

Distr.

RESTRICTED

E/CEPAL/BRAS/Sem.2/R.1

1 May 1983

ORIGINAL: ENGLISH

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ECLA

Economic Commission for Latin America
Office in Brasilia

State Control and Planning of Public Enterprises
Seminar - organized within the framework of the Agreement
between the Economic Commission for Latin America (CEPAL) and
Brazil's Economic and Social Planning Institute (IPEA).

Brasilia, 15 - 17 June 1983



"PUBLIC ENTERPRISES IN LATIN AMERICA:
THE NEW LOOK?"

This paper was prepared for ECLA by Alfred Saulniers from the Institute of Latin American Studies, University of Texas at Austin, to be discussed at the Seminar. The opinions expressed in this document are the exclusive responsibility of the author and may not coincide with those of the organization.

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INTRODUCTION

Of the top ten companies outside the United States in 1981, five were public enterprises, and two of these five were public enterprises from Latin America. (Fortune, Aug. 22, 1982) On the basis of the commonly accepted "folk wisdom," one would expect that a ranking of the top ten by rates of return to stockholders equity would produce a list with the lowest five places being occupied by those five public enterprises. In fact, almost the opposite happens. The top three positions were held by public enterprises which outperformed any of the private companies. Moreover, the rates of return of these top three ranged from a low of 17.5 percent to a high of 30.7 percent, and none of the top five public, (ranked, originally it should be remembered, in terms of sales) had a rate of return on equity less than twelve percent. One of the Latin American companies occupied second place in the ranking on rates of return, and the other was in fifth place. Admittedly the small sample is biased and limited in scope, but this simple exercise indicates something that will become more apparent throughout the paper, that the public enterprise which we are discussing in this conference is not the same type of public enterprise that would have been considered had a somewhat similar conference been held ten years ago.

This paper sets out to examine some of our basic tenets about public enterprises in the light of recent experience, and may be viewed as a broad attempt to answer the apparently naive question: What are public enterprises? The first section of the paper seeks to answer this question

Thanks are expressed to William P. Glade who read and commented on an earlier version of the paper, and to Mary Moran for typing the complicated tables. All responsibility for remaining errors is mine.

by posing an even simpler version: Why are there public enterprises? Knowing why public enterprises were established may be a useful beginning in deducing exactly what they are. The second part of the paper gets closer to an empirical analysis by posing yet another version of the question: What do public enterprises do? This functionalist attempt to describe their functions will be based on Office for Public Sector Studies detailed SIC information for three countries: Peru, Mexico and Brazil. This will be complemented by the use of descriptive statistics from published survey material to compare public enterprises to their private counterparts. The third section makes use of more rigorous analytical techniques to answer the repeatedly-posed question in yet another fashion: Are public enterprises really different? The last and concluding section will summarize the results of these successive approximations and will raise even more questions.

I. WHY ARE THERE PUBLIC ENTERPRISES?

The first way of answering the basic question "What are public enterprises?" is to examine what they were created to do.⁽¹⁾ It should be apparent that knowing why public enterprises were formed should provide the basis for constructing a useful set of criteria from which a description cum definition may be advanced. This is certainly an initial step as it does not consider changes in the goal structure imposed by external

(1) What would appear to many readers to be the first step, definition of a public enterprise using a legal framework, as is commonly done, is put aside as too complex for this treatment. Parts II.1 and II.2 will employ different operational definitions. An excellent complete set-theoretic treatment of the definitional problem is found in Jones (1975), while a broad non-rigorous treatment is that of Böhm, 1981.

authorities, nor modifications in objectives as a result of internal management choice. Three different methods may be used to explain the actual formation of public enterprises. These are the taxonomic approach which is based on the delineation of a set of motivational categories for public intervention; the historical approach which links public enterprise development to perceptions of evolving needs at different stages in a Latin American country's development; and the structural approach, which views shifts in the role of the state as responding to changes in the polity, the society or the economy taken as a whole. Each of these approaches will be considered in turn, representative cases will be examined, and the weaknesses of each will be pointed out.

I.1 The Taxonomic Approach

The taxonomic approach attempts to classify or systematically divide motives for the creation of public enterprises into discrete public policy categories, based on underlying political, ideological or economic grounds or some combination of any or all of them. The taxonomy may be simple, where each category encompasses one basic motive, or compound (dendritic), where one or more major categories is divided into finer sub-categories, each of which may or may not be further subdivided.

By way of example, Muhammad's taxonomy of Table 1 comprises twenty-one different major categories and is an effort to be as complete as possible. Looking at some of the categories presented in Table 1, it is noted that the underlying bases for the categorization are not apparent from a simple examination of the categories. Thus, some general reasons for government intervention in the economy may be variously interpreted as ideological, or

political or economic. An example of this is the first "to increase government control of the national economy;" while the basis for other categories are more apparent such as the thirteenth, "to intensify capital accumulation." Some of the categories are not dichotomous and hence overlap with each other in different fashions. Increased government control, the rationale of category one, results from the creation of the government preemptive monopolies mentioned in the second category. Thus, these two categories are causally linked in an interwoven fashion.

To be as complete as possible, contradictory or mutually exclusive categories must be included.(2) This may be seen by comparing reason two, "to discipline private enterprise," with reason six, "to stimulate private enterprise." At times, each of these has been applied within a different contextual matrix.

In some cases, the distinction between motivational categories is not completely clear, as between reason eight which covers the provision of services not considered appropriate for the private sector, and reason nine for supplying those services neglected by the private sector. These two merge quite easily. Are services neglected by the private sector because they are not considered appropriate for its action, are sectors not considered appropriate for private action because they are so often neglected, or was the author merely trying to force a comparison?

While there are many other taxonomies used to examine public

(2)It would be nice if a branching algorithm with dichotomous sorting possibilities would form the entire basis for a taxonomy. However, given basic size limitations, taxonomies for public enterprises have only included a few choice levels.

enterprises such as the compound one of Aharoni (1977), or that of ECLA (1971), Muhammad's certainly illustrates the difficulties involved with the choice of categories. First, it is difficult to be truly dichotomous. Should the rescue of Brazil's railways in 1901 because they were not profitable without subsidies and the subsidies placed too great a strain on the government's finances have been placed in Muhammad's category one, that of increasing government control or in his category fifteen, that of the state rescue operation? In the absence of any major changes in government behavior to action solely based on logical, discrete, dichotomous categories, all efforts to impose a post-hoc categorization are beset by ambiguity.

Closely linked to this is a second difficulty, which limits the use of the categorical approach, that it may not be operational in practice. Even when a simple two-category model based on economic and non-economic motives is used to analyze the reasons for incorporating enterprises into the state portfolio, a given public enterprise may have been created for different and overlapping reasons. Placing the enterprise in one or another discrete category then becomes a matter of judgment not bound by any hard and fast rules. Alternatively, placing the enterprise simultaneously in two categories is conceptually equivalent to simple categorization in a new hyper-taxonomy of dimension n , where " n " is the dimension of the original taxonomy. It is quite clear that the presence of even more motives involves the creation of taxonomies of even higher dimension, with attendant categorization difficulties.(3)

Third, and closely related to the second problem, is the difficulty of classifying motives of the multiple actors involved in public enterprise

creation. Only if each actor's motives are identical to those of every other actor is a unidimensional taxonomy realistic. In the more common case, when different actors coincide in a course of action but for different reasons, to maintain the taxonomic approach a recourse to multidimensional hyper-taxonomies is possible, but impractical.

Fourth, any attempt to do an expert categorization of government motives must necessarily suffer from the limitation that true motives for public enterprise creation may be difficult to discern. Stated objectives may, and often do, differ sharply from unstated ones. Such would be the case of a strategic industry ostensibly nationalized in the public welfare, but with the unstated and more important objective of boosting government popularity, a notion which has been advanced as one of the hidden reasons behind the new Peruvian military government's nationalization of the IPC holdings in 1968. Thus, categorization according to any taxonomy on the basis of readily available and accepted information may lead to obvious analytical errors when hidden motives are involved. On the other hand, while categorization on the basis of insider information may be more intellectually satisfying, such information is not often available, and, when it is, often subject to bias and manipulation.

Access to a sophisticated data base management system (DBMS) with the ability to handle both simple and complex plex structures (compound

(3) This assumes that one of the motives is assigned priority over the other, that a maximum of two motives for company creation exist, and that there were n categories in the original motivational taxonomy. Categorizing according to priority would result in an n by n matrix of possible combinations. The original taxonomy is nothing more than those entries along the principal diagonal. Releasing the assumption of priority means that categorization may be done in a triangular matrix of dimension n , with a total of $(n + 1)n/2$ categories.

bi-directional classifications), and development of a taxonomy for it may permit a more fruitful classification and analysis of taxonomies than has previously been possible. Such an arrangement may be useful as a starting point for future use of taxonomies. Past efforts, however, based on a limited number of non-operational categories, have only proven to be a useful starting point for analysis, rather than a powerful analytical tool.

