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Strategy Assessment

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EXECUTIVE SUMMARY:
Improving the Operational Efficiency of Public Industrial Enterprise in Egypt

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1. Scope of Study: This paper concerns measures to increase the efficiency of Egypt's public sector, with emphasis on manufacturing. It is thus about how to make better use of existing resources rather than about how to increase resources available to the sector through investment, or how to reduce them via divestiture.

2. Size and Importance of Public Enterprise Sector: The best available data suggest that the public enterprise sector produced 31.5% of GDP in 1977. This is lower than commonly reported for three reasons: first, it excludes public institutions producing public goods (e.g., ministries and the military); second, it uses national accounts revised to reflect increasing private sector activity; third, it attributes value added in oil to ownership of production units (largely private) instead of factor shares (largely public). The sector is nonetheless much larger than in other mixed-economy less-developed-countries, most of which fall in the narrow 7%-15% range (including countries as diverse as India, South Korea, Pakistan, Taiwan, Brazil, Sri Lanka, Mexico, Bangladesh and Singapore). Egypt differs from the typical size and structure in two respects. First, it is endowed with oil and the Suez Canal and this raises the public enterprise share. Second, in manufacturing and construction, public enterprises in other countries play a very selective role, usually totaling well under a fifth of activity in each of these two sectors and focusing on activities which are large in scale, capital intensive, monopolized, etc., . In Egypt, on the other hand, public enterprises dominate across the board in both sectors accounting for 69% of total manufacturing and 91% of large scale manufacturing involving more than 25 workers per enterprise. In other industries (agriculture, utilities, finance, transport, communication) there is nothing particularly remarkable

about the size of Egypt's public enterprise sector.

3. Importance of Efficiency: International Competitiveness: In Egypt, then, the efficiency of manufacturing is the efficiency of public enterprise. If Egypt is to industrialize in a competitive international environment, then public enterprises must be efficient. This public improvement is also critical for private success. If the private sector is to realize its potential, then the intermediate inputs and producer's goods which it receives from the public enterprise sector must arrive on a timely basis, be produced at low cost, and be consistantly of high quality.

4. Importance of Efficiency: Financial: If the real efficiency of the public enterprise sector in Egypt could be improved by only five percent, this would generate L.E. 700 million or nearly one billion dollars in 81/82. This could finance a near doubling of government expenditures on education or a six-fold increase in the health field. Further, this would be almost entirely a real welfare gain for society, unlike taxes or price increases which transfer revenue to the government at the expense of some other sector.

5. Level of Efficency: External Evaluations: Conventional and available partial indicators of efficiency, such as labor productivity, are virtually useless as they ignore other costs of production and use prices which do not reflect scarcity. Domestic Resource Cost (DRC) calculations solve both problems and in Egypt quite naturally present a mixed picture with some industries being internationally competitive, and others not. More importantly for present purposes, several authors (Hanson, Handousse) rightly stress that many of the inefficiencies are not due to current management but to the original investment decision.

6. Level of Efficiency: Internal Evaluations: Internal management

consultant reports, however, make it clear that there is substantial room for improvement in current practices. Most importantly, surplus labor creates a financial drain and is even more detrimental to efficiency because of its effect on labor discipline. A typical situation was expressed by one manager who said, "assuming I had the choice as to who to fire, I would get rid of thirty percent, hire ten percent new, and substantially increase output." The fault here is clearly not with managers, but with ministries. In many other areas, however, there is clear evidence of actions which could improve efficiency, and are within the discretion of management, but have not been taken. In general, the companies are stronger in engineering and weaker on management. The current production orientation must be wedded to cost consciousness and managers made more responsive to markets.

7. Efficiency: Summary: The available efficiency evaluations present a mixed picture. On the one hand, there is evidence of competent top managers doing a highly creditable job given the constraints imposed by macro-economic conditions, inherited technology and ministerial constraints on decision making. On the other hand, there is also considerable evidence of actions which could considerably improve efficiency and which are within the existing discretionary realm of managers, but have not been taken. This observation does not necessarily constitute a criticism of the managers themselves. They are in the process of adjusting from a planned economy -- in which production concerns dominate and signals come from ministries -- to a market economy -- in which cost, service and quality are also critical and in which signals come from markets. It is somewhat as if General Motors were suddenly picked up and found itself operating in Moscow, while Beria Autos found itself in Detroit. Both companies, while well suited to their original environments, might be

expected to suffer through a considerable period of adjustment. Nonetheless, the fact that existing autonomy is underutilized suggests that giving managers still more autonomy, while desriable, is insufficient. In addition, major attention must be given to directing and motivating managers to use that autonomy in the national interest.

8. Organizational Reforms: The proposed public enterprise reform law is aimed at giving managers more autonomy by explicit delegation of critical decisions to the enterprise and on reducing bureaucratic interference by creation of holding companies which are in turn responsible to some non-ministerial body such as the National Investment Bank. A detailed review of the draft law suggests that while the proposed division of powers is admirably in accord with organizational theory and international experience, and may thus be thought of as providing necessary conditions for optimal efficiency, it is by no means sufficient. In the first place, repeated international experience demonstrates that effective delegation of autonomy cannot be accomplished by legislation and organisational reform alone. As long as there is a superior body which can hire and fire, evaluate performance, approve credit and dividend decisions, etc., then the subordinate will remain responsive to the superiors' desires in all areas of decision-making regardless of whether or not the subordinate manager is legally empowered to take a particular decision. What is critical is the attitudes and procedures of the people at the top. If they want to intervene unnecessarily and if they give managers the wrong signals then the legal reform will fail. This has been the fate of many legal reform efforts in other countries and the modest results of Law #48 of 1978 suggest that Egypt is no exception. In the second place, even if effective autonomy is

delegated, it might be misused if the higher control bodies fail to do a very careful and sophisticated job of setting objectives and monitoring and rewarding performance.

9. Signaling Reform: The "signaling system" refers to the way in which enterprises are guided to act in the interest of society as a whole. The system has three major components. The first is a performance evaluation system in which national goals are translated into explicit enterprise objectives and quantified in performance criteria. The second is a performance information system in which actual achievements are monitored. The third is an incentive system in which the welfare of managers and workers is linked to national welfare by a combination of monetary and non-monetary rewards based on achievement of particular targets. Chapter Four provides a detailed set of suggestions for such a system and may be the most important part of the report.

10. Competition Policy: Moving from a centrally-planned to a market economy can improve efficiency through decentralization only to the extent that the market provides correct price signals. This in turn depends upon the degree of competition in individual product markets. Given the dominant public enterprise role in most major markets, public enterprise reforms should explicitly consider their effects on competition. Two popular reform proposals would reduce competition and should be strongly resisted. The first is to partition the economy into separate public and private sectors along product or industry lines. This would reduce public versus private competition. The second is to create public holding companies along industry lines. This would reduce public versus public competition (in comparison to diversified conglomorate holding companies). In addition to stimulating

public versus private competition, public versus international competition should also be encouraged by continuing to liberalize imports and by encouraging and rewarding public enterprise exports. Finally, competition can be stimulated by allowing successful public enterprises to enter new markets and forcing unsuccessful ones to exit by shutting down (when revenues fail to cover variable social costs, carefully defined).

11. Mixing Policy: While the public enterprise should be encouraged to compete with the private sector and with foreign firms, under some circumstances public and private firms should also be encouraged to cooperate through mixed-ownership ventures. The benefits from diversified mixing (selling shares to a large number of private individuals) are liable to be small, but concentrated mixing can be advantageous, particularly with foreign partners. Here the advantages of inflows of foreign capital, technology, marketing networks, and particularly, management know-how can be combined with the social responsibility of public ownership in a mutually beneficial relationship.

12. Pricing Policy: The efficiency arguments for "getting-the-price-right" are well known. What is not so widely recognized is that in Egypt, distreibutive considerations (to improve income distribution) often point in the same direction. The benefits from many of the low-price policies go disproportionately to the relatively well-to-do and improving efficiency can also free resources to be used to support the truly poor.

13. The Importance of Reform: Improving the operating efficiency of public enterprises in Egypt is critical for industrial development. It is a precondition to making both the public and private sectors internationally competative and will also generate substantial government resources for

pursuit of other national goals. While the potential for improvement is great, success is unlikely from simple legal and organisational reforms alone. What is required is a package of reforms which not only gives greater autonomy to managers, but which also provides correct signals so that decision-makers at all levels use their discretion in the national interest.

Final Draft

IMPROVING THE OPERATIONAL EFFICIENCY OF PUBLIC INDUSTRIAL ENTERPRISES IN EGYPT

by

Leroy P. Jones

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Chapter I

INTRODUCTION

A. Scope of the Study

This paper concerns measures for improving the operational efficiency of the Egyptian public enterprise sector, with emphasis on industrial companies. It thus has to do with improving the utilization of existing resources, rather than with adding resources through investment, or deleting resources through divestiture. This aim of improving efficiency should be supported by advocates of the public and private sectors alike. Public sector defenders will strengthen their claim on future resources by improving the efficiency with which existing resources are used. The private sector, on the other hand, will see its own evolution retarded if public efficiency does not improve. The public enterprise sector is the dominant supplier of raw materials, energy, intermediate inputs and producer goods in Egypt and is likely to remain so for a considerable period even under the most optimistic private growth projections. If these inputs are not available in sufficient quantity and quality, at a reasonable cost, and on a timely basis, then the private sector's ability to compete against foreign products in domestic and foreign markets will be reduced.

The paper is organized as follows. The remainder of this chapter gives an overview of the evolution, size and structure of the public enterprise sector in general and of the industrial sub-sector in particular. The second chapter quantifies the importance of efficiency improvement and examines the existing level of efficiency. Subsequent chapters consider organizational, signaling and other reforms necessary

to realize the potential efficiency gains.

B. Public Enterprise Sector Evolution

The modern public enterprise sector in Egypt has evolved through four distinct stages:[1/]

1) 1952-1956--Expansion in support of the private sector:

In 1952, public enterprises were confined to such things as railways, a petroleum refinery, and a few military factories. Even electricity, water and the National Bank were in private hands. From 1952-1956 public sector expansion was largely in support of the private sector (e.g., development banking), except for the agricultural cooperatives and estates which followed the agrarian reform.

2) 1956-1962--Expansion at the expense of the private sector:

This was the period of nationalization, which came in several steps.

a) 1956: Suez Canal.

b) 1957: British, French and Jewish assets (including half of banking).

c) 1960: Bank Misr and National Bank and their many subsidiaries

d) 1961 (June and July): Banking and insurance; most of cotton, all of fifty "large" companies; half the equity in 83 companies, and minority shares of 145 medium-sized firms, Belgian interests, etc.

1/ For details, see: Patrick O'Brien, The Revolution in Egypt's Economic System: From Private Enterprise to Socialism, 1952-1965, (London: Oxford University Press, 1966); Robert Mabro, The Egyptian Economy: 1952-1972, (Oxford: Clarendon Press, 1974); and Khalid Ikram, Egypt: Economic Management in a Period of Transition, (Baltimore: Johns Hopkins for the World Bank, 1980).

e) 1961 (October and November): appropriation of assets of some 600 individuals

f) 1962: Ex-post philosophical justification of nationalizations by National Charter espousing Arab Socialism. Followed from 1962 to 1964 by full nationalizations of mixed ownership companies and other companies missed earlier.

By the end of the process, the government dominated the modern sector

3) 1962 to 1973 - Expansion without the Private Sector:

This was the period of a Soviet-style planned economy, with virtually all new investment (outside agriculture) in the public sector.

4) 1973 to date - Expansion with the Private Sector:

Following the "open-door" or "El-Infitah" policy ennunciated by President Saadat's "October Working Paper", Egypt is moving towards greater reliance on market forces and the private sector.

For present purposes, the most important feature of this historical process is that Egypt is currently in a major transition period. In Bruton's words:

> "It is therefore useful to think of the Egyptian economy over the years since 1973 as in a state of transition, a state of limbo. In this state, the materials balance (some economists call it physical planning) approach is even less effective than it was earlier, but no market mechanism has yet evolved to take its place. It is inevitable that in such a situation, the economy must perform at a very low level of efficiency compared to that which would be possible were either...(pure market or purely planned)...approaches completely applicable." 2/

2/ Henry Bruton, Recent Developments in the Egyptian Economy (Cairo: Ministry of Economy, Economic Planning Unit, January 1981), p.2.

Many of the current problems of the public enterprise sector are explicable in this context. It is somewhat as if General Motors were suddenly picked up and found itself operating in Moscow, while Beria Autos found itself in Detroit. Both companies, while well suited to their original environments, might be expected to suffer through a considerable period of adjustment. Similarly, the Egyptian public enterprises sector is currently faced with adapting to a market environment those managerial and control procedures which evolved under a planning system. Many of the existing inefficiencies described later in this paper must be understood in this historical evolutionary context, rather than as an attack on individuals or institutions.

C. The Size of the Public Enterprise Sector in International Perspective

How large is the public enterprise sector in Egypt by international standards? To answer this question we need to define the term "public enterprise" to insure international comparability. For present purposes, we can think of a public enterprise as having two characteristics. First, it is "public" if it is owned and/or controlled by the government. Second, it is an "enterprise" if it sells its output in a market.[3/]

By this definition the sector in Egypt includes both the "public companies" ("Sharikat Getaa A'am") and the "public economic authorities" ("Hayaat A'ama") which include the General Petroleum Organization, the Suez Canal Authority, Railways, Electricity, Telephones, Postal Services, Radio, Television, Public Transport, Ports and Water. This distinction

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3/ This is a very imprecise definition. For a more elaborate discussion see: Leroy P. Jones, Public Enterprise and Economic Development: The Korean Case, (Seoul: KDI Press, distributed by the University of Hawaii Press, 1975), pp.9-42.

is critical because many (probably most) quantitative discussions of "public enterprise" in Egypt confine themselves to the public companies. This is understandable, because while good statistics are kept and aggregated for the public companies (see Appendix A; especially Tables A-2-a to A-2-e), no such data seem to be readily available for the public authorities as a group. Nonetheless, both sets of entities must be included for purposes of international comparisons, since both perform "enterprise" type activities, differing only in that they operate under different laws (and in that the authorities are largely natural monopolies producing non-tradeables). Also note that the term "public sector" refers to a broader aggregate including the public enterprises just defined, plus public institutions which do not sell their output in a market (e.g., the military and the ministeries).

Using these concepts, an estimate of the institutional origins of Gross Domestic Product for 1977 has been constructed, as follows (see Table I-1):

Public Sector	
Public Enterprises	31.4%
Public Institutions	13.8%
Private Sector	54.8%
	100.0%

The thirty-one percent figure for public enterprise is somewhat lower than is commonly thought, and in view of the manipulation and multiple data sources which underlie it (see footnotes to Table I-1), its accuracy may be questioned. For example, Ikram says the public sector was fifty percent in 1976 and fifty-three percent in 1978, translating into a public enterprise sector of about forty percent.[4/] There are two major

4/ Ikram, Egypt, pp. 20, 57.

Table I-1

AN ESTIMATE OF PUBLIC AND PRIVATE VALUE-ADDED BY INDUSTRY: 1977

	(L.E. Millions)			Public Enterprise
	Public 2/	Private 2/	Total 1/	Share (%)
Agriculture	57.7	1,979.9	2,037.6	2.8
Petroleum	124.5	343.3	467.8	26.6
Manufacturing & Other Mining	774.1	345.5	1,119.6	69.1
Electricity	83.1	0.0	83.1	100.0
Construction	251.0	106.5	357.5	70.2
Transportation & Comm.	200.0	121.6	321.6	62.2
Suez Canal	169.2	0.0	169.2	100.0
Trade and Finance	581.9	606.3	1,188.2	49.0
Housing	12.0	231.5	243.5	4.9
Public Utilities	23.1	0.0	23.1	100.0
Other Services	1,067.5	321.2	1,388.7	3.2 3/
Total: GDP @ factor cost	3,344.1	4,055.8	7,399.9	31.4 3/

1/ Revised Series:

a. Trade margin increased.
b. Weight of private sector increased in trade and finance.
c. Tourism increased to take account of new activity, especially in law 43 firms.
d. Housing revised for non-rent-controlled structures and non-residential rent.
e. Construction also increased substantially, but reason not reported.

Source: Ministry of Planning as reported by IMF.

2/ As reported in Appendix A-8, but with two major and one minor sets of adjustments.

a. For major discrepencies in source:

(1) Petroleum reallocated between public and private according to ratio from Appendix A-7-c.
(2) Transport and communication reallocated between public and private sectors according to ratio in Ministry of Planning, Five Year Plan (October 1979). For 1979 this gives a plausible 83 percent share to the public sector.

b. For revisions reported in 1/ above:

(1) Housing, Tourism and Construction: entire increase allocated to private sector.
(2) Trade and Finance: public sector figures from Appendix A-3-c with trade adjusted upwards by ¼ of the total revision (L.E. 379 million) for the margin revision. Remainder of revisions attributed to private sector.
(3) Increase apportioned proportionately between public and private sector.

Footnotes to Table I-1 continued:

c. Where minor discrepencies exist between the sector totals in sources 1/ and 2/ (e.g., Agriculture of 2,037.6 versus 2,046.1), the ratios from source 2/ are applied to the totals from source 1/.

3/ Public sector share less public institution share which is estimated as 1,067.5 (less public tourism = 42.0 from A-8) less ("other services" = 1.8 from A-3-c) = 1,023.7. That is, the public sector share of 45.2 % is decomposed into a public enterprise share of 31.4% and a public institution share of 13.8%.

reasons for these higher estimates -- national account revisions and the role of oil. The first reason is that the Ministry of Planning has recently revised its national accounts sampling methodology, to take better account of structural changes since 1975, particularly where the private sector has been especially active. As a result, they have prepared a revised GDP series for 1975 to 1979, yielding an increase in estimated GDP ranging from six percent in 1975 to about eighteen percent in 1979 (see Appendix Table A-11). No public/private breakdown for the increment is available but in Table I-1, most of it has been attributed to private activity (see footnote 2b to Table I-1). This reduced the public share in the total from about 36 percent (old series) to about 31 percent (new series). The second problem is with oil, where there is a conceptual problem. A portion of Egyptian oil is extracted by the General Petroleum Organization, a portion by joint ventures and the majority by private contractors. According to U.N. conventions, value added by the latter group is private (even though a large factor share is paid as rent to the government) but some Egyptian sources apparently take the not unreasonable view that only the oil actually retained by the foreign companies is private.[5/] The estimates in Table I-1 reflect the procedures of the C.A.P.M.A.S., Quarterly Survey of Industrial Production, which seems to follow the U.N. procedure. If the local variant were accepted (see Appendix A-10 for an estimate apparently reflecting the public attribution) then the Table I-1 figure for 1977 would rise from about 31 percent to about 35 percent. The difference, however, would be much greater today as oil production has soared.

[5/] A similar problem may affect estimates for the construction industry.

In sum, by international standards we can say little more than that the public enterpirse sector accounted for about one-third of GDP in the late 1970s. The important question of relative public and private growth cannot be answered without more data. Has the rise in private sector activitiy outpaced the public sector, particularly given the rise in oil and the Suez Canal? We simple do not know.

If the public enterprise sector in Egypt is thus somewhat smaller than sometimes believed, it is nonetheless exceptionally large by international standards. In mixed-economy LDCs the share of public enterpise in GDP generally falls in the fairly narrow range of seven to fifteen percent -- a range which covers such diverse countries as India, South Korea, Bangladesh, Taiwan, Sri Lanka, Singapore, Brazil, Thailand and Pakistan.[6/] Countries with large natural resource endownments -- typically exploited by public enterprise -- are at the high end of this range: for example, Indonesia at about sixteen percent.[7/] In sum, allowing for the role of oil and the Suez Canal, the Egyptian public enterprise sector is about twice as large as in other mixed-economy LDCs.

The atypically large role in Egypt is essentially confined to two sectors -- manufacturing and construction. As shown in Table I-2, public enterprise shares in other one-digit industries are reasonably similar to those of Pakistan, India and South Korea. However, Egypt's 70 percent shares in manufacturing and construction are many times the other

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6/ For elaboration, see: Leroy Jones and Edward Mason, "The Role of Economic Factors in Determining the Size and Structure of the Public Enterprise Sector in Mixed Economy LDCs," in Public Enterprise in Economic Development, edited by Leroy Jones with Richard Mallon, Edward Mason, Paul Rosenstein-Rodan, and Raymond Vernon, (New York: Cambridge University Press, forthcoming).

7/ Saudi Arabia and the Gulf States are of course much much higher.

Table I-2

PUBLIC ENTERPRISE SHARES OF GDP BY INDUSTRY:

EGYPT, PAKISTAN, INDIA AND SOUTH KOREA

(percent)

	Egypt 1977 1/	Pakistan 74/75 2/	India 71/72 3/	South Korea 71/72 4/
Agriculture	2.8	0.2	1.8	0.2
Mining	26.6 5/	10.1	36.3	32.6
Manufacturing	69.1 6/	8.1	13.3	16.4
Electricity, Water Sewage	100.0	77.5	83.8	71.7
Construction	70.2	0.0	4.8	4.9
Transport & Commun.	62.2	33.9	61.4	30.8
Suez Canal	100.0	none	none	none
Trade	49.0	7.9	3.2	1.2
Finance		67.5	84.0 8/	83.5
Other	4.1 7/	0.0	1.6 8/	0.5
Total: Share of GDP produced by public enterprises	31.4	7.7	9.4	9.1

1/ Table I-1.

2/ Investment Advisory Center of Pakistan, "Role and Performance of Public Enterprises in the Economic Growth of Pakistan", (Karachi: IACP, 1979).

3/ N.S. Ramawamy and others. Performance of Indian Public Enterprises, (New delhi: Standing Conference on Public Enterprises, 1978), p. 96.

4/ Leroy P. Jones, Public Enterprise and Economic Development: The Korean Case, (Seoul: KDI Press, distributed by University of Hawaii Press, 1975), p. 78.

5/ Petroleum only.

6/ Including other mining, which is minimal.

7/ Includes ownership of dwellings, as in the other countries.

8/ Adjusted from source to group "ownership of dwellings" under "other" instead of "finance".

countries shares (0-5% in construction and 8-16% in manufacturing). The construction figure could in part be a statistical artifact, but the manufacturing figure is not. As shown in Appendix Table A-7-c, in 71/72 public enterprises produced 92 percent of output in mining (excluding petroleum) and manufacturing enterprises employing more than 25 workers. Of 31 three-digit industries, private output exceeded public only in two relatively small areas -- furniture and publishing and printing. In other mixed-economy LDCs, public manufacturing is largely confnied to activities which share the following constellation of characteristics: highly imperfect output markets (monopoly, oligopoly), large in scale, capital intensive, modern in technology and having high forward linkages.[8/] However, in Egypt there is no such selectivity: public manufacturing dominates virtually across the board (except in enterprises employing fewer than 25 workers).

In sum, the size and structure of the public enterprise sector in Egypt differs from the LDC mode in only two fundamental ways. First, the size is greater because of oil and the canal, but this is a matter of resource endownment rather than institutional choice. Second, Egypt has chosen public over private operation for the vast bulk of the manufacturing sector, and for construction. In other sectors, the similarities are greater than the differences.

The public dominance of manufacturing makes the efficiency of these public enterprises particularly crucial. The efficiency of Egyptian industry is the efficiency of Egyptian public enterprises. If Egypt is to industrialize in a competitive international environment, then these enterprises must operate efficiently.

8/ For details and elaboration, see: Jones and Mason, "Role of Economic Factors..."

Chapter II

EFFICIENCY

A. Importance

Is static operational efficiency -- the use of existing resources -- worth worrying about, or should we follow the economist's traditional approach of focusing on dynamic efficiency -- the allocation of new investments? To answer this question, let us ask what the effect would be of improving efficiency of the non-financial, public-company sector by five percent. That is, let us assume that there is an improvement in the efficiency of each major input into the production process. This means there is more efficient use of:

a) capital, such that the real capital/output ratio is reduced by five percent (i.e., improved capacity utilization);

b) intermediate inputs, such that the quantity of purchased materials and services decreases by five percent per unit of output; and,

c) labor, such that the number of employees used to man a particular plant declines by five percent.

Note that these assumptions are all couched in real or quantity terms and are not to be achieved by simply raising or lowering prices.

The magnitude of the resulting efficiency bonus would amount to about three percent of GDP or L.E. 746 million or nearly one billion dollars in 1981/1982 1/ (see Figure II-1 for the calculation). If these funds were transferred to the government, it would provide revenues equivalent to: 2/

1/ Assuming an exchange rate in 1981 of L.E. 0.75 per dollar and nominal growth in GDP of 35 percent per year from the 1979 base of L.E. 11.9 billion

2/ For 1979, see Figure II-1.

Figure II-1

EFFICIENCY BONUS CALCULATIONS

(L.E. Millions)

	68/69	1974	1979
I. Aggregate Income and Expenditure Accounts of Non-Financial Public Company Sector 1/			
Production @ Factor-Cost	1,209	2,183	5,991
-Intermediate Inputs	763	1,288	3,179
-Value Added @ Factor-Cost	446	895	2,812
-Wages (& Rent)	227	379	995
=Operating Surplus	219	516	1,817
II. Accounts Adjusted for 5 percent Rise in Efficiency 2/			
Production @ Factor-Cost	1,269	2,292	6,291
-Intermediate Inputs	763	1,288	3,178
-Value Added @ Factor Cost	506	1,004	3,113
-Wages (& Rent)	215	360	945
=Operating Surplus	291	644	2,167
III. Memo Entries 3/			
A. GDP @ Factor-Cost.	2,339	4,110	11,937
B. Central Government Direct Taxes	127	198	740
C. Transferred Profits	32	188	501
(of which Oil and Suez Canal)	(n.a.)	(n.a.)	401
D. Direct Subsidies	n.a.	n.a.	1,230
E. Government Expenditures on Educat.	n.a.	n.a.	365
F. Government Expenditures on Health	n.a.	n.a.	57
IV. Efficency Bonus			
A. Absolute Value	72	128	350
B. As % of GDP	3.1	3.1	2.9
C. As % Government Taxes	58.7	64.6	47.3
D. As $ Transferred Profits	225.0	68.1	69.9
E. As % Direct Subsidies	n.a.	n.a.	28.5
F. As % Government Expenditures on Ed.	n.a.	n.a.	95.9
G. As % Government Expenditures on Health	n.a.	n.a.	614.0

Notes to Figure II-1:

1/ Source: See Appendix I

2/ Each of the following ratios reduced by 5 percent.
   a) capital/output ratio;
   b) intermediate input/output ratio; and
   c) workers/capital ratio.

3/ 1979 figures from: International Monetary Fund, ARE-Recent Economic Developments (Washington, D.C., IBRD, January 23, 1981). Earlier figures from Khalid Ikram, Egypt, (Baltimore: Johns Hopkins, 1980).

a) nearly fifty percent of all government direct taxes; or

b) seventy percent of existing profits from public enterprises to the central government (or 350 percent excluding petroleum and the Suez Canal).

This would be sufficient to finance:

a) a near doubling of government expenditures on education; or

b) a six-fold increase of government expenditures on health.

If the magnitude of the efficiency bonus is impressive, it is all the more noteworthy because it is largely[3/] a pure gain for the economy rather than a transfer from one sector to another. Revenue generated by raising taxes or increasing public enterprise prices, in contrast, increases government expenditures at the price of reduced expenditures by consumers, corporations, or taxpayers. There is no such effect in the case of the efficiency bonus. Further, the bonus is not a static one-shot affair, but will continue to yield the same benefits in all future years, even if there are no additional improvements. All of this will be compounded if the bonus were invested as if there were macro-economic activation effects. Finally, if the same proportional efficiency improvements were achieved in the financial enterprises and public authorities, then the efficiency bonus would be fifty percent larger or about five percent of G.D.P.

3/ Fourteen percent of the increased surplus comes from not hiring additional surplus workers. If these workers produced absolutely nothing elsewhere, then this component would be a transfer from these workers to the beneficiaries of the increased government expenditures.

If it is agreed that the efficiency bonus is large enough to worry about, then two questions must be asked. First, does the current system have five percent of slack which can be eliminated? Second, how is the improvement to be achieved? The rest of this chapter addresses the first (feasibility) question and remaining chapters the second (how to do it) question.

The conclusion of the remainder of this chapter will be that there is plenty of room for a five percent increase in static operational efficiency. Even the staunchest defender of the public enterprise sector will agree that there is this much room for improvement. Critics on the other hand might argue that the potential is twenty or thirty percent or more. The available evidence does not suffice to distinguish between these two positions, but serves to confirm the notion that five percent is uncontroversial as a minumum feasible target. It also serves to identify the problem areas which are thought to generate the inefficiencies, and thus lay the groundwork for the later prescriptive chapters.

B. External Evaluations: Partial Indicators at Current Market Prices

One way of ascertaining efficiency is to send a team of experts into individual plants for detailed internal evaluations. This approach will be covered later. First we examine external evaluations based on statistics and usually conducted at the level of the industry or sector, rather than the enterprise.

Several knowledgeable observors have deplored the generally superficial level of the debate on the efficiency of the public

enterprise sector.[4/] Where "facts" are used at all in the debtate, they typically are confined to trends in the standard published indicators of productivity and profits. The imperfections of these indicators make them subject to abuse by critics and defenders alike.

To see this, consider one indicator which is quite popular in Egypt — "Production per L.E.", or value of output over value of wages, or simply labor productivity in value terms. For three manufacturing sub-sectors, this indicator declined substantially from 1972 to 1978 (by 13 percent to 21 percent as shown in Column 1 of Table II-2). The critic would fasten on this trend as "evidence of declining public sector efficiency". In fact, it shows no such thing as shown by the decomposition of value trends into price and quantity components (columns 2 and 3 of Table II-2). In all three sectors, the decline in value terms was due entirely to unfavorable price movements which were partially, but not completely, offset by favorable quantity movements. That is, the drop in the value indicator was due wholly to the decisions by ministries to raise wages more than output prices. Labor productivity in real terms, however, increased in all cases as there was an increase in real output substantially larger than the increase in the number of workers. The first problem with the standard indicators, then, is that in looking at value trends they ignore the fact that a (usually the) major source of such changes in the price decisions made by ministries or the market. To understand trends in efficiency attributable to enterprise decisions we must look

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4/ For example; Heba Handoussa, "The Public Sector in Egyptian Industry, 1952-1977" (paper presented to the Annual Conference of Egyptian Economists, Cairo March 23-25, 1978), p. 2.

Table II-2

SELECTED PRODUCTIVITY INDICATORS

Industry	Labor Productivity: Value	=	(Quantity of Output) / (Quantity of Labor)	X	(Price of Output) / (Price of Labor)	=	Quantity Effect	X	Price Effect	Real Net Fixed Capital
			Change in Indices (78/72)							
Textiles	0.79	=	1.21	X	1.61 / 1.15 X 2.15	=	1.05	X	0.75	1.16
Foodstuffs	0.83	=	1.20	X	1.60 / 1.03 X 2.24	=	1.17	X	0.71	1.20
Chemicals	0.87	=	1.75	X	1.50 / 1.45 X 2.08	=	1.21	X	0.72	1.49

Calculated from data in: Heba Handoussa, "Public Sector Employment and Productivity in the Egyptian Economy" (Cairo: Report prepared for the ILO Comprehensive Employment Strategy Mission, September 1980), pp. 23-42.

at real quantity effects, and these are virtually never considered.[5/] Trends in constant prices must be substituted for trends in current prices.

The second problem with the conventional indicators is that they are partial. For example, in the foregoing example, it might be argued that chemicals were doing better than the other two sectors because its value index declined less and its quantity index increased more. However, this ignores the contribution of other production inputs, notably capital. Real net fixed capital increased by 49 percent in chemicals but only by 20 percent and 16 percent in the other sectors (column 7 of Table II-2). Thus the higher rise in real labor productivity in chemicals was in large part due to workers having been given more capital to work with, rather than to a real increase in efficiency. Further, changes in the use of intermediate inputs and working capital must also be considered. Trends in real labor productivity are meaningful indicators of efficiency only when fixed capital, intermediate inputs and working capital do not change; that is to say, almost never.

A third problem with the published indicators is that they are in distorted prices. This is not a very serious problem when looking at quantity trends, since those will generally differ little when using market as opposed to shadow prices or weights. When looking at levels, however, they are critical. Critics focus on a low level of profits in the sector, but this is in many cases due largely to arbitrarily low prices; and says nothing definitive about efficiency.

5/ This example was used precisely because it is the only published attempt which I could discover to report real output and capital stock.

The list of problems with the standard partial indicators at current market prices could be extended, but presumably the point is made. Except in very exceptional instances, they tell us little or nothing about operational enterprise efficiency.

C. External Evaluations: Comprehensive Indicators

A limited number of comprehensive studies are much more useful because they attempt to:

a) adjust for price distortions by moving to international prices; and

b) are comprehensive in incorporating all relevant costs and benefits.

Most common are those Domestic Resource Cost (DRC) indicators which measures the domestic factor cost of producing a dollar of foreign exchange; or:

$$\frac{\text{Domestic Factor Cost (Land, Labor, Fixed Capital)} + \text{Inputs}}{\text{Value of Production} - \text{Traded Inputs}}$$

(ideally with the indirect costs of non-traded inputs being decomposed into domestic factor costs and traded inputs and included in the numerator and denominator, respectively).

The earliest and best-known DRC calculations are due to Hansen and Nashashibi who cover the period 1954 to 69/70 for a sample of firms representing about one-quarter of value-added. The sample is predominantly in the modern public sector. Their results present a mixed picture, which is summarized in Figure II-3.

Figure II-3

COMPETITIVENESS OF SELECTED EGYPTIAN INDUSTRIES IN LATE 1950s: HANSEN AND NASHASHIBI

	Competitive at Existing Exchange Rate	Competitive at "Realistic" Exchange Rate	Not Competitive at "Realistic" Exchange Rate
Traditional" (established early"; labor intensive, onsumer goods)	Sugar, Cement Phosphate Fertilizer	Cotton Textiles	None
ew" (established late"; capital ntensive, intermediate oods and consumer rables)	None	Nitrogenous Fertilizer Rubber Tires	Paper Iron and Steel Automobiles

Source: Bent Hansen and Karim Nashashibi; Foreign Trade Regimes and Economic Development: Egypt (New York: National Bureau of Economic Research, 1975), pp. 310-312.

The basic story is that all of the traditional industries were internationally competitive at a "realistic" exchange rate while three of the five "new" industries were not. For the 1960s, the picture is similarly mixed.

> "It is also remarkable that a number of industries fared as well as they actually did after the devaluation of 1962, despite the nationalizations, employment drive, wage increase, and permanent foreign exchange crisis. Phosphates, nitrates and tires showed falling or unchanged DRCs and cement continued to be competitive at the old exchange rate.... But other industries -- probably the majority -- fared less well. The two big old industries... -- sugar processing and cotton textiles -- suffered a serious set-back in competitiveness. These two mentioned are probably typical of manufacturing, apart from the "good" industries mentioned above. And then there were the entirely unsuccessful new industries -- the Helwan iron and steel plant, the automobile plant, and perhaps paper and pulp." 6/

They argue, however, that management was not primarily responsible for these results, since:

6/ Hansen and Nashashibi, p.312.

"The difference between "good" and "bad" industries seems to be a matter of good or bad investment planning. For every one of the industries with declining competitiveness, it can be shown that inadequate investment planning (i.e., the Ministry of Industry) was, if not the sole cause of the decline of competitiveness, certainly an important contributing factor." 7/

More recent DRC calculations have been done by Handoussa for a broad set of manufacturing industries, and by two of her students, for fertilizer and cement.8/ Using enterprise level data for 1977, Handoussa's DRC calculations showed five firms to be internationally competitive at the official exchange rate, eleven more competitive at the parallel exchange rate and only three non-competitive at the parallel rate.9/ Based in part on these results, and in part but more heavily on her whole range of quantitative work, Handoussa concludes, in a very similar vein to that of Hansen and Nashashibi:

7/ Same, p. 313.

8/ They also calculate the Shadow Rate of Return (SRR). These are not discussed here as they are simply different formats for presenting the same information. Done correctly and consistently, the SRR and the DRC include exactly the same costs, benefits and prices, though redistributed between numerator and denominator. The DRC assumes an explicit opportunity cost of capital and is tested against the shadow foreign exchange rate while the SRR assumes an explicit foreign exchange rate and is tested against the opportunity cost of capital.

9/ Competitive at the official rate: food flavoring, vegetable oil, cement and soft drinks. Competitive at the parallel rate: tobacco, cement, nitrogenous fertilzer, food canning, carpets, cotton underwear, and confectionery. Non-competitive at parallel rate: aluminum, cotton knitwear, and cotton spinning. Heba Handoussa, "The Impact of Economic Liberalization on Egypt's Public Sector Industry" (paper presented at Second Conference of Boston Area Public Enterprise Group, Cambridge, April 1980), p. 21.

"that Egypt's public sector has many more competitive industries than is generally recognized, that bad project planning has been responsible for the majority of loss making enterprises, and that the evidence available points to efficient management as a consistent attribute of both the good and the bad enterprises... The solution to the problems of Egypt's public sector are not as radical as many a critic has suggested. There are sufficient examples of success -- pharmaceuticals, cement, fertilizer, petroleum, and the Suez Canal Authority, and probably many more to be appreciated when proper analysis is performed. These enterprises are evidence of the vitality and potential of public sector management. They should be praised for overcoming the enormous pressures experienced from the physical destructions inflicted by two wars and the persistent shortages of necessary foreign exchange." 10/

One difficulty with DRC calculations is the choice of shadow prices to replace market prices. This is illustrated by a study of the nitrogenous fertilizer industry which is done in sufficient detail to incorporate sensitivity analysis. For 64/65, the Hansen and Nashashibi results of high international competitiveness (at the shadow rate of foreign exchange) at a 10 percent opportunity cost of capital are reduced to the margin of competitiveness of a 15 percent opportunity cost of capital. Further, in the late 1970s, moving from a shadow price of electricity of 7.9 millimes per kilowatt-hour, to one of 10.2, causes a shift from the margin of competitiveness to highly uncompetitive.11/ In the other available in-depth study, for cement, a similar sensitivity analysis reduces, but does not reverse, the conclusion of international competitiveness.12/

10/ Handoussa, "Public Sector in Egyptian Industry," p. 20.

11/ Amr Ameen Alee, "The Economic Efficiency of the Egyptian Company for Chemical Fertilizers, A Case Study of the Egyptian Fertilizer Industry" (American University in Cairo, Master's Thesis, May 1981), pp. 90-99.

12/ Ahmed M. Galal, "Economic Efficiency in Public Sector Enterprises: A Case Study of Cement Industry, Egypt" (American University in Cairo, Master's Thesis, May 1980), pp. 84-85. He only does the analysis for capital @ 12 percent which raises the DRC to .47 compared to a shadow exchange rate of .70. Using his data with a 10.2 price of electricity causes a further rise to .60.

Another difficulty with DRC calculations is the way in which indirect effects are calculated. These can only be done correctly using an input/output table and the two studies done using this methodology produced some disturbing results. Gergis[13/] found only beverages to be competitive at the existing exchange rate and Lucas[14/] found only food, spinning and weaving and nonmetallic products to be competitive. These results are hardly definitive, however, given the high level of aggregation (only 17 industrial sectors).

D. External Evaluations: Conclusion

What can be concluded about operational efficiency from the available external evaluations? Unfortunately, very little. The partial evaluations are simply misleading and the comprehensive evalutions are subject to ambiguity on technical grounds. Further, even if we were to accept a particular set of DRC calculations, it would tell us little about operational efficiency since they would reflect four different factors:

1) Investment Decisions

   a) the choice of industry and its comparative advantage in Egypt

   b) the choice of technology

13/ Maurice Gergis, "Industrialization and Trade Patterns in Egypt," 1977.

14/ Robert Lucas, "Comparative Advantage in Egyptian Manufacturing" (report for USAID, Cairo, August 1981).

2) Macro-Economic Decisions (determining levels of aggregate demand, credit, foreign exchange, etc.)

3) Public Enterprise Ministerial Decisions (on prices, wages, hiring, procurement, etc.)

4) Public Enterprise Managerial Decisions

It is of course highly significant that the most serious external studies (Hansen and Nashashibi and Handoussa) agree that the first factor is pre-eminent and that the second two explain much of the residual. Even if this conclusion were fully accepted, it would remain important to ask how much room there is for improvement in public enterprise decisions by ministries and managers. Even in already competitive industries (say, cement), further efficiency and welfare gains may be possible. Even in industries which are unlikely to ever be internationally competitive (say, aluminum), revised operational decision-making may reduce the loss. To see to what extent such gains in operational efficiency are possible, we must turn to enterprise-level internal evaluations.

E. Internal Evaluations: General

There are several problems with using the internal evaluations available in English. First, and most importantly, they are largely written by Western consultants who may be biased by lack of familarity with Egypt, antagonistic to the existing managerial style which evolved in a planned economy framework and looking towards further sales of their consulting services. Second, they were mostly written in 1976 and 1977 and matters have certainly improved since then in many companies. Finally, it may be dangerous to generalize from single-company ancedotes.

On the other hand, there are major advantages to the internal

evaluations. Most importantly, they are prepared by management specialists who know something about how to run an enterprise (as opposed to the external evaluations, largely prepared by economists who are often innocent of management practices). Further, though they may be biased by their laissez-faire, market orientation, this is the direction the Egyptian economy is supposed to be moving in and it is essential to know what adjustments in practice are necessary for Egypt to realize its potential international competitiveness. Also, these observers have been given access to exceptionally detailed internal documents, have inspected facilities, and conducted interviews giving them insights unavailable to the external analysts. Finally, foreigners have certain advantages in seeing and admitting things which insiders may have become accustomed to.

In sum, then, the internal evaluations can be extremely useful, but must be interpreted with due caution. They will be presented by examining in turn the efficiency of use of the various production inputs: labor, fixed capital, intermediate inputs, working capital, and others. In each case, two questions will be asked: First, given existing equipment and the macro-economic environment, can efficiency be substantially improved? Second, if so, to what extent does improvement require decisions at the ministerial as opposed to the managerial level?

F. Internal Evaluations: Labor

In this case, the answer to both questions seems clear and non-controversial. First, there is a substantial surplus of labor overall (though there are equally clear shortages in many critical areas). Second, the surplus is predominantly due to ministerial as opposed to management decisions.

The most detailed evidence on this point is for the textile industry where output per production-worker in all spinning and weaving units was compared with the European standard and found to vary from three percent to seventy percent with an average of 31 percent.[15/] Note that these figures ignore any overstaffing in non-production activities and are with the modest European standards, which are 10 to 40 percent lower than North American standards. Some of this surplus can certainly be attributed to low capacity utilization, some to rational substitution of labor for capital in a low wage economy and some to skill differentials, but the presence of purely redundant labor is hard to doubt.

All consultant reports in all sectors stress the same phenomenon. Even in 1981, when the problem had been substantially reduced, when managers were asked what reduction of their work force could be accomplished without cutting production, the minimum answer was 20 percent. A typical response was : "assuming I had the choice as to <u>who</u> to fire, I would get rid of thirty percent, hire ten percent new, and substantially <u>increase</u> output."

This answer raises the important point that it is not simply a question of <u>how many</u> workers, but <u>which ones</u>. Managers are legally empowered to dismiss workers, but in practice the process is so difficult and time consuming that it is not thought to be worth the effort. One manager told of trying to dismiss a worker accused of stealing L.E. 1600. Pending settlement he was suspended, but the law required that he be paid ½ salary for three months. The Ministry later required that this be increased to 75 percent and then 100 percent. This was paid to his wife -- also an employee -- since he was barred

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15/ Werner International Management Consultants, <u>Final Report Sectoral Survey of the Egyptian Textile Industry</u> (New York: Werner International, April 20, 1976), Volume I, pp.130-146.

from entering the plant. After more than a year of legal procedures the man was finally fired, but he then sued the chairman for not paying him (there was no receipt as the money had been added to the wife's check). At a trial the chairman was sentenced to jail, but was later reprieved by a higher court. The whole affair occupied much of top management's time for more than two years. This version of the story may be one-sided but similar reports are too ubiquitous to be dismissed. The problem is not confined to firing, but to any form of disciplining. A worker who is repeatedly late or absent cannot have his pay docked without a formal procedure reaching the Board of Directors and beyond. Efficiency reports are open to inspection and appeal and lower level supervisors have learned that the only way to avoid trouble and accusations of subjectivity is to give everyone 90-100 percent evaluations (see last paragraph of Figure IV-1).

In sum, managers have relatively few effective means for penalizing poor workers and rewarding good ones. In this situation the public enterprises are saddled with a disporportionately high percentage of society's least productive workers. Even the honest hard-working majority are said to be affected by this since one becomes a sucker if he works hard and is punctual while others come late, leave early and loaf while still getting the same benefits. Further, the presence of slack work habits can make it extremely difficult for managers to implement needed reforms. All of this may be exaggerated and inapplicable in particular companies, but broadly speaking it seems highly likely that the greatest cost of the labor practices leading to surplus labor is their effect on labor discipline and hence on efficiency.

The other cost of surplus labor is financial. This can be thought of as simply a transfer from the government (through reduced dividends)

to the poor (though the wages of the redundant workers), and thus a legitimate welfare function of the government. Two questions can be raised concerning this view. The first is whether the enterprises are the proper vehicle for this transfer, given the resulting efficiency costs on labor discipline. The second question is whether unproductive jobs now are preferable to productive jobs in the future. In 1975, the wage bill in the public companies was L.E. 485 million, paid to 1,014,890 workers. If 20 percent of this was redundant, and if those wages had been saved and reinvested at the historic rate of L.E. 5,000 per job[16/] then 19,400 jobs would have been created each year. If the effect on labor discipline saved an equivalent amount and if twice as labor-intensive projects were chosen, then 77,600 jobs would have been created each year. At this rate, the choice was between unproductive jobs for 203,000 workers in 1975, versus real productive jobs for the same workers in mid-1978 (assuming a one-year gestation period for labor-intensive projects). These figures are of course only orders-of-magnitudes but the main point is to illustrate the trade-off between false jobs now and real jobs later. The choice is by no means clear, but given the Papanek and Vermeulen conlcusions on the critical importance of job creation over the next decade,[17/] the issue must be faced.

Turning to the source of surplus labor, it clearly rests largely with ministries rather than managers. Until 1979, the government guaranteed employment to all college graduates after three years and to all military

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16/ In 1975 prices. As estimated by Henry Burton, Recent Developments in the Egyptian Economy (Cairo: Ministry of Economy, Economic Studies Unit, January 1981), p. 201.

17/ Gustav Papanek and Bruce Vermeulen, "

conscripts after two years, and these individuals were forced on the enterprise.[18] Although forced increases have ceased, it will take some time to work off the accumulated surplus through expansion since firing is effectively precluded and there is often union pressure to replace workers who leave. Progress in this area may be difficult. According to the plan, employment was to have fallen six percent in 1979, but in fact it grew two percent (though this was still below the average six percent rise over the previous three years).[19]

The obvious solution to labor problems is to grant managers much greater discretion in this area, as is widely recognized in Egypt (see Chapter III). It is always important, however, to balance increased autonomy with increased accountability for results, to insure that the autonomy is used in the national interest. The danger is illustrated by the case of a manager who is said to have sought to insure his election to the People's Assembly by hiring 300 additional redundant workers from his consituency. While this may be apocryphal and is certainly atypical, the point is made that to guard against such abuses of autonomy, managers must be held strictly accountable for cost levels (see Chapter IV).

Despite aggregate redundancy, there are clear shortages of workers in many of the higher-skilled occupations and management personnel. The hemorhage of the public sectors most valuable assets to the higher wages of the private sector and the Middle East is well known.[20] The natural solution of raising salary constraints is likewise widely advocated and should be encouraged. However, complete parity with the private sector, let alone the Middle East, is unlikely. Neither is it

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[18] For details, see Papanek and Vermeulen,

[19] See Appendix A-3-a

[20] See: Institute of National Planning, Factors Affecting Public Sector Salaries Policy in Egypt (Cairo: I.N.P., December 1979).

strictly necessary. Many managers would accept somewhat lower wages in the public sector out of a patriotic spirit and a professional desire to run the largest most modern enterprises (which are predominantly public rather than private) if the system allowed them to operate professionally. One major motive for top-level exit from the sector is that good managers are strongly goal-oriented and become extremely frustrated when they see their efforts blocked by what they see as unnecessary bureaucratic interference which keeps them from operating in a professional manner. Reform of the organizational structure (Chapter III) is thus important not only in its own right, but also in retaining and attracting the best-qualified people. Given such an improvement and higher wages, the Mid-East might provide a pool of competent and experienced people eager to return home with their families.

G. Internal Evaluations: Utilization of Fixed Capital

The situation with fixed capital is much more complicated than with labor. The widespread -- though by no means uniform -- existence of excess capacity is readily documented, but the magnitudes and the reasons for it are not.

Reports of idle-capacity include the following, chose at random:

1) The Werner Report on textiles reports the following increases in output of machine productivity on existing equipment without major overhaul as:[21/]

21/ Werner Report: Volume I, pp. 8, 115-130.

Cotton Spinning	15%
Cotton Weaving	20%
Cotton Finishing	30%
Woolen/Worsted Spinning	40%
Woolen/Worsted Weaving	30%
Woolen/Worsted Finishing	30%
Knitting	20%
Making-up	50%

2) For Cement, a time series is available for Tourah, Helwan, Alexandria, and National Cement, showing capacity utilization from 62/67 to 1978. The decline during the 1970s is noteworthy, particularly given the increasing demand:[22/]

62/63	96.5%	70/71	95.1%
63/64	104.8%	71/72	97.2%
64/65	96.4%	1973	90.3%
65/66	103.1%	1974	81.6%
66/67	98.5%	1975	88.0%
68/69	78.4%	1976	87.8%
69/70	87.1%	1977	80.2%
		1978	74.5%

3) For the glass industry capacity utilization in various lines is reported as follows.[23/]

22/ Galal, "Cement", p. 92

23/ Booz, Allen, Hamilton, Strategic Study for Building Materials and Ceramics: Stage I (June 1977), Volume V.

	70	71	72	73	74	75	76
						(percent)	
Clear Sheet Glass	73.6	84.8	70.0	92.9	58.6	56.0	88.4
Ornamental Sheet Glass	61.5	87.1	85.3	70.3	59.6	99.9	73.0
Glass Wool	62.5	99.0	84.3	80.5	62.5	49.0	40.3
Fiberglass	54.4	64.0	79.2	73.6	38.0	52.8	91.2
Laminated Glass	68.0	83.3	53.3	47.3	31.3	60.6	14.0
Containers	----	----	71.9	80.4	33.8	66.4	72.8

Examples could be extended indefinitely, but the general pattern, at least through 1977, is clear. While some companies have performed well in some years, few have had consistently high capacity utilization and there is a disturbing absence of upward trends to evidence "learning by doing".

The more difficult question is why this idle capacity exists. Some of the possibilities are portrayed in Figure II-4 depending on whether they are external or internal to the enterprise or external and whether they are on the supply side or the demand side.

Figure II-4

POSSIBLE REASONS FOR LOW CAPACITY UTILIZATION

	Factors External to the Enterprise	Factors Internal to the Enterprise
Demand Constraints	Aggregate Macro-economic Demand Product Specific Demand Price Policies Import Policies	Marketing Quality Service Dependable Deliveries
Supply Constraints	Investment Decisions Choice of Industry Choice of Technology Choice of Contractor Constraints on Managerial Autonomy Personnel Policies Procurement Policies etc. Availability of Inputs	Maintenance Inventory Management Production Scheduling Production Engineering etc.

The one available broad-based quantitative suvey of the subject places managers in a very favorable light since the results attribute most of the problems to external supply side factors. Dr. Ghafter uses as his base "available productive capacity (which) refers to the capacity of production at its weakest level, or, the maximum productive capacity minus all forms of bottlenecks prevailing in each production unit."[24/] He thus adjusts for problems caused by the original investment decision and this presumably explains why he finds only 7 percent idle capacity in spinning and weaving as opposed to the Werner Report's 15 to 50 percent. On this basis, the problem of idle capacity is quite small as a share of total industrial output -- only about 11 percent. The reasons for this idle capacity are than examined by a survey questionaire which attributes 57 percent of the shortfall to input availability and old equipment, 13 percent to "other" and only 30 percent to internal factors -- "production problems" and "absence of workers" -- (see Table II-5-b). This would mean that managers are responsible for only a one or two percent shortfall in capacity utilization — a marvelous achievement indeed.

One difficulty with this conclusion is that it is based on a survey of the opinions of managers, who quite naturally put themselves in the most favorable light. A quite different picture is obtained from consultant reports prepared by outsiders. These are worth considering, recognizing that they might have the opposite bias and that the truth probably lies somewhere in between.

Turning first to the demand side, it is surprisingly not mentioned

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24/ Atif Abdul Ghafter, "Idle Capacities in Egyptian Industry: 1977", (typescript, April 1980), p.1.

Table II-5-a

INDUSTRIAL IDLE CAPACITY: 1977*

(L.E. million)

Industrial Activity	Idle Capacity in the Public Sector	Idle Capacity in the Private Sector	Total	Idle Capacity as Share of Actual Output	Implicit Capacity Utilization
Food	105.7	26.5	132.2	8%	93%
Spinning & Weaving	53.5	17.2	70.7	7%	93%
Chemicals	66.6	15.5	82.1	19%	84%
Non-Metallurgical	12.6	1.4	14.0	90%	53%
Metallurgical	95.2	3.6	98.8	30%	77%
Engineering	55.2	9.6	65.1	10%	91%
Mining	10.2	2.0	12.2	38%	72%
Grand Total	399.3	75.8	475.1	11%	90%

Table II-5-b

REASONS FOR IDLE CAPACITY*

Shortage and Poor Quality of Raw Materials	25.7%
Old Equipment and Shortage of Spare Parts	27.2%
Problems of Production	25.1%
Electric Power Failures	4.4%
Absence of Workers	4.6%
"Others"	13.2%
	100.0%

* Source: Atif Abdul Ghafter, "Idle Capacities in Egyptian Industry: 1977", (typescript, April 1980), pp. 6 and 9.

as a factor in the Ghafter study. Perhaps this is an oversight or perhaps it is because planning had been "taut" on the Soviet model, producing an economy of scarcity in which enterprises could really sell as much as they could produce, and because the door had not been fully opened to competing imports. In any event, by 1981 demand constraints were clearly a factor with many managers claiming that competitive imports were destroying their markets. This problem is liable to increase with a growing privatesector and increased foreign exchange availability. Who is responsible for the resulting unutilized capacity? Some managers claim that this is not due to the quality or price of their goods, but to a misguided bias by users in favor of foreign goods. Even if this were the whole story, it would be ammenable to management action on the marketing side in demonstrating the superiority of their goods. Further, there is evidence of shortcoming in other intenral demand side areas of service and punctuality. Paul Clark's private sector interviews repeatedly emphasize uncertain public sector delivery schedules, quality and service as factors which either retard their own production (when used as inputs) or make it easy to compete with the public sector.[25/] With public sector firms, the major role attributed to input shortages in explaining idle capacity is in substantial part due to inadequacies of other public enterprises. The consultant reports make these points repeatedly. For example:

25/ Paul Clark,

1) In the engineering industries: "One of the principle management weaknesses noted was a virtual absence in most companies of a marketing function under the wing of the commercial director. This can be understood historically due to the market monopoly position previously enjoyed by many of the companies. Now, however, with increasing competition from imports and the need for exports, the role of marketing within the companies must be strengthened." 26/ Also, "factories in general do not distribute their products and the customer is expected to arrange collection from the factory at his own expense."27/

2) In the paper and pulp industry: "Low product quality is common to most paper grades in Egypt. Quality control Departments should be an important and well organized section of every company. Technical service should be an integral part of such a department working as a liason between production and customers. It is the responsibility of the manufacturer to meet his customers' needs. Before the 'open-door' policy, little or no effort was made to improve quality or provide solid technical service to customers."28/

26/ P.E. International Limited, Strategic Planning Study for Engineering Industries: Report #1, Current Status of Engineering Industries in Egypt (Surrey, P.E. International, October 1976), p. E-54.

27/ Same, p. D-12.

28/ Stadler Hurter Limited, Nation Wide Sectoral Study of Egypt's Pulp, Paper and Board Industry (Montreal: S.H.L., March 1977), p. 168.

There is thus room to believe that in at least many public companies, a portion of demand shortfalls is attributable to inadequate marketing and customer service. This is not surprising, given their historical evolution out of a planned economy. It is, however, an area where improved internal management techniques must be acquired to operate competitively in a market economy.

Supply constraints are probably more important than demand constraints. For example, in cement, capacity utilization declined substantially in the late 1970s while demand and imports rose. Imperfect or outmoded equipment is undoubtedly a major part of the reason, but internal factors such as maintenance, innovative debottlenecking and balancing, and production engineering also seem to have played significant roles.

Helwan Iron and Steel is a case in point. It has historically operated at most at fifty percent of capacity and an internationally supported (USSR, West Germany, IBRD) project has been developed to raise this to seventy-five percent by 1987/1988 and to 100 percent at some unspecified later date. The project has two components: first, US$ 65 million for new equipment to remedy technical defects; second, organizational reforms and technical assistance to remedy managerial defects. One project participant argues that the organization and operations improvement "is the most critical one to ensure successful project implementation...Although HADISOLD has a competent Chairman and generally qualified top management, its overall organization and operating procedures are inadequate for an enterprise of HADISOLD's size and complexity and unable to implement the above organization and operations improvement program.

..."The inherent risks of the project are the problems facing the

Egyptian public sector which are embodied in HADISOLD -- a weak organization, inadequate operations system/procedures, obsolete and poorly designed physical plant facilities, inefficient production systems, low machine and labor productivity, poor raw material quality and poor financial performance."[29/] A major focus of the reform package is on the personnel, compensation and incentive problems mentioned earlier. In addition, however, it proposes about 80 distinct operations improvement schemes, plus management control and information systems and planning programs.

Other foreign consultants' opinions are worth noting for other sectors.

1) In textiles: "In general the condition of the machinery is from fair to poor. Virtually every mill has a preventive maintenance system, but the results are not satisfactory... One reason is shortage of spare parts. Another major reason is the organization within the public sector mill which virtually guarantees inefficiency and contributes to low quality maintenance...Proper training of maintenance personnel is lacking. Efficiency and quality are inexorably bound together and it is a fact that currently both are too low to meet the exacting standards of the markets. Remaking in order to meet a prescribed standard is bound to be time-wasting and in the event of tight delivery schedules could well cause the order to be cancelled. The control which is exercised now is necessary but control should be carried out

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29/ Internal document of major project participant.

during production making final inspection a mere formality."[30]

2) In the engineering industries: "Pressures on space has in some factories led to the piecemeal development of buildings and resulted in poor workflow, congested areas and given rise to severe handling problems. With the exception of the military factories, the growth of the production facilities has often led to a lack of adequate support facilities. Thus good tool rooms, maintenance, and test facilities are at a premium. Production technology is in the main, 10 to 15 years old although many companies are introducing more sophisticated machines in a somewhat piecemeal fashion. The military factories are somewhat better and many are using group technology leading to better utilization of equipment. Production technology in the private sector is often ingeneous and several instances are recorded of companies making complete production lines by buying single machines and copying and manufacturing them on their own premises. One private sector factory producing locks and hinges has designed and made a good range of quality presses and cutting tools to a very high standard for its own use. They also saw old gun barrels being used as cyclinders to overcome the shortage of special steels...A number of companies have also designed and built special equipment which, although primative, served its purpose ...

30/ Werner Report, pp. 108, 45, 112.

Storage methods were often disorganized, materials and finished products disbursed at random throughout the site with very poor utilization of space available. In many caess piles of scrap materials and rejected finished products would be found in confusion around the site and partially blocking access roads with other factories...Part of the reason for poor methods, apart from a lack of skills in senior management was an emphasis throughout the public sector on reaching year-end production targets at all costs. This often results in some companies which have experienced hold-ups in production earlier in the year through shortages, making an all out try for the last few months to reach their targets. In such cases, the division of the year into low activity, reasonably full production and an all out peak of activity at the end is not conducive to the application of better working methods. Technical engineering over the process is exercised to a very minor degree and not utilized properly. The mills cannot be brought to their potential productivity and quality level unless proper technical engineering is carried out and controls installed. At present, there is only a complete lack of technical control. In sum, for the public sector, where, in our view, some over investment has occured, the problem in general is to make better use of existing equipment before making futher investments." [31]

[31] P.E. International Limited Report, pp. D-7-D-9, and E-59-E-60. (emphasis added).

In sum, there is room to believe that on the supply side, the problem of outmoded equipment is not the only factor limiting capacity utilization. Outmoded procedures also play a role in many enterprises.

H. Internal Evaluations: Conservation of Intermediate Inputs and Working Capital

There is similar evidence in the internal evaluations of substantial room for savings through conservation of intermediate inputs. For example, in textiles: "Control over waste as is practiced in the Western European and North American mills is unknown in Egypt. The country is losing thousands of tons of valuable fiber annually. An estimated 7,000,000 kilograms of cotton, wool and synthetics is wasted annually and this figure will rise to 112,000,000 kilograms by 1985. To put it another way, the excessive waste which is being made could supply the raw material for an entire mill. The control over waste could be developed in a relatively short rime. There is no other item by which Egypt could save so much in an equal period of time."[32/] Also, "approximately 24 percent of the production is combed which means that over 10,000 tons of waste is being made at the combing process. (Carding should be substituted.) The average life of rayon ration fabrics should be increased by an estimated 25 percent at an additional cost of 10 percent... The international standard of moisture regain of cotton yarn is 8.5 percent. Some export yarn shipments are being made without adjusting the weight upwards to an 8.5 percent regain. Thousands of L.E. could be gained by this simple procedure."[33/]

32/ Werner Report, p. 113

33/ Werner Report, pp. 15, 16.

In terms of inventories, the situation is even starker. For the public companies as a whole in 1979, inventories were almost as large as total fixed capital (see Appendix A-4-b). This is particularly impressive since in the Egyptian system, depreciation is not deducted from the book value of assets (though, as usual, assets are undervalued at historic prices). Excess input inventories, of course, can be a rational response to scarcities and supply interruptions. More detailed examinations, however, show that much of the excess is on the output side and economically unjustified. For example, in the engineering industries: "on average, the MOIES Public Companies have the equivalent of eight months of production value in stock compared to six months in 1974...Problems of excess production occured in twelve of twenty-two companies examined. The electrical sub-sector was the worst affected accounting for 54 percent of the excess. The average stock holding is equivalent to 8 months production but this ranges from three months to two years. Four of the companies have more than one year's production value in their stock. In the military companies, stocks represent nearly seven months production value, while in the private sector, of the four companies dealing stock figures, three have less than 2½ months of production value as stock which is surprisingly low in contrast to public sector company stock levels."[34/]

The situation with regard to financial working capital is somewhat murkier. On the one hand, there is evidence of an increasing liquidity crisis in many public sector companies,[35/] brought on in part by price

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34/ P.E. International Limited Report, p. D-7.

35/ For a detailed discussion of the liquidity problem, see: Heba Handoussa, The Financing and Liquidity Problems of Public Sector Enterprise (Cairo: Ministry of Economy, Economic Studies Unit, August 1980).

controls on output combined with government dividend policies which preclude official retained earnings from keeping up with increasing working capital requirements in an inflationary environment.[36/] On the other hand, there is evidence of excess liquidity in the fact that public companies short-term deposits in commercial banks approach[37/] or exceed[38/] their borrowings. In part, this is undoubtedly explained by a high variance in liquidity levels across companies, but there also is evidence of inadequate financial management which fails to recognize the opportunity cost of holding excess short-term reserves and high levels of accounts payable. For example in textiles: "financial management is inexpert. The general picture of financial management is one which reflects on operation working with funds not subject to normal economic factors. Insufficient care is taken to make the funds available to work to the maximum effect. The controls which are in operation are designed to prevent misuse of funds and not to incur maximum use."[39/]

Before leaving the internal evaluations, the fact that public sector managers are often squeezed between fixed output prices and rising input prices should be mentioned. This has not been emphasized here, in part because it is so well known, but also because the present focus is on efficiency of real resource utilization, independent of prices. This should not obscure the fact that price controls are a real problem for the sector. Chapter Five will disucss this problem in more detail.

36/ Though the dividend policy is often avoided by liberal policies regarding "above-the-line" "provisions" for various purposes.

37/ Handoussa, Liquidity Problems, p. 110.

38/ Bruton, Recent Developments, p. 55

39/ Werner Report, p. 36.

I. Efficiency: Summary

The available efficiency evaluations present a mixed picture. On the one hand, there is evidence of competent top managers doing a highly creditable job given the constraints imposed by macro-economic conditions, inherited technology and ministerial constraints on decision-making. On the other hand, there is also considerable evidence of actions which could considerably improve efficiency and which are within the discretionary realm of managers, but have not been taken. Even here, however, the systemic constraints on personnel policies make it difficult for top managers to implement reforms which they would like to undertake. There is high variance across factories in the application of managerial skills. For example, in the engineering industries: "in the military factories more emphasis on management skills was in evidence particularly on planning within the technical function. Management organization structure was also much more clearly developed into specialized and well defined roles. The quality of the information obtained for study was of a high level being both detailed and well prepared and this is evidence of a better management information system than that in the public sector companies. There is evidence of real planning of career progression and training within the factories and apparent continuity in the management team as opposed to the relative mobility of top management in the public sector factories. Working methods, the basic tools of management such as production, engineering, process planning method study, and work measurement, tooling jigs and fixtures, all have a fundamental contribution to make in increasing productivity through improved utilization of available resources. Most of the factories are weak in such basic management techniques."[40/]

40/ P.E. International Limited Report, p. E-55.

Overall, however, it does seem clear that in many companies there is considerable room for improvement of operational efficiency through improved management practices. This is perfectly understandable as part of the process of moving from a planned to a market system. The potential for a five percent improvement in efficiency seems amply demonstrated and it is unnecessary to argue about just how much more is possible. The critical question is how the improvements are to be accomplished.

Chapter III

ORGANIZATIONAL REFORM

A. The Existing Consensus

How is the performance of the public enterprise sector to be improved? Among Egyptian managers, civil servants, and academics alike, there is a surprising consensus on this question, which might be summarized as follows:

1. Ownership must be distinguished from management;[1/] the advantages of public ownership should be combined with the advantages of a private type of management.
2. A "private-type" of management is to be achieved by giving managers more autonomy. This is particularly important in price and labor policies, but more generally the power of the Ministries must be dramatically reduced, and enterprises allowed to respond to markets rather than to Ministers.
3. The desired autonomy should be achieved through a new law which has two major components:
   a. an organizational reform which places all operating enterprises under (newly created) holding companies which are in turn responsible to some non-ministerial body (such as the National Investment Bank); and
   b. a set of functional reforms which explicitly delegate critical decisions to the enterprise (especially on prices and wages) and which specifically exempt the enterprises from various government laws.

1/ The ubiquity of this phrase in Egypt is traceable to an influential article by Ali Al Semy,

There is undoubtedly much merit in this analysis, but this chapter will subject it to critical scrutiny in light of international experience. The conclusion will be broadly supportive of the proposed reform, but will suggest a number of cautions, modifications, and extensions.

B. Organizational Evolution:[2/] The Fall and Rise of The Holding Company Model

The evolution of the organization of the public enterprise sector is of more than historic interest, since the structural features of the proposed reform in many ways represent a return to the pre-1975 model. The evolution of the organizational structure is portrayed in Figure III-1. Attention should be focused on organizations in the heavy boxes which represent the dominant control agencies.

In Phase One, from 1957 to 1961, the dominant control agency was the Economic Organization, created in January 1957 to run the foreign firms nationalized in 1966, the existing public enterprises and the newly established public enterprises. It seems to have been quite autonomous from the Ministries. Individuals with long experience in the sector tend to recall the period as the high point of public enterprise organization, citing high morale, competent individuals, minimal government intervention and a "business mentality". How much of this is fact, and how much selective nostalgia, is open to question, but elements of the current reform proposals are clearly traceable to a desire to reutrn to this earlier model. The 1960 nationalizations of

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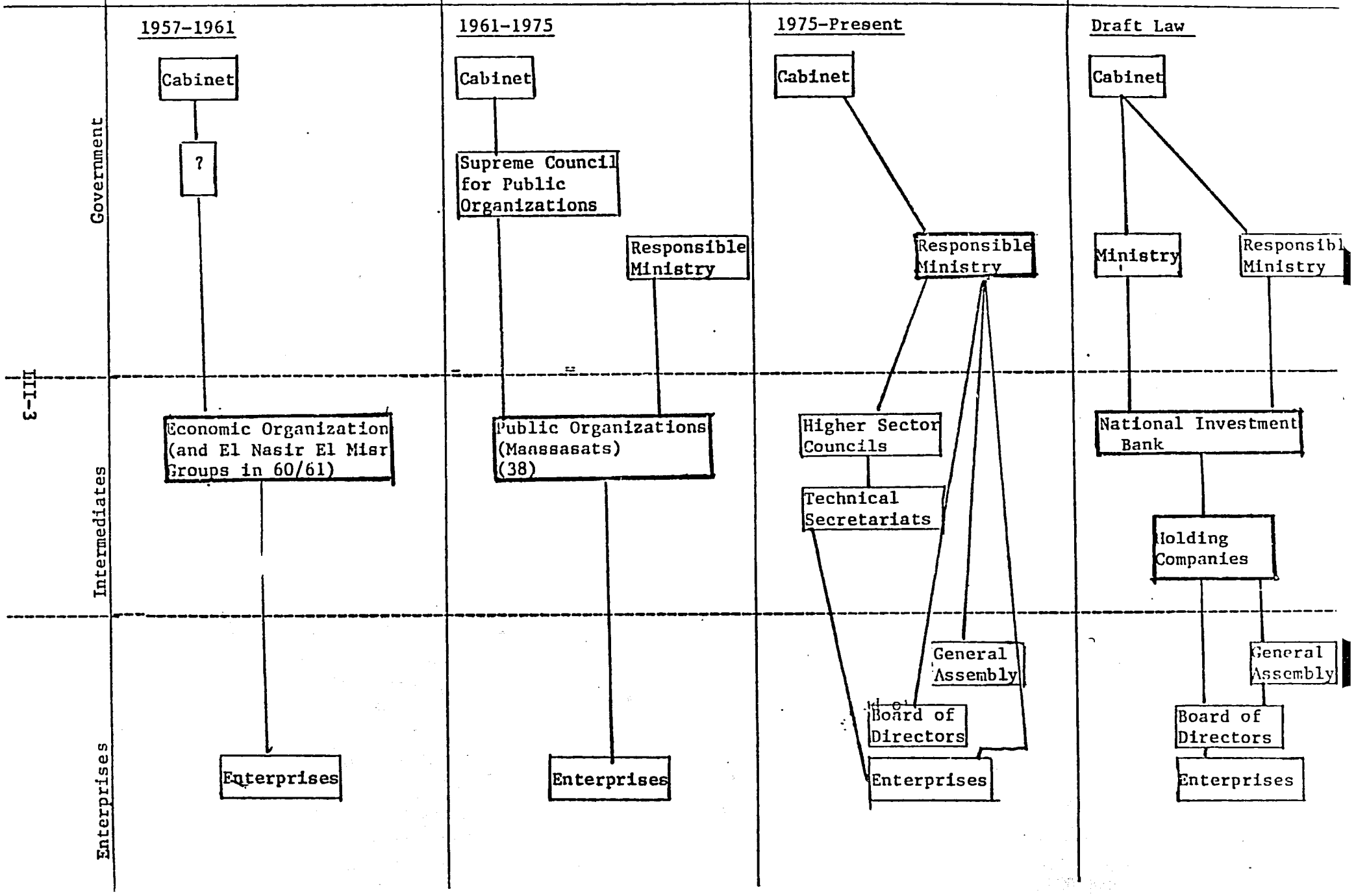
2/ This section is based on: Aly El Selmy, "Public Sector Management: Analysis of Decision-Making Employment Policies and Practies in Egypt". (Cairo: ILO Employment Strategy Mission Document #6, September 1980); Patrick O'Brien, The Revolution in Egypt's Economic System (London: Oxford University Press, 1966) and Robert Mabro, The Egyptian Economy (Oxford: Clarendon Press, 1974).

EVOLUTION OF PUBLIC ENTERPRISE SECTOR CONTROL STRUCTURE



the private Misr and National Bank groups of companies were handled by creating the El Nasr and Misr Holding Companies along the lines of the Economic Organization.

The massive nationalizations of 1961 led to the creation of 38 Public Organizations (Moassasats). These were similar to the organizations they replaced in being quasi-governmental bodies intermediate between the ministries and the enterprises. They differed fundamentally in being sectorally organized by industry (e.g., Foodstuffs, Engineering, Agricultural Cooperatives, Insurance, etc.)[3/] rather than being conglomerates operating across industry lines as had the Phase I holding companies. The Public Organizations find few defenders today. One description will serve to typify the period:

> (the Public Organizations) "went far to plan, organize and control the activities of their companies, intervening in the minute details of their operations to the effect that real management of public enterprise was shifted upward to the Public Organization. The individuality of each enterprise was abolished by enforcing unified systems that apply to the whole sector by the Public Organization concerned. Management perogatives and decision-making power at the enterprise level were jeopardized.
>
> The years 1961-1974 witnessed an overall collapse of the management efficiency in the public sector, with the government bureaucracy creeping to control and restrain enterprise management. Efforts were devoted during these years for strengthening the hold of each Public Organization over its companies." 4/

Why are the Phase Two holding companies remembered as leading to excessive centralization while the Phase One holding companies are not? One possibility is faulty memory, but there are at least three objective possibilities.

3/ For a full list, see O'Brien, pp. 180-181.

4/ Ali Al Selmy, "Public Sector Management," pp. 5-6.

1. Maturity: A new bureaucracy naturally is more flexible and exerts less control over subordinates than an old one. A new organization with a small staff delegates by default. Over time it builds its staff and takes over more and more functions. The Economic Organization lasted for only 5 years, the Public Organizations for 13. If the Economic Organization had survived, would it have been any different in 1975 than the Public Organizations? Were the Public Organizations not also heavily decentralized in their first four years?

2. Political Environment: The Public Organizations operated during the period of the planned economy, Soviet-model, in which centralization of decision-making is standard pratice, if not inevitable.

3. Homogeneous versus Heterogeneous Organization: If a holding company controls 10 firms in diverse industries (say, cement, banking, transportation, textiles, and foodstuffs) then is it not more likely to delegate authority than if it controls 10 textile plants where it can more readily establish uniform procedures and where experiences gained in one company may be thought to be readily transferable?

Whatever the causal factor, the holding company model was abandoned in 1975 in an effort to increase enterprise autonomy in keeping with the decentralization aspects of the open-door policy. The Public Organizations were abolished and direct supervisory responsibility was transferred to the concerned Ministry. Some coordination functions were assigned to new Higher Sector Councils and the Technical

Secretariats but these are generally dismissed as impotent appendix organisms. It is possible, perhaps likely, that this reform increased enterprise autonomy. At least for these enterprises under the Ministry of Industry, the dramatic increase in the span-of-control might have been expected to have this effect. None-the-less, the problem was hardly solved. As described in the last chapter, many of the complaints of "excessive interference" previously directed at the Public Organizations, were now redirected at the Ministries.

This brief outline of the historical record serves to raise an issue central to the current policy debate. Does structural reform really serve to alter the autonomy balance in the long run? Or does it merely shift the locus of the interference? Is there a logic of bureaucratic growth which means that any control agency will tend to expand its control efforts at the expense of enterprise autonomy? If so, how can this tendency be offset? We shall return to these questions after outlining the current reform proposals.

C. Reform Proposals

The current reform consensus has been embodied in two draft laws, one sponosred by the Minister of Industry, Taha Zaki, and one by Deputy Prime Minister Meguid. What is most striking about the two draft laws is their similarities rather than their differences. Both embody the consensus points outlined in Section I.

The Taha Zaki law was published first, in the Fall of 1980.[5/]

5/ "Proposal for Law # __/1980 for System of Encouragement of Domestic National Investment in National Development Projects". Aharom Iktisad (October 1980). The title is misleading, since the law would apply to "transformation of present projects, mergers, transfers and increases of capital as well as the new projects".

It can be thought of as giving Law 43 and other privileges to any public industrial firm which was willing to guarantee a rate of return 1 percent above the long-term rate of interest. For financial purposes the enterprises would be considered public sector (e.g., they could borrow at concessional rates) but for all other purposes they would be "considered private sector" and "no rules true of public sector will apply to these companies".[6/] In particular, the companies could set their own prices if they were willing to pay international prices for energy.

The Taha Zaki Law has now apparently been withdrawn in favor of the Meguid version, in part because it applied only to the industrial sector. Its importance lies in demonstrating the breadth of the consensus for increased autonomy. Even the Minister who would lose the most power from such a change supports it, and that is credit to his unselfish objectivity.

At this writing, the Meguid Law has not been published, but has been distributed widely within the government for comments. An unofficial translation yields the following critical elements:

1. Structural Reform: There will be a return to the holding company model. Enterprises will be assigned to holding companies "on the basis of the homogeneity of production or specialization or integration or geographical location or other economic basis."[7/] These in turn will be subordinate to the National Investment Bank, which among other things, has the following powers over the holding companies:

6/ Article 7.

7/ Item 4 of the Preamble

1) nominates presidents, vice-presidents and members of the boards (for appointment by presidential decree),[8/]

2) holds one reserved seat on each board,[9/]

3) approves stock issues and increases in government equity,[10/]

4) proposes the decree founding each holding company,[11/]

5) approves regulation on the distribution of surplus,[12/]

6) revises the assignment of enterprises to holding companies,[13/]

7) coordinates plans and policies among companies with national development policy,[14/]

8) acts to improve production levels and overcome financial difficulties;[15/] and;

9) evaluates performance.[16/]

2. Role of the Responsible Ministries: "The Ministries should supervise the public companies in the areas of their technical responsibilities with the purpose of directing and following up the role of those companies in achieving the goals of the economic and social development plan and to assure that they follow the national policies of the State which are approved by the Ministerial Council.[17/] Beyond this general mandate, the only power specifically assigned to the Responsible Ministries is one seat (of 9) on each holding company board.[18/]

8/ Article 10

9/ Article 10

10/ Article 3

11/ Article 2

12/ Article 7

13/ Article 19

14/ Article 19

15/ Article 19

16/ Article 19

17/ Item 3 of the Preamble

18/ Article 10

3. Autonomy: The general principle of non-interference is repeadtedly stated at all levels:

   a) (supervision by the reponsible ministry) "should be accomplished without any interference in the internal administration of public companies."[19/]

   b) "The holding companies have no right to interfere in the executive administration of the public companies."[20/]

   c) The National Investment Bank is to carry out its functions "without any interference in the rights of either the holding companies or the public companies assigned to them."[21/]

4. Personnel Policies: The Board of Directors of the holding company "issues regulations concerning the personnel working the company and their salaries, wages, compensation, allowances and travel per diem both inside and outside the country without being restricted by government regulations."[22/] The same powers are granted to the enterprise Boards.[23/]

5. Worker Representation: Workers have two seats on enterprise Boards and the Union of Labor Syndicates has one representative on holding company Boards.[24/]

6. Pricing: The enterprise Board of Directors "determines the selling price of products and services in light of production cost and the right economic basis and in accordance with the general policy of the nation."[25/]

19/ Item 3 of the Preamble

20/ Item 4 of Preamble, Also Articles 8,9.

21/ Article 19.

22/ Article 12.

23/ Article 21

24/ Articles 29 and 10

25/ Article 30

7. Finance: Enterprises and holding companies can issue stock, subject to approval by the hierarchy.[26/] Holding companies may undertake all forms of borrowing[27/] but there is no mention of borrowing powers of the enterprises. Enterprise surplus is distributed according to the suggestion of the Board (with the approval of the General Assembly). Retained earnings seem to be confined to a 5 percent legal reserve and statutory reserves, while the employees are to receive a share (unspecified) of profits. It seems that all remaining surplus goes to the holding company, but this is not explicit. Neither are the rules for allocating holding company surplus. However, in the end "the National Investment Bank is to receive the surplus of profits made by the holding companies and subordinate companies after deducting expenses relating to its (the holding company?) current activities."[29/]

8. General Assembly: This would function very much as at present with a variety of powers of approval. It is formed by proportional stockholder representation.[30/]

9. Auditing: Audit functions are performed by the Central Accounting Agency.

D. Will the Law Pass?

The draft law will certainly bring joy to the hearts of managers, and already represents a considerably degree of consensus within government, but two groups might be expected to oppose it -- workers and the concerned ministries.

26/ Articles 9, 39

27/ Article 9

28/ Articles 4,6,47.

29/ Article 50

30/ Articles 37-47.

Under the draft law, workers representation on the enterprise boards is diluted (dropping from 4 out of 9 members to 2 of an unspecified number)[31/] and they lose their entire representation on the General Assembly (dropping to zero, from four out of 15). More importantly, wages are now to be set at the discretion of the Boards, and the guaranteed bonus is reduced to any non-negative sum from the existing 10 percent of net profits.[32/]

On the other hand, the law does meet what I am told is an overwhelming concern of the Labor Syndicate, which is that the principle of public ownership be retained. This apparently explains the otherwise curious creation of a new legal form -- public companies — for the operating enterprises.[33/] It is standard practice in mixed economies for public holding companies to be established under a special law, but for the operating units to be formed according to the ordinary company law. Comparing the draft law on public companies with the draft law on private companies, there seems to be no major advantages to workers in the former, and the holding company could accomplish all its stated objectives (so long as it retains a majority of shares) <u>except</u> disposal of shares. The very first item in the preamble asserts:

> "The funds that have been, and still are invested by the state in public sector companies (public companies) are the possessions of all the people and it is illegal to dispose of them by either selling or by liquidation except with an issued law."

It should be noted that this same thing could be accomplished by a constraint on the holding companies. In functional terms,

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31/ The new Board would consist of the president, vice-president, an internal director of the company, two exmployees plus an unspecified number of members of the board of the holding company and, if applicable, representatives of private shareholders. Article 29.

32/ The existing share to workers is usually noted as being 75 percent, but fifteen percent goes into general "social service" and "housing and community service" accounts, and only 10 percent goes directly to workers.

33/ Chapter 8 of the draft law.

having a special legal status for public companies would seem to only add unnecessary complexity and employment for lawyers.

Politically, of course, this would be a small price to pay for union acceptance, but will it be enough? If not, then what concessions could be made? I would suggest that increasing worker representation on the Boards and adding them to the General Assembly would be a modest price to pay and might well have long-term advantages. Many managers are currently extremely frustrated by the presence of "uneducated and uninformed" workers in their boards. However, a few express satisfaction with the process as a way of educating the workers and "bringing them into the family." This is in keeping with the extensive West European experience with "co-determination" whose goal is to control workers, not through rigid hierarchy, but through educating them to the fact that in many respects the long run welfare of the workers is linked to that of the company. The main point is that if political concessions must be made to unions to allow passage of a reform law, it is far better that they be made on the issue of representation than on the issue of personnel policies, the latter being perhaps the single most serious constraint on persent enterprise performance.

In the draft law, concerned ministries are empowered to "supervise" the public companies, but all explicit powers rest with the Holding Companies and the National Investment Bank. This could create a conflict by having multiple leaders for the enterprise, but this is unlikely in the draft law. The two most important control mechanisms over a subordinate unit are the powers of appointment and finance. These are both vested in the holding companies and the N.I.B., which should therefore command the overwhelming allegiance of the company presidents. The responsible ministries will therefore lose a great deal of power. Will

they accept this? If not, will they be powerful enough to block the reform?

Even if the transfer of power is achieved, will it be sustained? In Indonesia in the early 1970s, there was a very similar transfer of authority from the responsible ministries to a unit under the Ministry of Finance. A few years later the process was reversed, in large part because the new unit was unable to quickly build up the capacity to exercise its new authority effectively. More generally, organizational reforms of the public enterprise sector often have a cyclical nature. The dialectical dynamic is clear. The problems of any public enterprise sector are great and extend well beyond the organization structure. If reform of this structure is seen as a panacea, then expectations of great results will naturally be frustrated and the process will be repeated. Egypt's return to a holding company model is a case in point.

This is of course not to say that the reform cannot work, only that a number of additional conditions are necessary to success. Most important in this regard are the principles of operation of the National Investment Bank, a point which will be elaborated upon below.

E. If Passed, Will the Law Increase Autonomy?

If the law does pass, will it have the desired effect on enterprise autonomy? This seems like a silly question since the law repeatedly says that enterprises have explicit rights to make particular decisions, that superior units are "not to intervene in internal workings" and that standard government regulations do not apply. Nonetheless, international experience suggests that autonomy will not necessarily follow from the law.

The main reason is inherent in the nature of the superior-subordinate

relationship. If I hire and fire you, evaluate your performance, approve your credit and dividend policy, etc., then you are going to be rather responsive to my expressed wishes regardless of whether or not I am legally empowered to give you a formal command on some particular issue. The problem is compounded by a natural human reluctance to delegate authority and the tendency of bureaucratic organisms to endeavor to grow and extend their power -- all in the national interest, of course. In short, is there anything in the law to prevent the holding companies (and the National Investment Bank) from evolving over time into the excess control mode of the old Moassassats? If the answer is "no," then it is not due to any failure of the draft-law, which goes about as far as possible in mandating autonomy. The problem is inherent in the superior-subordinate relationship.

Other factors compound the problem. In Pakistan, following a major formal delegation of power to the enterprise, it was found that many managers were still following the old practice of referring many decisions to the ministries for approval. The more dynamic and entrepreneurial managers took advantage of the new freedom, but more traditional individuals wanted to be sure they were protected by having someone else approve the decision. They also had a network of personal and professional relationships to protect. In short, many public managers are risk-averse and others do not <u>want</u> autonomy or cannot afford to jepordize personal relationships.

Does any of this apply to Egypt? I leave this to others, but the fate of law 48 of 1978 may be instructive. This law is said to have granted the enterprise mucl. power to set their own organization structure, job-descriptions, appointments, transfers, and pay structure within broad maximum/minumum parameters set at the national level.[34/] Little seems

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34/ For a description and evaluation, see: Ali Al Selmy, "Public Sector Management." pp. 66-73.

to have come of this. Some managers profess not to have heard of the Law. Others say they tried to implement it, but were told to ignore it by the parent Ministry. It is said that the Law was implemented to good effect in banking and construction, but not in general in the industrial sector. If this story is broadly accurate, then it illustrates the limitations of legal means alone to insure autonomy.

What is critical is the people and procedures of the National Investment Bank and the holding companies. If the top officials have an interventionist orietation, and if the staff consists of individuals with a traditional bureaucratic mentality who operate in the traditional way, then the new law is unlikely to have much effect on enterprise autonomy (except by default in the short-run as the new institutions are too small and weak to intervene).

The critical institution will be the National Investment Bank, since it can impose its selections and procedures on the holding companies. Under the law, this institution will have unprecedented power, combining direct hierarchical control over the government's entire equity portfolio (except the public authorities) with credit control over a major portion of its debt portfolio. This is a high risk strategy, since if the NIB is badly run, everything will fall apart. The major advantage of the proposal is that as a new institution it can appoint the right individuals and install proper procedures, rather than having to renovate a system with an entrenched bureaucracy with traditional methods. If this potential is to be fulfilled, the first requirement is that the government give the most serious attention to the character of the top appointments. The second requirement is that every effort be made to attract, motivate, train and support staff. USAID might have a role

here. It is said, quite properly, to want to move from being an assistance retailer to a wholesaler. If so, then the National Investment Bank would be the obvious focus for chanelling assistance, both in terms of funds and in providing technical support and training.

F. If Increased Autonomy is Achieved, is it Desirable?

Given the comments of the previous chapter, it again may seem silly to ask whether increased autonomy is desirable. Nonetheless, international experience suggests the question is important.

In the first place, autonomy must be thought of as multi-dimensional. It makes little sense to say that an enterprise should have a particular degree of autonomy, since the optimal level of autonomy will vary from decision area to decision area. Some decisions can best be made at the enterprise level and others at the central government level, while others can best be made collaboratively by the two parties. It is therefore not particularly helpful to ask how much autonomy an enterprise should have; rather, the question is how much autonomy it ought to have in particular decision areas. The search is for a pattern of autonomy rather than a single level.

The optimal pattern, if there is such a thing, will of course vary across activities, across countries, and across organizations with different histories. Nonetheless, a useful starting point can come from viewing the public enterprise sector as a particular variant of a more general organizational form. To a considerable extent the public enterprise sector can be treated like a multinational corporation as a special case of the multidivisional firm.. The Ministry of Production

The above list can be thought of as a first broad cut at specifying a normative autonomy pattern for a public enterprise sector. By this standard, the draft law is admirable. The prescriptions as well as the proscriptions are all explicit in N.I.B. control over the holding companies, and in the holding company relationship with the public companies. The only possible weakness comes in the most controversial item on the list -- finance. Here the argument for centralization is that the enterprises have only a limited range of uses of funds available to them, and that global maximization requires funds be collected and reallocated by the head office to the highest yielding enterprise. Managers, while tending to be generally enthusiastic about the rest of the list, often take exception to this view of finance, arguing that it should be largely an enterprise-level decision. In part this is simply because for those managers who desire autonomy, self-financing is critical -- if you do not have to ask the parent institution for money, then their opportunities for control are reduced. On a more objective basis, there are many uses of funds -- balancing, modernization, replacement and expansion of working capital in an inflationary environment -- which are small individually and should be decided at the enterprise level. The law may be flexible enough to allow for this -- in the allowance for "special reserves" -- but it could well be made explicit. The current practice is for firms to charge a variety of reserve terms "above the line" is a necessity to avoid a liquidity crisis, but it reduces the information content of the profit and loss statement. The new law might perpetuate this practice unless it is modified or the "special allowance" liberally interpreted. More broadly, there is merit in allowing firms to automatically retain a share of profits varying with performance as an incentive mechanism. We shall return to this issue in the next chapter.

Here, the point is only that -- with some minor quibbling on the finance question -- the pattern of autonomy specified in the draft law is excellent by international standards.

Again, however, a law, however well designed, is not enough. In the previous section we raised the possibility that the proscription might be ignored, leading to too little enterprise autonomy. Here we must consider the complementary possibility, that the prescriptions will be ignored, leading to too much enterprise autonomy.

Internationally, the majority of public enterprise sectors suffer from too little decentralization -- as in Egypt at present -- but there is a substantial minority of countries -- especially in Latin America and Africa -- where the enterprises are widely believed to have too much autonomy. Here, the danger is that managers will be left free to use public money to pursue their self-interest or their own perception of the public interest. The best known example is Indonesia's oil-based conglomerate, Pertamina, which became a power onto itself and almost bankrupt the country by running up $12.5 billion in foreign debts before it was brought under control.

Analytically, the problem in these cases is that proscription #7 was followed, but that prescriptions 1-3 were ignored. If this problem is to be avoided in Egypt, then we must ask how objectives are to be set, performance evaluated, and managers rewarded. The draft law, while empowering the National Investment Bank and the holding companies to perform these functions, naturally gives no guidance to us to the principles to be followed. The entire next chapter will be devoted to some suggestions on this. Here it only needs to be re-emphasized that the law is only a starting point and that its effect will largely depend on just how the National Investment Bank and the holding companies exercise their powers.

G. If Autonomy is Achieved in the Right Areas, Will it be Used Correctly?

There are two further reasons why increased autonomy might well be misused by the enterprise if the control bodies fail to do a very careful job of setting objectives and monitoring and rewarding performance. The first has to do with the characteristics of the existing management cadre and the second with the pricing system.

Egyptian enterprise executives are typically engineers with long experience in the public enterprise sectors. It is a pleasure to meet these individuals compared to many LDCs where chief executives are often retired generals or civil servants spending a few years in the enterprise on the way to more permanent retirement. As a group, the Egyptian managers are thus very impressive and constitute a major strength of the sector. However, their very strengths also create certain problematic tendencies which need to be offset by the signaling system.

The first strength of the existing cadre is their ability and often as trained engineers. In Egypt, engineers are a particularly impressive group because of a long tradition of excellence and prestige.[37/] Engineering is second only to medicine in the University hierarchy, and this means that the best engineers are a very fine group indeed. The difficulty is that, throughout the world, engineers are conditioned to be concerned with effectiveness over efficiency;[38/] with modern capital intensive projects over simpler labor intensive ones;

37/ For an exceptionally interesting analysis of the engineering profession and its role in Egyptian modernization, see: Clement Henry Moore, Images of Development: Egyptian Engineers in Search of Development.

38/ Where "effectiveness" refers to goal achievement and "efficiency" refers to achievements relative to costs.

and with technical innovation over managerial innovation.[39] As a result, left on their own, managers with an engineering orientation will tend to make some decisions which are socially sub-optimal. This tendency must be offset by a clear signaling system, emphasizing cost efficiency. Given such a clear signal, engineers are especially capable of responding.

The second strength of the current cadre is their long experience in the sector, and often in the same enterprise. This is in clear contrast to many public enterprise sectors where political appointment processes lead not only to low quality but to rapid turnovers with chief executives averaging a year or two in office. Here again, however, there is a drawback, since in Egypt much of the tenure has been in a Soviet-style, centrally planned economy. This creates problems of adaptation of managerial attitudes to the new market-oriented system. This again is no criticism of the individuals involved. If the best manager of General Motors were to swap jobs with his counterpart in the USSR, both would have some rather severe problems of adaptation. Likewise, the Egyptian managers. Again, the solution is a combination of time, clear signals, and opportunities for exposure to modern market-oriented management techniques. In the latter effort, the USAID's "Management Development for Productivity" project is exceptionally well conceived and should have a major impact if well executed and if the government creates a signaling system which rewards, and indeed demands, the installation of the new practices.

The second reason for being concerned that autonomy might not be used fully is that there is evidence of surplus autonomy at present,

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39/ For elaboration on these points, see: Lou Wells, "Engineering Man Versus Economic Man."

I did not have enough current exposure at the enterprise level to be sure, but would propose the following hypothesis for consideration by those more knowledgeable. Outside the critical areas of pricing and personnel, Egyptian managers have a great deal of autonomy and in many firms there are examples of major improvements which have not been made, but which are well within managers' current discretion. As an example, firms are free to establish their own bonus criterion and there is great diversity in their responses. These range from quite sensible and sophisticated systems to the most rudimentary and counterproductive efforts which merely given workers an automatic bonus independent of efforts (see Chapter Four for more details). The same can probably be said of many other managerial areas including maintenance, marketing, cost control, zeal of pursuit of export markets, concern with shortening project gestation periods, pursuit of new projects and Law 43 joint ventures, etc. The magnitude of this variance suggests that some, and probably many, managers are not using their current autonomy effectively. If so, then signaling and training efforts need to be added if even more autonomy is to be used well.

The third reason why increased autonomy may not be used in the public interest is the distorted price system. A goal of the current reform system is to turn managers away from responding to central commands and towards responding to price signals from the market. This is laudable, but even granting heroic progress towards a rational price structure in Egypt, many prices are liable to continue to be distorted for some time to come. Further, there are externalities to be considered and a distinction between publicly relevant and private costs and benefits (e.g., taxes). All of these factors mean that strict private profit

maximization by public enterprise managers would often not be in the public interest. All of these factors have to be taken into account in providing signals to managers.

H. Conclusion

The primary conclusion of this chapter is that while the proposed legal reforms of the public enterprise sector may well provide a set of necessary conditions for performance improvement, they are by no means sufficient. The most important additional considerations are the way in which the National Investment Bank and the holding companies would exercise their responsibilities in setting objectives, evaluating performance, and providing incentives. To these subjects we now turn.

Chapter IV

SIGNALING REFORM

A. The Importance of Signaling

The "signaling system" refers to the way in which enterprises are guided to act in the interest of society as a whole. The system has three major components. The first is a performance evaluation system in which national goals are translated into explicit enterprise objectives and quantified in a performance criterion. The second is a performance information system in which actual achievements are monitored. The third is an incentive system in which the welfare of managers and workers is linked to national welfare by a pecuniary or non-pecuniary bonus system based on achievement of particular target values of the criterion variables.

In Egypt, reform of the signaling system will be a prerequisite to success of the proposed organizational reforms. If it is not done well, international experience suggests the danger of the following two-stage process of decay. In the first, some managers will be found to use their new found autonomy in ways which are incompatible with the national interest. This will lead to cries for increased central control, the government will increasingly intervene, and the system will be right back where it started. This dialectic causes a constant cycling between too much and too little autonomy and can be broken only be a well designed signaling system which allows the government to control outcomes rather than processes. If more decision-making power is to be permanently delegated to the enterprise, then more accountability must be ensured by a signaling system which specifies and rewards socially

desirable behavior.

This is no simple task. Public enterprise goals are difficult to specify due to the problems of multiple objectives (commercial versus non-commercial) and plural principles (different control organs having different perceptions of what the goals should be). If goals cannot be specified, then "good" performance cannot be distinguished from "bad", managers cannot be rewarded on the basis of performance, and inefficiency can result.

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

While the situation of public enterprises is by no means as bleak as this little analogy might suggest, it remains true that organizations without meaningful quantifiable objectives have great difficulties in controlling efficiency. Compare government agencies and private enterprises in this respect. The outputs of government departments are generally difficult or impossible to quantify: how do you measure the performance of the Ministries of Finance or Defense? For private enterprises, on the other hand, long-term profits and growth provide quite reasonable first approximations to performance. The relative difficulty with which performance can be measured is one major piece of the explanation of the nearly universal view of government as inefficient.

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

For some public enterprises this is perhaps inevitable. In a regional development bank the non-commercial objectives may so outweigh the commercial ones that quantification is not feasible. For most

public enterprises, however, the bulk of their services to society come through their commercial activities and systematic performance evaluation becomes feasible.

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

B. The Existing System

Internationally, the evolution of public enterprise signaling systems follows a surprisingly predictable pattern. In the first phase, there is no explicit system. This may be for reasons of ideology ("from each according to his ability; to each according to his need") or bureaucratic precedence ("civil servants don't get bonuses; why should managers?"). Whatever the cause, human nature being what it is, results prove imperfect and a transition is made to Phase Two in which bonuses are provided for performance measured according to some criterion. Typically, quantity of production is initially the sole criterion but this leads to abuses since it ignores quality of output and gives no incentive for cost-consciousness. Over time, indicators are therefore added to reflect these other considerations, and a system of multiple-indicators evolves. Phase Three occurs when the system of multiple-indicators expands to include all measurable costs and benefits, appropriately weighted. If we call the weights "prices" and if we take benefits minus costs as the criterion, then we have "profit" (of a

rather special kind, as will be seen below) or "surplus" (or quasi-rents, or any other euphemism which is politically acceptable in a particular country). In the USSR, Phase One lasted from 1917 to about 1932, and the transition toward Phase Three began in 1965.[1/] Egypt, at least since 1972, has been in Phase Two. This gives her a major advantage over most other LDCs which are still in Phase One. The principle of compensation according to performance is accepted, and all that is needed is to reform the applications so as to move to Phase Three. Most of this chapter is devoted to describing an appropriate Phase Three system for Egypt. First, however, the existing system is described and critiqued.

At present, there are two bonus categories: statutory and discretionary. The statutory bonus applies to public and private firms alike, specifying that of the "profit available for distribution," 75 percent is paid as dividends to shareholders and 25 percent goes to workers, as follows:

1) 10 percent in direct payments to workers;

2) 5 percent for housing and local social services;

3) 10 percent for central social services.[2/]

Over time, the method of calculating the "profit available for distribution" has varied,[3/] but as of 1981, it seems to be as follows:

1/ For example, see: Alec Nove, "Microeconomic Problems," in The Soviet Economy (New York: Praeger, 1969), pp. 171-181; and E.G. Liberman, "Plans, Profits, Bonuses,"in Pravada, (September 9, 1962) and in Planning, Profit and Incentives in the U.S.S.R. Vol. I., Edited by Myron Sharpe, White Plains: International Arts and Sciences Press, 1966), pp. 79-87.

2/ Law #26 of 1954, Article 14.

3/ See Law #32 of 1966, Decree #386 of 1967, Minister's Decision #953 of 1967, and Law 49 of 1969, and Law #40 of 1969, among others.

(1)	Profit after taxes	
(2)	-Legal Reserves	5% of (1)
(3)	-Reserve for Capital Cost Increase	5% of (1)
(4)	-Purchase of Government Bonds	5% of (1)
(5)	-Fee for Government Services	10% of (1)-(2)-(3)-(4)-5% of paid-in-capital
(6)	=Profit available for distribution	

This system suffers from two major defects:

1) First, it is too small to have much motivational impact. Although, it is often quoted as giving 25 percent of profits to employees, in fact it provides only 10 percent of the profits available for distribution, and this in turn might be in the vicinity of 2.5 percent of after-tax profits.[4/] Profits being small or negative in many companies, the funds provided are negligible. In 1974, the total direct transfers under this category amounted to only four percent of total employee compensation.[5/]

2) Second, the measure is unfair, since the biggest determinant of profits is government price policy, and this is beyond the control of the enterprise. Embodied technology and the nature of the industry are similarly critical determinants of profit levels which are also beyond current control of the enterprise.

There are other problems as well, but the main point is that the system fails to reward socially desirable behavior.

4/ If net after tax profits were 10 percent of paid-in-capital.

5/ See Appendix Table A-2-a.

The Draft Law makes no mention of a provision for a statutory bonus. It is not known whether this is due to an intention to eliminate the bonus or to the assumption that Law 26/54 applies in any case. Hopefully, it is the former, as the statutory bonus has little, if any, desirable signaling effect.

Discretionary bonuses are far more important than the statutory bonuses. They can return to employees in the vicinity of 80 or 100 percent of their basic wage. The application of this discretionary power, however, varies widely across industries and enterprises. