higher than if recorded as would be the accounts for an enterprise. If the current stock of capital is the desired stock, then gross capital expenditure will equal depreciation and the two measures would be equal. If the desired government capital stock were below the actual, then depreciation would exceed gross investment and the overall deficit would be understated. More generally, the cash measure shows a larger (smaller) deficit if gross capital expenditure exceeds (is less than) depreciation.

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Recorded Expenditure	Cash		Accrual
	Gross Capital Expenditure		Economic Depreciation
If desired capital stock > Actual	Gross	>	Depreciation
If desired capital stock < Actual	Gross	<	Depreciation

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Advocates of net worth accounting for government are, clearly, also in favor of accrual versus cash accounting. The argument in favor of accrual accounting for government transactions is usually made along the following lines. What matters for individual decision-making is expected lifetime income. Changes in government net worth imply changes in the future tax obligations of the individual. These changes, even though they may not be the result of a specific government policy, may be quite significant in present value terms although they may have no

immediate liquidity effects. For example, if the government owns substantial mineral wealth, an increase in mineral prices will imply higher nontax revenue in the future and lower future taxes. On the expenditure side, a change in mortality rates might have a significant impact on future social security payments.

But an important, though seemingly ignored, point is that the appropriateness of using the net present value approach depends on the government ultimately realizing the capital gains. While this might be reasonable for financial assets, it is certainly not the case for all real assets. For example, if the policy on national park admissions is to charge marginal cost, then the increased attractiveness of the park resulting from the propagation of a near extinct species may never be realized as it would in a private park through increased admission fees. While the increased value of the future earnings of the private park would be capitalized in an increase in its present value, no such effect is felt by the government with its asset. If government policy remains marginal cost pricing, then its net worth will be unaffected. To take another example--the case of a government petroleum monopoly--if an external event leads to scarcity and a price increase, the government will only realize the capital gain if it raises prices, even though marginal costs of production have not changed. In the case of government oil sales to foreign customers, it is clear the increased revenue would improve the government's financial position. With domestic consumers--presume now that the country is just self-sufficient in oil production--the increase in government prices would serve to transfer income away from net consumers for the benefit of taxpayers. To the extent the government does not pass through the entire external price increase it will not realize the full potential increase in its net worth. A key factor upholding the validity of accrual accounting is the expectation that the income will eventually be realized. In cases where the income will never be realized, accrual accounting is not justified. Another area where this distinction is important is the loan performance of state-owned financial institutions. In many cases, loans are kept on an accrual basis even though there is a high likelihood of default and the income will never be received.

In perfect capital markets, a real capital gain occurs when the expected real return on an asset increases unexpectedly. This is necessary to equilibrate the market as investors bid up the value of the asset until it is expected to earn only the average rate of return. With the government, since it is not operating as a profit maximizer, it is not certain that it will act to realize the capital gain. There is no reason for the price of the asset to be bid up if it will never be sold by government. Therefore, this motivation for using accrual based accounting for revaluing the government's assets is less clear.

While the foregoing considerations weigh against strict accrual accounting, it must be acknowledged that an important problem with cash accounting is that "paper" transactions may have a large impact on the overall balance. For example, the government or an enterprise may

choose to rent, rather than purchase, a piece of capital equipment in order to reduce expenditure. Alternatively, capital spending may be postponed. Both actions would reduce the overall cash deficit although they may not represent optimal fiscal policy.

In general, it is proper to consider the calculation of several measures. One would be on a consistent cash basis and would be useful for gauging the public sector's impact on credit markets. Another would consider only the government's cash deficit and the current deficit of the public enterprises on an accrual basis, making some adjustment for capital expenditures that are unlikely to earn a market rate of return.

The way in which a particular government policy is reflected in its accounts depends on how it is designed as well as whether the affected firms are public or private. Take, for example, a regulation that imposes strict pollution standards on firms within an industry. If compliance with these standards involves additional expenditures that are not incorporated in the value of the final product, neoclassical theory would suggest a lower rate of return on capital will result, eventually implying a decline in the industry's relative size. If the firms in the industry are all private, government revenue derived from the industries will decline, the amount depending on the tax rate, among other factors. If a public enterprise is involved, then the treasury will feel the impact of the reduction in the rate of profit to an extent determined by its degree of ownership through a reduction in nontax revenue or a reduced operating surplus in the public enterprise accounts. Whether worker benefits are paid by governments or are mandated by the state for employers will determine whether a given policy appears in the accounts as a loss of tax revenue or an increase in government expenditure. 1/

#### IV. Determinants of Public Enterprise Deficits

Once it is determined that public enterprises are different in a behavioral sense from private enterprises and/or that their operations have important implications for the distribution of wealth and income in the economy, it will be of interest to examine their operations more closely.

Although they are often the subject of criticism on a macroeconomic level for their frequent contribution to the overall fiscal deficit, a proper assessment of the fiscal impact of public enterprise operations requires analysis of the determinants of the bottom line. A deficit, for example, is not prima facie evidence of a fiscal problem. Although profitability is the generally accepted measure by which to judge

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1/ Summers (1989) points out that the dead-weight loss associated with mandated benefits may be less than identical benefits provided by the state and funded through taxes.

private enterprise performance, it is important to recognize that economic efficiency--particularly in areas where public enterprises are often found--does not necessarily imply profitability. Furthermore, owing to the often complex web of transactions among public enterprises and between the enterprises and government, a proper analysis of public sector operations requires a careful inspection of intrasector transfers and pricing on a disaggregated level.

Apart from the fact that profitability, by itself, does not imply economic efficiency, the operating result of a public enterprise is often not a good measure of its efficiency in that such enterprises are frequently compelled to optimize under constraints that do not confront their private sector counterparts. A public transport company, for example, may be directed to serve high cost rural districts in order to carry out a government's commitment to rural development. Indeed, governments often utilize public enterprises to carry out important policy tasks and therefore a subpar performance is almost guaranteed if one uses as a reference point the outcome of an unconstrained optimization. Conversely, the government may give favorable treatment to the state enterprises. It might, for example, direct ministries to buy from the state enterprises. These types of policies make analysis of public enterprise results difficult but if one is to arrive at meaningful proposals for reform an understanding of some of the potential problems is essential.

A common criticism of public enterprises is that they are inefficiently run. It has already been mentioned that it is important to clarify whether this perception is accurate because of exogenous constraints imposed on them or is the result of poor management or corruption. The bottom line itself is of no use in this respect. In approaching this matter conceptually, it is useful to distinguish between several types of efficiency. The firm may be operationally efficient at market prices for its inputs. It may be operationally efficient at shadow prices. <sup>1/</sup> Apart from whether or not the firm is operationally efficient, it may or may not charge efficient prices. In general, firms engaged in monopolistic or oligopolistic competition will not price their products efficiently from an economic point of view. Naturally, private firms will not take into account any redistributive goals of government unless they too are already incorporated into the overall incentive structure. Public enterprises are sometimes compelled to charge prices that are below marginal cost in order to fulfill a political goal of the government. Clearly, a firm in such a situation cannot fund its operations.

The fact that efficiency cannot be inferred from the overall bottom line of public enterprises implies that they are difficult to monitor. While popular thought may be that representative governments are, by

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<sup>1/</sup> While in some cases the proper shadow price is easy to determine, in others it is quite difficult and depends on unobservable preferences.

nature, inherently poor managers, this would seem to miss a very important point. If the government were solely interested in attempting to encourage profit maximization, in order to reduce the tax burden, it would not seem difficult to set up the proper incentives. For example, the management of common stock mutual funds may represent thousands of investors. The key ingredient is that the general goals of the investors are more or less the same over a few fairly easily measured parameters, primarily risk and return. However, it is quite likely the government will have objectives that differ from the strict maximization of enterprise profits. This introduces difficulties in the evaluation of public enterprises and weakens the ability of the government to control management and performance. In this situation the market may not be allowed to act to reveal poor performance. With a private firm, although monitoring of the firm's management may be poor, market forces will tend to reveal poor performance and decrease the value of the firm. Eventually the firm would be eliminated by competition and better management of the firm's production process will result from evolutionary forces. With public enterprises, however, this mechanism is usually not allowed to operate. Of course, if the government's policy implies that the firm will make a loss it must be prepared to fund the loss. The lack of a mechanism to enforce good performance and the fact that it is difficult to measure good performance are obstacles to control.

#### V. Conclusion

A number of recent authors, among them Tanzi (1987b), have emphasized that the design of fiscal policy must take into account, to a greater extent, the microeconomic issues--the precise nature of the fiscal problems and the quality as well as the quantity of adjustment needed. This paper looks at one element that often forms part of the fiscal problem, the public enterprise sector.

The first topic discussed in the paper is the proper definition of public enterprise. It was argued that one definition would not suffice for every purpose and in each country. Two areas of distinction were identified that provide useful definitions for analysts and policymakers. One is based on the behavior of enterprises. Those that respond quickly and efficiently to market signals may be distinguished from those firms that do not. Often these latter cases are publicly owned and have soft budget constraints. Not all of these firms are publicly owned, however, nor are all publicly owned firms slow in adjusting to market forces.

Knowledge of that portion of the economy that responds as the private sector and that which responds more like government agencies is useful for a number of purposes. In designing economic policy, for example, it is crucial to know what sectors in the economy need to be controlled by direct mechanisms and which can be influenced through indirect means--the price system. Those enterprises that are

categorized for this purpose as the public enterprise sector will not be expected to respond in the desired manner to indirect measures, changes in the exchange rates and interest rates, for example, and would require direct controls on expenditures or the overall deficit as is the case with government. Government and public enterprises are often structured in such a way that they are not especially responsive to market signals. It is therefore important that they be considered suitable for direct controls.

A second reason for making a distinction between types of enterprises is their impact on the public finances. It is often the case that private and publicly owned enterprises receive state guarantees or assistance. Their operations therefore affect the net worth of the government and thereby individuals' future tax and government benefit streams. Firms that may not satisfy the behavioral criterion for public enterprises may fall in this category if they have issued government backed debt or received subsidies from government.

There exist several complications in measuring the fiscal impact of public enterprises. One is that enterprise accounts are often properly done on an accrual basis which conflicts with the procedure suggested for government--cash accounts.

Accrual accounts are proper for measuring profitability and the net worth of a firm but are not useful when constructing the public sector's net borrowing requirement (PSBR). Although there are a number of critics of the PSBR measure, it is useful for purposes of gauging the public sector's impact on credit markets and for a consistent analysis of the contribution of the public sector toward money creation. In this context, public enterprise cash accounts play an important role.

In gauging the impact of the public sector on the economy, it would be more proper to measure enterprise activities on an accrual basis. This would give a truer reflection of the performance of the enterprise sector. A major divergence in this treatment would arise in the area of capital expenditure. For government, on a cash basis, all gross capital expenditure is shown as an expenditure while depreciation is not. For accrual accounting, however, depreciation is shown as an expense. Whether this asymmetrical treatment is warranted, however, is often a matter of judgment. For a profitable public enterprise, it is sensible to record the capital expenditure as resulting in an increase in the value of the firm and therefore unlike a current expenditure. For a notoriously loss-making enterprise, however, the increase in capital may lead to little future income generation. In these cases, proper treatment would be closer to the cash concept. What is important is the net value added by the marginal capital expenditure. If it is positive--the project is a sound one--then one could argue it should not be simply added to the public sector deficit but treated separately in a public sector capital account. If the project is a bad one, then some account should be taken of the present discounted cost to government. Historical performance is often a useful guide in judging how to treat a firm's capital expenditure.

Another difficulty with accrual accounting is the treatment of unrealized capital gains. The market value of privately owned firms will rise if there is an improvement in the firm's prospects. This capitalization effect would also occur for publicly owned firms if shares in those firms were ever to be sold. Some publicly owned assets will never be sold, however. It, therefore, seems of dubious merit to revalue such government assets. If the increase in the value of the firm will never be realized--if, for example, the government will never sell the firm or the increase in the firm will mainly accrue to private owners--it would be incorrect to attribute such an increase in present value to the government accounts.

The treatment of government contingent liabilities is another problematic issue (for an in-depth treatment see Towe (1989)). The probability of a default on guaranteed debt is a function of the firm's current and future performance. While the impact (in expected value terms) changes over time, the value of the subsidy for accrual purposes must be determined at the time of the guarantee. Here, again, the distinction between cash and accrual accounting can be quite large.

Section III discussed a few fine points of measurement. In many cases, enterprises execute a complex system of subsidies and taxes that may be obscured in an aggregate measure of performance such as the operating balance. Ideally, one would like to show the subsidy and tax elements separately in order to better represent the fiscal system in a true light. While this may be difficult, it is often of immense value for policy analysis especially in those cases where such analysis may potentially be led astray when enterprise activities are measured at artificial prices and/or exchange rates.

It is widely acknowledged that public enterprises often play an important fiscal role. In order to identify this role and to develop policy recommendations, it is necessary to examine enterprise operations closely. Enterprise operations and accounts raise special questions that call for an analyst attentive to the important differences that exist between government and public enterprises. This paper has attempted to raise a number of these issues and point a direction toward their practical resolution.

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