1.2 The Historical Approach for Latin America

The second type of explanation, the historical approach to the origin of public enterprises, attempts to view company formation and growth as proceeding through well-defined, successive historical stages. While there is evidence that countries at approximately the same levels of development have similar public enterprise portfolios, (Jones and Mason, 1982) other world areas will be intentionally neglected, and the historical approach will only be examined here as it has been applied to Latin America. This differs somewhat from the taxonomic approach in that its proponents consider a series of motives which governed the behavior of the successive administrations in Latin American countries during different time periods. In its most reduced form, the argument proceeds as follows. As Latin America successively made the transition from being a region of export-oriented primary producers to a set of countries at different phases of import-substitution industrialization, the functions of the public sector and the motives for creating public enterprises changed. Since the views of FitzGerald (1974) and an early ECLA (1971) historical explanation differ in their emphases, but are similar with respect to their periodizations until the mid 1950's, only the ECLA one will be examined.

Until the earliest third of the twentieth century, with national economies oriented almost exclusively to international trade of agricultural or extractive products, and with major exporting and/or producing firms often in the hands of foreign interests, the few public enterprises created during the period of early primary-export oriented development were expected to meet the needs of exporters. Therefore, the state's major roles were to provide basic infrastructure, to form regional and/or sectoral promotion agencies, to mount rescue operations where private interests were not obtaining a sufficiently high rate of return, and to make available general public utility infrastructure such as adequate water supply and urban transport. In addition, for a rare few countries, some primary extraction such as petroleum was controlled by the state.

A major change came about as a result of the Great Depression and the Second World War since the economies of Latin America had encountered difficulties in purchasing manufactured goods on the world market, both as inputs for the limited industrial base and as consumer items. This set the scene for the second phase, the era of easy import substitution of foodstuffs, textiles, and whatever simple engineering technology was within the reach of domestic entrepreneurs. During this stage alternative policy instruments such as tariffs and quotas to protect new domestic firms were more important than public enterprises. There was also a wave of nationalizations of public services and basic transport for political motives as well as several rescue operations of foreign firms which had become increasingly unprofitable to their overseas owners as a result of the expiration of government-granted concessions or of the government-

imposed barriers to unfettered profit remittances.

After the mid-1950's, Latin America was viewed as entering the stage of advanced industrialization where the state emerged as entrepreneur and as an important producer of goods and services (ECLA, 1971: 4). During this stage, since large industrial projects such as the provision of capital goods, heavy industry, chemicals or electric equipment were often beyond the reach of the private domestic entrepreneurs by virtue of their size, costs or required technology, the state directly assumed a much larger role in the industrialization process as the only viable alternative to foreign investment since this last was often ruled out for political reasons.

There are major problems associated with the historical view. First, it simplifies the evolution of the public sector, and consequently the public enterprise portfolio, to a linear, unidirectional and additive one, whereby different types of public enterprises enter into the public domain at specified periods according to some inevitable historical logic. Since these historical periods inexorably succeed each other, in an a, b, c fashion, there is no provision in the logic for those companies associated with entry into the public portfolio in a later period b, for example, to have been created by any government during period a. Thus, the Peruvian government's 25 percent investment in 1826, later increased to 50 percent in 1830, in a land irrigation scheme to supply the domestic market with cheaper foodstuffs would have to be dismissed as a historical anomaly because it should only occur later.(4) Furthermore, that the Peruvian government set up in Callao the only naval foundry of its kind in all Latin America, the Fundición Naval de Bellavista, in the late 1840s to

manufacture heavy equipment not only for the military forces but also for sale to the private sector, has to be overlooked because it occurred over a century too soon. Such a priori dismissal would fly in the face of the stated aims of company creation, which were to lessen the dependence on imports from the U.S. and Europe, and thereby lead to cost savings.

(Echenique, 1952: I: 115-116 and Castilla, 1910: 26-27) The sequential view of the sweep of modern history in Latin America seems to be unable to cope with the reality of early nineteenth century efforts at industrialization.

Second, the historical view entails an unarticulated assumption that the underlying historical process was one of broadly defined development or growth, rather than one of contraction and shrinkage. Therefore, such a view can never explain how governments could, or indeed why they ever would want to, divest themselves of enterprises. Recent work by Bonser (1981) on a cyclical model of state intervention in Argentina is an attempt to remedy this failing by explaining how swings in the prevailing government ideology influence the public sector as a whole, the composition of the public enterprise portfolio, and pricing policies of individual government-owned firms.

Third, the links detailed above between stages of development and the formation of public enterprises are often at variance with nineteenth and early twentieth century reality. Not only is the historical approach to public enterprises unable to handle a few anomalies which crop up at various times in different countries, it is based on a partial reading of

(4) Ley, April 11, 1828; Decreto, March 2, 1830; Ley, October 13, 1832 in Oviedo, Colección, vol. 6: 45-48.

the overall experience. It assumes that political independence was synonymous with a rejection of the dependentist economic policies of the late colonial period, which policies were abandoned in favor of those of the new liberal state. A careful reading of the documents of the period, however, reveals a high degree of policy continuity well into the new period. While this is not the forum to undertake a thorough reappraisal of nineteenth century Latin American economic history, two obvious illustrations come to mind. Sectoral development banks in many countries were formed long before the stage of easy import substitution where they were expected to occur. Mexico's establishment of the Banco de Avío in 1830 to channel funds to industry and mining is but one example (Potash, 1959). Railroads in other cases became public after the export-oriented stage. While not wanting to argue that a requirement for accepting the results of historical research must be the ability to explain each and every occurrence of the phenomenon being investigated, it is apparent from even a cursory reading of the history of the nineteenth century that the explanatory power of such a gross set of historical divisions is lower than previously believed.

Fourth, while pretending to reveal stages of development which prevailed for the continent as a whole, this method of explanation does injustice to the experience of individual countries. The case of Peru is quite different from those of Brazil, Mexico, Uruguay or Argentina, each of which had a large portfolio of public enterprises at a much earlier historical period. Further, analysts such as Baer (1970), Bigler (1981), Montoya (1979), and Topik (1978), who have examined the growth of any one nation's public enterprises from the historical perspective have been led

to employ a sequential breakdown quite different from the above. Analyzing the First Republic in Brazil (1889-1930) Topik found an activist state, albeit acting at times in a haphazard and unplanned fashion, much earlier than the period of easy import substitution. Baer et al concluded that considerations of Brazilian national security led the state to invest in iron, heavy industry, petroleum, and chemicals during the 1940's and early 1950's supposedly the era of easy import substitution. Montoya delineated only two stages for Peru, the pre-1968 limited and timid intervention within an overall liberal framework, and the post-1968 activist role in production and distribution. Bigler, looking at Venezuela for the half-century from 1928 to 1978, was able to distinguish five separate stages. There, the strong emphasis on basic infrastructure, which began prior to the Great Depression, was interrupted in 1945 by a major shift in government policies towards populism, which brought about changes in the types of public enterprises created and changes in the pricing policies. This second stage, in turn, was reversed in 1954 for a second basic industry cycle which lasted a decade. From 1964 to 1973, Bigler notes a veritable boom in the creation of subsidiaries of public enterprises, a phenomenon so important as to merit its own stage. Finally, from 1973 to 1978 the OPEC-fed public administration underwent a bonanza cycle which included the public enterprises. One can readily conclude from the above that in attempting to generalize excessively from the experiences of one or a few countries, the historical approach loses the wealth of detail associated with the unique historical experiences of individual countries. Furthermore, any attempt to reconcile these differences is open to the trap of postulating the existence of a historical least common denominator for the entire continent, whose presence can never be verified through studying

the evolution of any one country's public sector.

To maintain that Latin America as a whole adhered to the same inexorable development pattern is to oversimplify the complexities both of development and of Latin America. Countries may, and have, created public enterprises attributable to the later stages without having passed through earlier stages. In fact, the stages themselves are not sequential, their distinctions are blurred, and characteristics of earlier stages are often mixed in a hybrid fashion with those of a latter one. The consequences of this mixing are that the historical approach is not operational when dealing with particular countries, and in addition, that it does not deliver the expected universalist theory of public enterprise development. Therefore, while it has been useful in helping set up a skeletal framework for viewing the past, it should not be regarded as the only unique framework against which the facets of individual national development may be ordered.

Since the explanatory power of the historical approach to the size and composition of the public enterprise portfolio is limited, a revisionist view of that history is certainly in order. Until now, the historical approach has viewed the portfolio as analogous to a bed of fossils, added to by accretion in well-defined layers, with the public enterprises themselves, viewed as the fossil remains of past government policies. Since those policies were often later changed, modified, countermanded, reversed, and then reinstated under different guises, with the public enterprise counterparts of creation, dissolution, merger and deliberate atrophy, the proper analogy should be to the alluvial deposit downstream from a fossil bed rather than to the bed itself. Studying the alluvial

deposit (the existing portfolio) and theorizing about the nature of the intervening geological (government) processes is a useful beginning, but is no substitute for a detailed examination of the original fossils in situ, which must be the basis for any clear and consistent historical explanation of the dynamics of public enterprises in Latin America.

I.3 The Structural Method

The third method of explaining the introduction and growth of public enterprises, the structural method, abstracts somewhat from the two frameworks presented above and appears to promise the best direction to guide research hypotheses on questions about the origin of public enterprises. The structural method postulates functional linkages between the growth in size and/or number of public enterprises and changes in economic/political/social structural factors as a nation grows and develops. These structural changes may be readily observed, and in some cases quantified, leading to a set of empirically verifiable hypotheses regarding public enterprises. By its very nature, and assuming sufficient data can be found to employ it, the structural method should avoid one major failing of the two methods detailed earlier, lack of operationality. While this method has generally been applied to determine the causes of public sector growth in general, Glade (1973) has made an attempt to recast a few of the explanatory factors in such a fashion as to observe their role in the growth of public enterprises.

The structural method also avoids an as-yet-unmentioned problem of both the above approaches, their inability to handle change. Knowledge of why an enterprise was created is important, but knowledge of why government

authorities have modified its goals; or why company officials have changed company objectives; or why different goals have succeeded each other is extremely important in answering the question "What is a public enterprise?" Neither the fixed-category taxonomic approach nor the unidirectional and invariant historical framework can accommodate goal succession.

This subsection is an attempt to extend Glade's analysis in a more general fashion based on two recent works, an extension of explanatory variables for the median voter model of growth in public spending by Atkinson and Stiglitz (1980: 326-328) and an examination of economic variables correlated to presence of major industrial public enterprises in the cross-section comparative static perspective of Jones and Mason (1982). This subsection is distinguished from the work by Atkinson and Stiglitz by being an attempt to recast some of their public sector-growth variables and to add others that would be more suitable as an explanation of public enterprise growth. It is further distinguished from the work of Jones and Mason by focussing on the dynamics of public enterprise growth or shrinkage rather than on comparative statics to explain public enterprise presence in any sector. As will be seen later, the data requirements for application of the structural approach are indeed stringent. Nineteen structural factors shown in Table 2 are examined and summarized.

There is a major difference between the taxonomic approach and the structural one. The taxonomic method is to categorize factors which may have influenced the creation of public enterprises at some given time period. The structural approach assumes that change over time in underlying phenomena lead to the creation or dissolution of public

enterprises. The logical outcome of the structural approach is the formulation and testing of time-series models dealing with the creation and growth of public enterprises in Latin America as a function of economic, social and political circumstances. However, it will not be done in this paper.

The first structural factor to be considered is growth in per-capita income. This results in a growing demand for social goods whose income elasticity is greater than one, a phenomenon first noted by Engel during the 19th century in his work on household demand patterns. Extending that analysis, changes in economy-wide consumption may be expected to follow those observed for individual households for such public services as education, sanitation, or health, which services are occasionally provided by public enterprises. Thus, as per-capita incomes have risen over time, public enterprises were created and have grown in order to meet this rising demand.

A second factor is income redistribution. Increased demand for public services such as those mentioned above by the segments of the population which benefit from the distribution also may lead to the creation and growth of public enterprises. This must be counterbalanced against, a decrease in demand for services on the part of the net losers. However, the types of services demanded by these last from the government may be quite different, so that the net result for the economy is an increase in the size of the public sector and often of the public enterprises portfolio. Income redistribution may be operationalized as a variable by looking at the ratio of median income to average income through time.

A third factor is a decrease in the perceived tax burden. This often results from fiscal restructuring to taxes with lower domestic impact, such as export taxes on goods where the exporting nation can exercise economic power as, until recently happened to petroleum exporters. An alternative source of a decrease in the perceived tax burden is through an increase in fiscal illusion, often through a shift in the structure of government funding to less-visible value-added taxes to replace funds coming from a more visible, cumbersome and unwieldy system of sales and stamp taxes. Both patterns lead to increased demand for government-provided goods and services as the apparent price of such services drops for the taxpayer.

A fourth factor useful in explaining the growth of public enterprises is a shift in the relative price of public goods and services. If the price of a public enterprise-supplied item decreases compared to those of other goods and services, often as the result of government subsidies, demand would normally increase. An alternative explanation is that prices may decrease without the need for subsidies in the case of a government-owned monopoly with economies of scale. However, in many cases, particularly in the provision of services, the relative price may rise as a result of slower rates of productivity increase, and there is some evidence for the U.S. that this has occurred. Baumol (1967) and Bradford et al (1969) have argued that the relative price for public services has risen because their high labor-intensity makes them less able to benefit from technological progress. Some of the items in the basket of goods and services provided by Latin American public enterprises would certainly be able to incorporate change in techniques of production, and empirical work needs to be done on relative pricing.

A fifth factor is the general increase in the size of the population. Irrespective of prices, this leads to increased demand for government-provided goods and services. This in turn is responsible for some of the growth in output.

A sixth factor is a shift in the rate of growth of population. If the rate of population growth increases as a result of improved health measures, this leads to increased overall demand for at least a minimal level of goods and services. If the growth rate decreases, this leads to changes in the quality and type of goods demanded. Thus, change in either direction may lead to creation of new public enterprises to meet the newly generated demand.

A seventh factor was first noted by Wagner at the end of the 19th century and has become known as one of the underpinnings of Wagner's Law of Increasing Relative Importance of the Public Sector. (Wagner, 1890 in Winfrey, 1973: 199) This model dealt with a hypothesized functional relationship between industrialization and the level of public sector activity. On the basis of an examination of industrialization in several countries, Wagner hypothesized increased public production in industries which provide basic industrial inputs such as metals, fuel, communications and transportation because of economies of scale and large capital requirements.

Wagner also cited an eighth factor, increased urbanization. This change in social patterns, partly resulting from increased industrialization, led to a greater demand for social services, particularly those provided at the municipal level, such as utilities,

urban transportation and public housing. Since these are often provided by public enterprises, the argument can be interpreted as an additional explanatory factor for their growth.

Also related to factors seven and eight is a ninth factor, the decrease in the relative size of the agricultural sector. Since the state has traditionally had low levels of ownership in agriculture, with its sectoral promotion role often limited to the supply of certain inputs, principally financial, but also including technical assistance, decrease in the relative importance of agriculture in the national economy may be correlated with a rise in importance of those sectors where the government is more involved. It may also lead to increased government efforts to foster the introduction and adoption of higher productivity methods through greater financial assistance and direct provision and marketing of key inputs such as fertilizers.

Related to the work of Wagner is a tenth factor which posits an interaction between public and private sectors. In order for rapid industrialization to proceed, the public sector is viewed as a source of social overhead capital. This neo-Hirschman approach implies state investment in those sectors of the economy which have high externalities as a precondition for private sector development and also leads to growth in transport and communications, higher and technical education and banking, all sectors of heavy state involvement in Latin America.

An eleventh factor deals with technological change. If, as has often been alleged, private entrepreneurs in developing countries are either unwilling or unable to adopt innovations, public enterprises become the

vehicles for spurring growth. There is some evidence for Latin America that these decisions may also be conditioned by other intervening variables in the objective function, (Sagasti, 1978: 94) and further research on the point is needed.

A twelfth factor is political, the extension of the franchise often to illiterate voters and their resultant increased participation in the political system. The net result in the legitimization of previously unmet demands for goods and services, which may change the overall mix of government output. To the extent that these are provided by public enterprises, growth may be explained.

A thirteenth factor is the formation of and increase in activities of interest groups. Such an activity provides an opportunity for new pressure groups to incorporate their demands for government provided goods and services into the perceived social welfare function and explains some of the state role as the result of the conflict between early Latin American agro-exporting and newer industrial groups. While such a factor underlies political science views of coalition building, it should be reexamined for its explanatory power for public enterprise growth as well.

A fourteenth factor deals with changes in ideology or social philosophy of political parties or of the ruling groups. These have profound consequences on not only the acceptable size of the public sector, but also the types of activities in which public enterprises may operate. Montoya's division of the evolution of Peru's public enterprises into two historical stages is directly related to the major shift in political ideology of the military government which expected the state to control the

economy. Ideological reasons are important in explaining the decline in relative importance of the public sector and the denationalization of public enterprises. CORFO's privatization of a large portion of its portfolio under the Pinochet government is a clear case in point.

The previous factor is closely related to a fifteenth one given prominence by Peacock and Wiseman (1961), that temporary changes in acceptable spheres of activity give rise to more permanent changes. They set out to explain the discrete jumps in public expenditure in the U.K. as a result of increases in the tolerable level of taxation, particularly during times of war. Exogenous factors gave rise to a much higher level of public expenditure than had been present before. Once the temporary disturbances had subsided, spending dropped, but leveled off at a higher plateau than it had been prior to the disturbance. Time-series data must be gathered to examine if this factor may explain the high levels of public enterprise importance in the Chilean economy even after a decade of military rule.

A sixteenth factor is related to the observed tendency of government bureaucracies to expand their activities. While this phenomenon is more noted within the central government, it may also be useful in explaining the creation of subsidiaries of public enterprises in Mexico and Brazil.

A seventeenth factor bears on this last example, the increasing costs of hierarchical activities. Coordination and control are areas often cited as diseconomies of scale for private firms. To maintain a certain level of cost effectiveness, specialized subsidiary public enterprises may be created to avoid increases in the costs of coordinating activities of any

one firm. Recently, in Peru a rice marketer, ECASA, was created by the board of directors of ENCI, the principal agricultural marketer.

An eighteenth factor deals with changes in class interests through time. This is conceptually different from the thirteenth factor cited above which concerns interest groups. If there is a transfer of power to members of the working class, they will be in a stronger position to claim goods and services from the government. Such a factor underlies the two main tendencies in historical explanations of public enterprise growth detailed earlier.

The converse of this may be cited as a nineteenth factor. If the government uses force to permit increased capital accumulation by the traditional owners of the factors of production, this implies a transfer of income and of power away from the working class. It may also lead to increased demand for public enterprise-provided goods and services, as for examples, better water and sewage in high-income areas, or better universities for the children of the elite. Not only will the group demanding more be quite different from that mentioned as factor eighteen, but the mix of goods and services should be different as well.

The major problem in the structural approach is that it is difficult to verify empirically many of the factors used to explain the origin and growth of public enterprises. Several of the more thorny issues should be considered. The first general problem is data availability. For Latin America, long time-series information going back to the turn of the century or even earlier is scarce and often of questionable value. While the last decade has seen intense research on and increased publication of consistent

data series for some of the structural factors, a major effort is still needed. In addition, data on the dependent variable, the size of the public enterprise sector are even more inadequate. They are, at best, incomplete and inconsistent. Increased government-scholarly cooperation is needed to design and develop useful recordkeeping in part associated with monitoring agencies current needs. The series thus derived should be pushed back in time so that some of the implicit hypotheses of this section can be tested.

A second consideration is the nature of economic organization in any particular country. If municipal garbage collection may be considered a public service whose demand will rise as the result of several of the factors listed above, in some cases this will lead to the creation and expansion of public enterprises, while in others, it will only be reflected in a greater demand for government services. Some effort is in order at making the cross-country comparisons consistent.

Third, data transformations to make numbers useful, once they are obtained, pose a problem. If a global measure, such as the ratio of government-enterprise produced goods and services to GNP is considered the dependent variable, it must be adjusted for inflation. The deflators will only be the same for numerator and denominator if inflation proceeds at the same rate for both. However, price indices for government-provided goods and services tend to rise faster than the GNP deflator because of lower productivity. (Beck, 1976 and Pluta, 1981) It is unclear whether in general the deflator for public enterprise-provided goods and services rises faster or slower than that for GNP. While the prices of some basic consumer items provided by public enterprises are often strictly controlled to moderate

the overall inflation rate as well as to defuse a potentially explosive social situation, price behavior for non-essential services may not follow the same pattern.

A fourth problem dealing with verification is the use of average or median income. Reliable time-series statistics are sadly lacking for Latin America. Finally, a fifth factor deals in the issues covered in the thirteenth, eighteenth and nineteenth issues, the use of relative power. Measurement of such an ephemeral concept, particularly as related to discrete power groups is a thorny issue.

While the structural method appears quite promising as a means of explaining the wide diversity of public enterprise experiences in Latin America, and appears to be able to reconcile what, viewed from the historical perspective, may be called the often contradictory sequential enterprise formation, data limitations pose at present the major limitation for testing the implicit hypotheses. Advances in Latin American economic history and advances in our knowledge of public enterprise functions and growth will have to take place simultaneously.

Three ways of examining the question "Why are there public enterprises?" were examined. The taxonomic quasi-definition of public enterprises as those entities formed to meet one or more of a set of government objectives was found wanting for its lack of analytical rigor. The historical quasi-definition of public enterprises as those entities of particular types formed for specific uses during distinct sequential historical stages was found wanting for often being at variance with nineteenth and twentieth century Latin American economic history. The

structural quasi-definition of public enterprises as those entities which grew or contracted in response to one or more of a set of underlying economic, political or social factors was proposed as a logical extension of, but as-yet-untested successor to, the other two approaches to public enterprise formation.

II. WHAT DO PUBLIC ENTERPRISES DO?

The second question to be asked in the exploration of the current role of public enterprises is "What do public enterprises do? In order to answer this question, data from various sources have been analyzed. The first part of the section is based on information gathered in the archives of the Office for Public Sector Studies of the Institute of Latin American Studies at the University of Texas. The second part has been based on readily-available information for 1981 or in some cases for 1980, particularly the Fortune or Fortune-like lists prepared annually by different business publications. Two of these are broadly based, covering a wide range of companies. They are the Fortune list of the top 500 companies outside of the United States, and the Latin American Times list of the top 500 companies in Latin America. In addition, three country-specific lists were included, those of Expansión of the top 500 firms in Mexico, Visão of the top 200 in Brazil, and of Perú Económico of the top 50 companies in Peru.

II.1 Country-level frequencies

The answer to the question "What do public enterprises do?" is quite simple - "Everything." Public enterprises in Latin America have gone far

beyond their well-known importance in basic industry, public utilities, other infrastructure, and the remnants of the colonial monopolies. At present they are involved in all areas of economic activity, whether alone or in conjunction with private partners.

Table 3 presents frequency information by two-digit standard industrial classification for public entities located in Peru, Brazil and Mexico. That the country- and two-digit totals are greater than published official figures reflects an all-encompassing definition of "public entity" to include many found in the gray area of definitions. These include all instances of government portfolio shareholding, no matter how small, as well as non-profit institutions, the latter including universities. The main point to note is that no sector is without public enterprise participation in at least one of the countries. Naturally, some sectors have a greater importance in the portfolio than do others. These include transportation and public utilities. However, public enterprises are in all branches of manufacturing, not only heavy industry; all types of mining; agriculture, forestry and fishing; construction; wholesale and retail trade; real estate, finance, and other services.

The breakdown for each country is a function not only of the particular structural factors mentioned in the preceding section, but also of the factor resources and comparative advantage of each nation. Thus, the Peruvian government has a greater relative stake in the fishing industry than do those of either Brazil or Mexico. Institutional organizational factors also play a role, as witness the extremely high weight given to the financial sector in Mexico because of the government's heavy reliance on "fondos" and "fideicomisos" to channel funds to other

public sector entities. Once set up, these funds maintain at least a legal existence far beyond their expected useful life. Given this brief introduction to the myriad sectors of action, we now examine more specific economic and financial data for groups of companies.

II.2 Country-Level Survey Data

The data to be examined in this and the following section are from readily available and published business information sources. While there are problems of completeness and accuracy, examination of the data prove to be useful to see how public and private enterprises differ. Where the information was not already provided in the original lists, data on government ownership (greater than 50 percent for consistency across surveys) were added. All data sets suffered from the limitation of missing information, more severe for the companies headquartered in several Latin American countries than for others (See footnote Table 5). The lack of complete and consistent data reduced the size of the universe under observation by amounts which differed from list to list. Final values of N as well as the descriptive statistics may be found in Tables 4 to 8.

Available data were broken down by type of ownership of the company, whether public or private. The public firms in the surveys ranged from a low of 12 percent of the companies included in the Fortune list to more than half of those in the Peruvian one. In general, public enterprises appeared more often among the top firms for Latin America than they did in the worldwide list.

While detailed repetition of the absolute figures and percentile distributions summarized in the Tables, is not warranted, nevertheless, a

glancing comparison of the percentile weights, is useful. In some cases this process reinforces our notions about the role of public enterprises; in other cases it challenges them, laying the groundwork for the hypothesis testing presented in the next section.

First, and not surprisingly, the public enterprises are large. From Table 4, for the entire survey as well as for the sectoral breakdowns, the proportion of sales accruing to public enterprises is greater than the proportion of companies that are public. In other terms, average sales of public enterprises exceed those of the private ones. Furthermore, public enterprises in Latin America tend to be relatively larger than they are in the worldwide data. More public enterprises in both absolute and proportional terms are represented in Table 5 than in Table 4, even though the set of companies without missing data is much smaller. In addition, their weight in the economy is greater: for Latin America as a whole (Table 4 and 5), for Brazil (Table 6), and for Peru (Table 8), the average public enterprise income is not only greater than that of private enterprise, public enterprise income accounts for more than half of all income accruing to the largest firms. Only in Mexico, where prior to the recent nationalizations, public enterprises accounted for less than six percent of the companies, did their sales represent less than fifty percent. Thus our intuitive knowledge that public enterprises are large and important is readily supported by the data.

We also expect that public enterprises are more capital absorbing, which can be judged by comparing the proportional weight of assets to that of the number of companies. For the worldwide data (Table 4), our expectations are not met, as public enterprises are almost identical to the

average, even in mining and steel. In Latin America, however, for all countries together or separately (Tables 5 to 8), and for specific sectors in each country, the share of assets accruing to the public enterprises is greater than their total weight in the survey, with only one exception mining in Mexico. While this may lend some weight to the argument presented earlier that public enterprises are located in sectors where the investment requirements are so large as to be beyond the scope of the domestic entrepreneurs, it may also result from the 1970s nationalizations of resource-based foreign companies.

Another way of examining the capital absorption notion is to look at shareholders equity. While this information is only available in two of the six surveys examined, what is available lends credence to the argument that the public enterprises are those that require large investments. The only exception is major mining of Table 4, where public enterprises have lower equity than their private counterparts.

A quite common expectation would be that almost all the profits reported are attributable to the private companies, while the losses are visited on the public firms. Examination of the data, however, shows results which are not so clear cut. From Table 4, the share of net income accruing to public enterprises is higher than their proportional weight for the entire survey, for the petroleum companies and for the Latin American firms. For steel and for mining, the results are closer to those expected. Overall, public enterprise losses are distorted by those of two large companies, British Steel, and Argentina's YPF, which together lost over \$6 billion U.S. in 1981, more than one-third of the total losses by all companies. However, in general, losses are prorated according to

expectations.

Finally, the popular wisdom holds that public enterprises are bloated with unproductive labor, a notable result of their socially-imposed objective of providing employment and of rescuing the jobs at private companies whose doors were about to close. Again, the expectations have to be tempered somewhat as a result of the descriptive data analysis. As shown in Table 4, on a worldwide basis, public enterprises' employment is only slightly higher than their weight in the whole survey, for the mining firms, and for all Latin American ones. The steel mills are approximately equal, while the petroleum companies show a tendency to jobs creation. Latin American public enterprises conform to popular expectations, except in the case of Mexican mines, which employ less than their proportional weight (Tables 5 to 8).

III. ARE PUBLIC ENTERPRISES REALLY DIFFERENT?

The mere description of the various summary measures presented above casts doubt on some of the key assumptions which underly our operational premises about the working of public enterprises. In particular, one of these to be examined, that often acts as an underlying assumption to both the taxonomic and to the historical approach, is that there are marked differences in performance between public and private firms. This assumption, which certainly is fundamental to our view of modern economic systems, is the basis on which policies ranging all the way from nationalization to privatization have been justified, and provides an endless source of inspiration for the cartoonists pen.

Yet in the real world, the differences are less apparent. Companies of both types have achieved a certain technological size, they are managed hierarchically, and they operate in similar product and factor markets. Just as large private production units often have been able to reach and maintain their size by making the technological decision on the basis of a restricted choice set, so is the public enterprise faced with the same critical choices. Just as managers of large private firms have incorporated their own self interest into the objectives sought by their companies, so do public enterprise managers, often to the great consternation of government controlling agencies. Just as large private firms function in oligopolistic or oligopsonistic markets with reduced efficiency pressures, so are large public enterprises subject to the same sort of environment.

While there is no attempt made to deny the existence of real differences between the firms, there are indications of sufficient similarity to warrant testing a simple hypothesis for each of the surveys and using different dependent variables:

Hypothesis:

For large companies, there is no difference between public and private enterprises.

Tables 9 through 13 summarize the regression results for the same surveys described above. The results are presented for regressions using data for all companies with complete cases.

III.1 Method

Ordinary least squares regression was used to estimate the following regression:

$$\text{Dependent Variable} = \hat{a}_1 \text{Private} + \hat{a}_2 \text{Public} + E \quad (1)$$

where Public and Private are dummy variables representing company ownership, and E is the residual vector. The procedure makes use of the commonality between multiple regression techniques and analysis of variance which are both variants of the General Linear Model. (Ward and Jennings, 1973 and Horton, 1978) The R^2 indicates the additional percentage of the variance explained by including information about a firm's public or private ownership. The F statistic is calculated to test the hypothesis that:

$$\hat{a}_1 = \hat{a}_2 \quad (2)$$

Indications of significance for the coefficients and the F statistic are provided.

III.2 Ratio of Net Income to Equity

Comparison of the rate of return on equity for public and private enterprises should provide us with solid information about their profitability. The results presented in Table 9 for large companies worldwide offer a rather startling and partly counter-intuitive result, namely that the expected rate of return for both private and public enterprises in 1981 was negative. Clearly, the effects of the recession are manifest in those figures, and the lower of the two was that for public enterprises. While this result is demonstrated for the survey as a whole, the sectoral coefficients conform more closely to ordinary expectations

that the ratio of net income to equity is negative for public enterprises and positive for private ones. The conclusion that public enterprises always provide a negative return to equity must be severely weakened as, with the exception of the public coefficient for mining and for steel, none of the coefficients for either type of firm are significantly different from zero. Further, to test the hypothesis as rigorously stated in Equation (2), F statistics were calculated. Only in the steel sector did coefficients differ significantly from each other. In every other sector except mining and in the survey as a whole, the hypothesis of no difference in expected rates of return cannot be rejected. For mining, the hypothesis of equal performance can only be rejected at the 5 percent level.

To cast even more doubt on our folk wisdom-inspired preconceptions, the regression results clearly demonstrate that the public-private enterprise distinction is not a useful one in explaining financial performance. For the survey as a whole, only 0.16 percent of the variance is explained by this distinction. As expected, in the sectoral analysis, with a reduced number of degrees of freedom, a higher portion of the variance is explained, but only in mining does it barely exceed 25 percent.

The only other data set for which rates of return on equity were able to be computed is that for Brazil, and the results are almost the opposite of those in Table 9. The Brazilian results shown in Table 11 indicate that for the survey as a whole the expected rates of return for both types of companies are positive, with that of public enterprises less than that of private companies. Further, the coefficients not only are significantly different from zero, they are significantly different from each other. Also, the public-private dichotomy accounts for 7.5 percent of the

variance. The results are not so clear cut at the sectoral level, however, where for petroleum, mining and steel, the coefficients are not significantly different from zero and they are not significantly different from each other. Thus, the behavior of both public and private firms in Brazil appears to differ from firms surveyed on a worldwide basis.

In these mixed results, however, one thing is clearly apparent. To those critics who argue vehemently, whether from a position on the right or on the left of the political spectrum, that a public enterprise must invariably lose money simply because it is public, a closer look at the data is recommended. Not only are there wide differences in performance among firms of any one type, those differences are such that attempts to explain performance simply on the basis of public or private share ownership patterns are without meaningful empirical content.

III.3 Ratio of Net Income to Sales

In the absence of data on equity, or where it exists to complement the earlier rate-of-return analysis, the ratio of net income to sales should exhibit differential patterns for public and private enterprises. Conventional expectations would hold that this ratio would be either negative for the public enterprises, or if positive considerably below that of private firms. The results are mixed. While the coefficients are significant in both the worldwide (Table 9) and Latin American large data sets taken as a whole (Table 10), in the former $\hat{a}_2 < 0 < \hat{a}_1$, while in the latter $\hat{a}_2 > \hat{a}_1 > 0$.⁽⁵⁾ Worldwide, as expected, the ratio of net income to sales is negative for public enterprises and positive for private, while for Latin America, not only is the coefficient for the public firms

positive, it exceeds that of private firms. Drawing a general conclusion about comparative behavior becomes even more difficult when the sectoral and country-level regression results are considered. For six of the regressions, the public enterprise estimated coefficient is negative, while that of the private firms is positive; in five of the regressions, both are positive and that for the public enterprises is higher. All this must be evaluated in the light of the caveat that in only two of the fifteen regressions estimated with the ratio of net income to sales as a dependent variable are the coefficients significantly different from each other. Again, public enterprises do not conform to the image of invariable money losers.

III.4 Ratio of Net Income to Assets

As a comparative measure of rates of return, this measure, inferior to the two examined above, is the only one to conform to expectations. In all but two of the regressions, the estimated coefficient for public firms was lower than that for private. In five of the eleven, in addition to being lower, it was negative, while that for private firms was positive. In all but four cases, however, one cannot reject the hypothesis that there is no difference between these two coefficients, and further, in most cases, the coefficients themselves are not significantly different from zero. Thus, while conforming in general to expectations that public enterprises do worse than private firms, these expectations are again left without a solid empirical backing.

(5) To the extent that public enterprises are not able to enjoy the accounting benefits of multiple sets of books, their relative profitability may be biased upwards when compared to private companies which, it is alleged, keep two, three, or even four sets of accounts.

III.5 Ratio of Sales to Level of Employment

The ratio of sales to the level of employment is employed as a dependent variable as an attempt to measure differential labor productivity. As the value of the average product of labor, we would expect the estimated coefficient for labor in private enterprises on the average to be higher than that for labor in public enterprises, since the latter are often assigned the social objective of job creation. We would further expect that such differences would be even more strongly marked when controlling for sector of economic activity, as in the total survey data differences among firms within the public or private sectors would balance out somewhat.

The results are startling. Since all five data sets contain the required information, this is the first dependent variable whose performance may be examined in the two multi-country surveys and in those of Brazil, Mexico and Peru. In no total survey did the public-private distinction explain more than one-half percent of the variance. Even more surprising, for the survey of large companies worldwide, and all its subsets except the largest petroleum companies, for Latin American mining and chemical sectors, for Mexico as a whole and for Mexican mining, the regressions indicate that labor is more productive in public enterprises than in private firms. For all the Brazilian and Peruvian data, Latin America as a whole, Latin American petroleum companies and Latin American steel, labor appears to be more productive in private companies.

The indication of a dichotomy in behavior patterns between public enterprises in Latin America, and those in the rest of the world merits

Further analysis. The relation may not necessarily be a strong one, as in only one case were there significant differences between types of companies, for of Latin American petroleum producers. (See Table 10) For the Brazil survey, Brazilian petroleum and steel, Mexico as a whole, and Mexican mining, while the coefficients are significantly different from zero, they are not significantly different from each other.

III.6 Ratio of Equity to Employment

The ratio of equity to employment may be examined as a measure of the cost of job creation. It is expected that if public enterprises are concentrated in heavy physical and industrial infrastructure, the cost to the shareholder (government) of direct job creation is higher than in the private firms. (6) These expectation are borne out in all cases except the Peruvian companies, where the government has deliberately and dangerously undercapitalized its public enterprises; steel mills in Mexico and Brazil; and the world's largest petroleum companies. Once again, our conclusion has to be weakened significantly, since in only three of the regressions are both coefficients significantly different from zero. Moreover, in only two of the thirteen regressions are the coefficients significantly different from each other.

III.7 Ratio of Assets to Employment

The ratio of assets to employment may also be employed as a dependent variable to examine the costs of job creation. Therefore, the expectations

(6) This dependent variable in no way attempts to measure the multiplier effect of government investment in basic industry by creating jobs in those sectors which employ the output of a public enterprise as an input to further transformation.

for the coefficient values conform closely to those of section III.6. The empirical results match quite closely, except for Mexican mining. All the Latin American results shown in Table 10, for which equity was not measured, fit in with expectations. Again, however, most of the results, while striking in conforming to expected wisdom, are not significantly different from each other. Only for the full worldwide survey data, the entire Latin American data, and the entire Mexican data, were the coefficients significantly different from each other, and even this limited significance is weakened, since for the first two of these, both coefficient values were not significantly different from zero. When stratified by sector of action, no significant differences were found.

III.8 Current Ratio

Information on the current ratio is only available through these surveys for the Brazilian companies. One would expect that if the public enterprises are starved for funds as a result of undercapitalization by government authorities, and/or price controls, then the ratio of current assets to current liabilities would be higher for private than for public firms. The regression results support this contention, though only for the Brazilian steel companies is the difference significant, and that only at the five percent level.

III.9 Debt/Equity Ratio

A last measure examined, also only for the Brazilian case, is the ratio of debt to equity. Since public enterprise debts ultimately carry the guarantee of the nation, we would expect the debt/equity ratio to be higher for them than for the private firms. The data bear this out in all cases, though only in half of them are the coefficients significantly

different from each other.

IV. CONCLUSIONS

A standard working assumption of policy analysts, policy makers, and the public in general, is that there are marked performance differences between public and private enterprises. These differences were supposed to arise in part because of the circumstances under which public enterprises were created, in part because of the circumstances under which they were expected to operate, and in part because of their increasingly bureaucratic ossification over time. This paper indicates that if a substantial revision of this assumption is not undertaken, then detailed further study to verify that it does, in fact, hold true is in order. In part, our traditional taxonomic and historical views of the motives for which public enterprises were created, and of the timing of their formation need revision in the light of recent closer looks at specific country cases in Latin America. A structural approach stressing the interrelationships between a set of underlying economic, political and social variables to public enterprise formation, growth and dissolution is suggested.

The empirical testing of the hypothesis that there is no difference between public and private enterprises for eight different performance criteria led to two striking results. First, the coefficient values themselves generally are not significantly different from zero indicating that there is a substantial variance in the performance criteria within the categories of public or private enterprises, and that on the average knowing a company's ownership will tell little about that company's performance. Second, and more startling, the coefficient values for

private and public ownership are generally not significantly different from each other indicating no major performance differences between private and public enterprises, even when controlling for sector of economic activity. These results mean that our traditional preconceptions, often expressed in the pages of private business-oriented publications in the phrases "state losers" or "parasitic parastatals," may need to undergo revision. Indeed, the generalized absence of any statistically significant differences between public and private enterprises should prompt additional serious quantitative study. While certainly not definitive in its conclusions, the analysis reported in this paper indicates that further reappraisal is definitely in order.

One evident direction for future research is to attempt to replicate this study for other time periods, for other countries and with a broader set of variables. This would have two main benefits. First, it would enable, among others, various hypotheses to be tested empirically including:

1. whether 1981 was an anomaly for public enterprises;
2. whether there has been an unnoticed trend among public enterprises to greater economic/financial self-sufficiency;
3. whether the large public enterprises examined in this paper behave differently from their smaller counterparts;
4. whether public enterprises are better insulated from the effects of world recessions than are private firms; and/or

5. whether public enterprises receive special preferential treatments from governments.

Certainly, many more may be added to this list of unanswered questions.

Second, further research may permit pinpointing measures of significant differences between private and public firms. Such measures, if and when identified, could form the basis for designing a monitoring system for controlling agencies to assess how a public enterprise meets its "public" objectives. In addition, these measures could provide a concrete set of benchmarks against which company management could assess performance.

Third, the results of this paper also imply the need for reconsidering the implicit bases for designing a control system. To the extent that the financial and management control mechanisms, often imposed to prevent worsening of a public enterprise's income statement or balance sheet, and often serving to produce exactly the opposite results, may prove superfluous, the need for a change in the nature of public enterprise-government relations should be recognized. This change should be in the direction of making the government's relation to the public enterprises more clearly resemble the government's relation to private companies since the companies themselves resemble each other. In general this implies greater autonomy in action for government-owned firms, with greater management accountability in final results than the current systems, which often severely limit managerial autonomy and managerial discretion in operational decisions, while providing management rewards irrespective of performance in meeting objectives.

Finally, an additional conclusion, the recommendation of which will only be buttressed should the indication of little significant difference between public and private enterprises be borne out in further research, but which basically comes from a consideration of optimal resource allocation between public and private sectors, is that public enterprises should no longer expect to benefit from special preferences or to suffer the consequences of punitive treatment from governments, when compared to government behavior to private firms. Taxes, personnel decisions, availability of foreign exchange for imports and promotion of exports, when considered as global policy instruments, should be administered by the central government in an impartial manner irrespective of the ownership status of the company to which they may be applied.

TABLE 1: PUBLIC ENTERPRISE OBJECTIVES: TAXONOMIC APPROACH

1. To increase government control of the national economy
2. To discipline private enterprise through nationalization or through preemption of certain sectors through government monopoly
3. To generate government revenues or surpluses for investment
4. To enhance national autonomy vis-a-vis international influences and enterprises
5. To safeguard the "defense of the realm".
6. To stimulate private enterprise directly or indirectly
7. To supplement private enterprise by filling gaps which private enterprise may leave open
8. To provide services and utilities not considered appropriate for the private sector
9. To provide social and cultural services neglected by the private sector
10. To correct market power outcomes in the interest of politically desired goals
11. To participate with private enterprise in mixed or joint ventures
12. To channel monetary savings into risk capital
13. To intensify capital accumulation
14. To undertake government programs profitable only over the long-term
15. To rescue "sick" industries
16. To reduce regional disequilibria
17. To foster job creation
18. To counterbalance the influence of transnational firms
19. To promote income distribution
20. To increase the rate of development and/or technology transfer
21. To foster regional economic integration and regional cooperation

Source: Muhammad, pp. 6-9.

TABLE 2: MAJOR STRUCTURAL FACTORS EXPLAINING PUBLIC ENTERPRISE GROWTH

1. Growth in per-capita income
2. Income redistribution
3. Decrease in perceived tax burden
4. Shifts in relative prices for public goods and services
5. Increase in population
6. Change in population growth rates
7. Increase in level of industrial activity
8. Increased urbanization
9. Decrease in relative size of agriculture
10. Increase in needs for social overhead capital
11. Technological change
12. Extension of voting rights
13. Formation and increase in activities of interest groups
14. Changes in ideology and/or social philosophy
15. Permanence of temporary changes in levels of activity
16. Bureaucratic expansionism
17. Increasing costs of hierarchical activities
18. Changes in class interests
19. Government legitimization of capital accumulation

Table 3: DISTRIBUTION OF PUBLIC ENTITIES BY TWO-DIGIT
STANDARD INDUSTRIAL CLASSIFICATION: PERU, BRAZIL, MEXICO, 1981

	Peru		Brazil		Mexico	
	N	%	N	%	N	%
11 Agriculture and Hunting	8	2.3	26	2.4	5	.6
12 Forestry and Logging	0	0	6	.6	3	.3
13 Fishing	36	10.5	3	.3	3	.3
21 Coal Mining	1	.3	4	.4	2	.2
22 Crude Petroleum and Natural Gas Production	2	.6	0	0	0	0
23 Metal Ore Mining	8	2.3	5	.5	11	1.2
29 Other Mining	5	1.5	60	5.6	9	1.0
31 Manufacture of Food, Beverages and Tobacco	5	1.5	18	1.7	91	10.1
32 Textile, Wearing Apparel and Leather Industries	3	.9	3	.3	15	1.7
33 Manufacture of Wood and Wood Products, Including Furniture	5	1.5	0	0	14	1.6
34 Manufacture of Paper and Paper Products, Printing and Publishing	7	2.0	26	2.4	16	1.8
35 Manufacture of Chemicals and Chemical, Petroleum, Coal, Rubber, and Plastic Products	6	1.7	41	3.9	35	3.9
36 Manufacture of Non-Metallic Mineral Products, except Products of Petroleum and Coal	7	2.0	0	0	4	.4
37 Basic Metal Industries	2	.6	26	2.4	13	1.4
38 Manufacture of Fabricated Metal Products, Machinery and Equipment	30	8.7	8	.8	49	5.4
39 Other Manufacturing Industries	5	1.5	2	.2	6	.7
41 Electricity, Gas and Steam	6	1.7	71	6.7	17	1.9
42 Water Works and Supply	0	0	43	4.0	0	0
50 Construction	1	.3	10	.9	8	.9
61 Wholesale Trade	4	1.2	30	2.8	16	1.8
62 Retail Trade	1	.3	6	.6	0	0
63 Restaurants and Motels	1	.3	1	.1	11	1.2
71 Transport and Storage	12	3.5	112	10.5	35	3.9
72 Communication, Postal	38	11.0	62	5.8	5	.5
81 Financial Institutions, Banks	27	7.8	137	12.9	104	11.5
82 Insurance	1	.3	15	1.4	3	.3
83 Real Estate and Business Services	5	1.5	28	2.6	52	5.8
91 Public Administration and Defense	13	3.8	73	6.9	5	.6
92 Sanitary and Similar Services	3	.9	29	2.7	1	.1
93 Social and Related Community Services	86	25.0	185	17.4	120	13.3
94 Recreational and Cultural Services	9	2.6	27	2.5	28	3.1
95 Personal and Household Services	2	.6	0	0	1	.1
99 Unknown	3	.9	6	.6	219	24.3
TOTAL	344	100.0	1064	100.0	901	100.0

Table 4: DESCRIPTIVE STATISTICS FOR WORLD MANUFACTURING COMPANIES, 1981

	<u>Total Survey</u>		<u>Petroleum Companies</u>		<u>Steel Companies</u>		<u>Mining Companies</u>		<u>Latin American Companies</u>	
	<u>Public</u>	<u>Private</u>	<u>Public</u>	<u>Private</u>	<u>Public</u>	<u>Private</u>	<u>Public</u>	<u>Private</u>	<u>Public</u>	<u>Private</u>
Number of Companies (%)	58 12.2	417 87.8	22 31.0	49 69.0	12 33.3	24 66.7	6 28.6	15 71.4	12 60.0	8 40.0
Sales (U.S.\$m) (%)	291821 16.4	1482758 83.6	177128 34.5	336056 65.5	34224 23.7	110335 76.3	21954 30.8	49400 69.2	72159 81.2	16746 18.8
Assets (U.S.\$m) (%)	313650 11.7	2377969 88.3	172859 41.8	241138 58.2	56078 30.9	125360 69.1	24358 30.4	55775 69.6	106020 83.8	20482 16.2
Equity (U.S.\$m) (%)	95245 21.2	353569 78.8	64246 48.9	67084 51.1	14860 38.5	23748 61.5	4483 19.7	18223 80.3	51696 85.5	8725 14.5
Net Income ¹ (U.S.\$m) (%)	8316 17.3	39631 82.7	7578 44.8	9351 55.2	165 7.1	2158 92.9	374 12.4	2651 87.6	4673 72.7	1753 27.3
Losses (U.S.\$m) (%)	11731 69.7	5103 30.3	3940 88.6	508 11.4	5253 80.7	1254 19.3	283 37.6	470 62.4	3855 ² 94.1	242 ² 5.9
Employees (%)	2466641 14.6	14387047 85.4	572750 42.7	769723 57.3	617834 33.2	1241346 66.8	368437 34.0	716285 66.0	397844 60.8	256839 39.2

SOURCE: Fortune, August 23, 1982¹ if positive² Without the YPF disaster, the figures would be: 34 242
12.3 87.7

Table 5 : DESCRIPTIVE STATISTICS FOR LARGE LATIN AMERICAN COMPANIES, 1981¹

	<u>Total Survey</u>		<u>Petroleum Companies</u>		<u>Steel Companies</u>		<u>Mining Companies</u>		<u>Chemical and Petrochemical Companies</u>	
	<u>Public</u>	<u>Private</u>	<u>Public</u>	<u>Private</u>	<u>Public</u>	<u>Private</u>	<u>Public</u>	<u>Private</u>	<u>Public</u>	<u>Private</u>
Number of Companies (%)	71 33.2	143 66.8	7 58.3	5 41.7	6 66.7	3 33.3	5 71.4	2 28.6	5 22.7	17 77.3
Sales (U.S.\$m) (%)	80698 65.6	42311 34.4	54975 85.8	9087 14.2	2532 77.4	739 22.6	3104 91.3	295 8.7	1462 31.5	3177 68.5
Assets ¹ (U.S.\$m) (%)	210708 88.3	27861 11.7	80739 97.7	1921 2.3	7624 89.9	859 10.1	5065 92.9	385 7.1	1339 30.5	3051 69.5
Profit (U.S.\$m) (%)	8317 73.6	2988 26.4	4141 95.6	190 4.4	1 1.9	62 98.1	313 87.5	45 12.5	187 42.3	256 57.7
Loss (U.S.\$m) (%)	400 59.8	269 40.2	0 0	0 0	214 97.6	5 2.4	0 0	0 0	0 0	48 100.0
Employees (%)	789282 46.3	917063 53.7	240808 94.7	13499 5.3	68080 74.9	22813 25.1	58921 89.2	7128 10.8	9545 15.6	51465 84.4

SOURCE: Latin American Times, December 1982.

¹ Because of incomplete data entries in the published figures, sample composition is as follows: Brazil-165 of 224 companies; Mexico-1 of 111 companies; Venezuela-6 of 54 companies; Argentina-0 of 45 companies; Chile-6 of 20 companies; Colombia-25 of 27 companies; Peru-7 of 13 companies; Ecuador-0 of 1 company; Uruguay-1 of 1 company; Bolivia-1 of 1 company; Honduras-1 of 1 company; Latin American joint ventures-2 of 2 companies.

² Source only provides assets of Brazilian firms to December 31, 1979.

Table 6 : DESCRIPTIVE STATISTICS FOR BRAZILIAN COMPANIES, 1981

	<u>Total Survey</u>		<u>Petroleum Companies</u>		<u>Steel Companies</u>		<u>Mining Companies</u>	
	<u>Public</u>	<u>Private</u>	<u>Public</u>	<u>Private</u>	<u>Public</u>	<u>Private</u>	<u>Public</u>	<u>Private</u>
Number of Companies (%)	75 42.4	102 57.6	2 28.6	5 71.4	4 40.0	6 60.0	2 22.2	7 77.8
Sales (Cr \$m) (%)	4138692 50.9	3993808 49.1	2061511 64.0	1161361 36.0	279167 69.2	124060 30.8	112701 61.7	70035 38.3
Equity (Cr \$m) (%)	7342883 78.0	2072324 22.0	752168 87.5	107284 12.5	283073 67.5	136243 32.5	205660 62.6	122867 37.4
Net Income (Cr \$m) (%)	669338 63.6	382897 36.4	103775 81.0	24296 19.0	150 1.6	9467 98.4	25105 58.7	17694 41.3
Loss (Cr \$m) (%)	82328 66.4	41707 33.6	0 0	0 0	16576 76.2	5187 23.8	0	7381 100
Employees (%)	643096 49.2	663683 50.8	54065 80.0	13499 20.0	60320 66.9	29813 33.1	20894 63.7	11921 36.3

SOURCE: Visão, August 31, 1982

The year-end exchange dollar rate for Brazil was Cr \$127.8.

Table 7: DESCRIPTIVE STATISTICS FOR MEXICAN COMPANIES, 1980

	Total Survey		Steel Companies		Mining Companies	
	Public	Private	Public	Private	Public	Private
Number of Companies (%)	26 5.5	450 94.5	2 16.7	10 83.3	3 42.9	4 57.1
Sales (Pesos \$m) (%)	562600 38.1	91437 61.9	69553 50.6	68016 49.4	6618 26.5	18333 73.5
Assets (Pesos \$m) (%)	1177800 56.7	898910 43.3	119990 50.5	117580 49.5	10390 30.8	23359 69.2
Equity (Pesos \$m) (%)	593030 59.3	406230 40.7	56040 50.7	54479 49.3	2451 24.3	7649 75.7
Employees (%)	312691 24.2	978644 75.8	68702 49.9	68860 50.1	6594 25.8	18919 74.2

SOURCE: Expansión August 19, 1981

The year-end exchange dollar rate for Mexico was Pesos \$23.3.

Table 8 : DESCRIPTIVE STATISTICS FOR PERUVIAN COMPANIES, 1981

	<u>Total Survey</u>	
	<u>Public</u>	<u>Private</u>
Number of Companies (%)	25 56.8	19 43.2
Income (S/.m) (%)	2222908 68.3	1030211 31.7
Assets (S/.m) (%)	6964791 72.7	2615885 27.3
Profit (S/.m) (%)	152466 49.1	158201 50.9
Loss (S/.m) (%)	81686 97.1	2457 2.9
Employees (%)	92224 76.6	28188 23.4

SOURCE: Perú Económico, September 1982

The year-end exchange dollar rate for Peru was S/.506.2.

Table 9 : REGRESSION COEFFICIENTS AND STANDARD ERRORS:
WORLD MANUFACTURING COMPANIES, 1981

Independent Variables	Total Survey (N=475)				Petroleum Companies (N=71)				Steel Companies (N=36)			
	\hat{a}_1 Public*	\hat{a}_2 Private*	R ²	Calculated F+	\hat{a}_1 Public*	\hat{a}_2 Private*	R ²	Calculated F+	\hat{a}_1 Public*	\hat{a}_2 Private*	R ²	Calculated F+
Net Income/Equity	-.259 (.358)	-.081 (.143)	.0016	.188	-.328 (.423)	.435 (.283)	.0316	2.220	-.369** (.154)	-.074 (.109)	.1543	2.445
Net Income/Sales	-.033*** (.010)	.023*** (.004)	.0561	28.191***	-.011 (.022)	.017 (.015)	.0165	1.160	-.099** (.028)	.007 (.020)	.2639	9.198***
Net Income/Assets	-.021*** (.008)	.025*** (.003)	.0620	31.250***	-.001 (.021)	.023 (.014)	.0127	.847	-.065** (.019)	.008 (.014)	.2565	9.520**
Equity/Employment	1.33 (.493)	.276 (.184)	.0085	4.063**	.120 (.334)	.369 (.224)	.0054	.384	.5437 (2.814)	.024 (1.990)	.0677	2.467
Sales/Employment	2.777 (1.264)	1.200** (.471)	.0014	.636	.783 (2.865)	3.300 (1.920)	.0077	.534	7.589** (2.974)	.106 (2.103)	.1104	4.221
Assets/Employment	4.130 (1.433)	1.096 (.538)	.0081	3.874**	.506 (2.470)	2.509 (1.655)	.0065	.454	15.381** (5.990)	.130 (4.235)	.1128	4.322
Mining Companies (N=21)				Latin American Companies (N=20)				* Standard error of coefficient in parentheses ** Significant at the 5 percent level *** Significant at the 1 percent level + F test for the hypothesis: There is no difference between coefficients. Asterisks denote level at which hypothesis may be rejected.				
Net Income/Equity	-.488** (.198)	.110 (.126)	.2642	6.496**	-.534 (.466)	.135 (.571)	.0705					.821
Net Income/Sales	.024 (.056)	.060 (.035)	.0155	.324	-.025 (.058)	.054 (.072)	.0394					.731
Net Income/Assets	.006 (.027)	.044 (.017)	.0685	1.407	-.025 (.051)	.060 (.062)	.0584					1.127
Equity/Employment	1.576 (.794)	.044 (.502)	.1227	2.658	5.068 (3.678)	.036 (4.749)	.0361					.674
Sales/Employment	4.069** (1.849)	.144 (1.169)	.1449	3.219	3.081 (2.276)	.081 (2.747)	.0372	.695				
Assets/Employment	7.272 (3.553)	.139 (2.247)	.1316	2.879	9.346 (7.130)	.098 (8.732)	.0360	.673				

Table 10 : REGRESSION COEFFICIENTS AND STANDARD ERRORS:
LARGE LATIN AMERICAN COMPANIES, 1981

Dependent Variables	Total Survey (N=214)				Petroleum Companies				Steel Companies (N=9)			
	\hat{a}_1	\hat{a}_2	R^2	Calculated F+	\hat{a}_1	\hat{a}_2	R^2	Calculated F+	\hat{a}_1	\hat{a}_2	R^2	Calculated F+
	Public*	Private*			Public*	Private*			Public*	Private*		
Profit /Sales	.111*** (.018)	.074*** (.013)	.0131	2.813	.042** (.018)	.022 (.021)	.0536	.455	-.136 (.066)	.069 (.094)	.4044	3.160
Profit/Assets	.054*** (.014)	.114*** (.010)	.0512	11.382***	.043 (.025)	.131*** (.029)	.3454	5.238**	-.078 (.053)	.069 (.075)	.3018	2.550
Sales/Employment	.125*** (.039)	.131 (.027)	.0040	.846	.256*** (.070)	.802*** (.082)	.7202	25.735***	-.038 (.007)	.043 (.010)	.0224	.177
Assets/Employment	.360*** (.067)	.066 (.048)	.0568	12.770***	.260*** (.066)	.204 (.078)	.0290	.298	.100*** (.016)	.051 (.022)	.3181	3.265
	Mining Companies (N=27)				Chemical and Petrochemical Companies							
Profit/Sales	.089 (.042)	.127 (.067)	.0441	.227	.105** (.046)	.063** (.025)	.0325	.670	* Standard error of coefficient in parentheses. ** Significant at the 5 percent level *** Significant at the 1 percent level + F test for the hypothesis: There is no difference between coefficients. Asterisks denote level at which hypothesis may be rejected.			
Profit/Assets	.069 (.033)	.096 (.052)	.0373	.185	.157** (.056)	.085** (.031)	.0592	1.258				
Sales/Employment	.068*** (.015)	.047 (.024)	.0922	.504	.183 (.090)	.132 (.015)	.0107	.216				
Assets /Employment	.075*** (.018)	.062 (.028)	.0277	.143	.175 (.073)	.112 (.039)	.0285	.586				

Table 11: REGRESSION COEFFICIENTS AND STANDARD ERRORS:
BRAZIL'S LARGEST COMPANIES, 1981

Independent Variables	Total Survey (N=177)				Petroleum Companies (N=7)			
	\hat{a}_1	\hat{a}_2	R^2	Calculated F+	\hat{a}_1	\hat{a}_2	R^2	Calculated F+
Dependent Variables	Public*	Private*			Public*	Private*		
Net Income/Equity	.070*** (.019)	.165*** (.016)	.0750	14.211***	.204 (.082)	.274 (.052)	.0936	.522
Net Income/Sales	-.562 (.585)	.237 (.502)	.0065	1.073	.043*** (.008)	.022*** (.005)	.4877	0
Current Ratio	1.338*** (.306)	1.540*** (.263)	.0014	.251	1.295*** (.168)	1.378 (.106)	.0339	.175
Debt/Equity**	49.363*** (2.168)	39.599*** (1.859)	.0626	11.686***	55.100*** (2.235)	52.920 (1.414)	.1196	.679
Equity/Employment#	55.794*** (13.364)	31.988*** (11.460)	.0134	1.829	13.461*** (2.802)	9.371*** (1.772)	.2334	1.522
Sales/Employment#	10.116*** (2.804)	13.748*** (2.404)	.0055	.967	82.219** (30.193)	102.433*** (19.096)	.0618	.321
Steel Companies (N=10)				Mining Companies (N=9)				
Net Income/Equity	-.164 (.107)	.057 (.088)	.2565	2.537	.074 (.156)	.129 (.083)	.0138	.103
Net Income/Sales	-.118 (.129)	-.045 (.105)	.1138	.195	.288 (.332)	.153 (.177)	.0181	.132
Current Ratio	.507** (.206)	1.191*** (.168)	.4523	6.607**	.965** (.290)	1.083 (.717)	.0181	.129
Debt/Equity**	75.330*** (6.420)	42.517*** (5.242)	.6620	15.668***	52.200*** (9.739)	28.470 (5.206)	.3975	4.617
Equity/Employment#	4.318 (2.302)	6.982*** (1.879)	.0913	.804	37.793** (11.825)	12.298 (6.321)	.3406	3.615
Sales/Employment#	4.581*** (.968)	4.876*** (.791)	.0069	.055	3.775 (1.377)	5.705 (.736)	.1792	1.528

* Standard error of coefficients in parentheses
 ** Significant at the 5 percent level
 *** Significant at the 1 percent level
 + F test for the hypothesis: There is no difference between coefficients. Asterisks denote level at which hypothesis may be rejected.

** Debt x 100
Equity

The year-end exchange dollar rate for Brazil was Cr \$127.8.

Table 12: REGRESSION COEFFICIENTS AND STANDARD ERRORS;
MEXICO'S LARGEST COMPANIES, 1981

Dependent Variables	Total Survey (N=476)				Steel Companies (N=12)				Mining Companies (N=7)			
	\hat{a}_1 Public*	\hat{a}_2 Private*	R ²	Calculated F†	\hat{a}_1 Public*	\hat{a}_2 Private*	R ²	Calculated F†	\hat{a}_1 Public*	\hat{a}_2 Private*	R ²	Calculated F†
Equity/Employment #	1.076*** (.117)	.501*** (.028)	.0460	22.840***	.513 (2.754)	.724 (1.232)	.0459	.481	.364 (.236)	.647** (.205)	.1409	.320
Sales/Employment #	1.868*** (.397)	1.546*** (.035)	.0013	.624	.841 (.433)	1.318*** (.193)	.0920	1.013	.980*** (.105)	.967*** (.091)	.0018	.009
Assets/Employment #	2.605*** (.439)	1.291*** (.105)	.0176	8.480***	1.239** (.454)	1.419*** (.203)	.0128	.130	1.475 (.669)	1.825** (.579)	.0303	.156

* Standard error of coefficient in parentheses.

** Significant at the 5 percent level

*** Significant at the 1 percent level

† F test for the hypothesis: There is no difference between coefficients. Asterisks denote level at which hypothesis may be rejected.

The year-end exchange dollar rate for Mexico was Pesos \$23.3.

Table 13: REGRESSION COEFFICIENTS AND STANDARD ERRORS:
PERU'S LARGEST COMPANIES, 1981

	Total Survey (N=44)		R^2	Calculated F+
	\hat{a}_1 Public*	\hat{a}_2 Private*		
Profit/Gross Income	.042 (.051)	.146** (.059)	.0403	1.762
Profit/Assets	.262 (.162)	.232 (.185)	.0003	.014
Gross Income/Employment#	58.384 (29.231)	79.577** (33.634)	.0053	.226
Assets/Employment #	129.012 (188.732)	376.370 (216.490)	.0174	.786

* Standard error of coefficient in parentheses

** Significant at the 5 percent level

*** Significant at the 1 percent level

+ F test for the hypothesis: There is no difference between coefficients.
Asterisks denote level at which hypothesis may be rejected.

The year-end exchange dollar rate for Peru was S/.506.2.

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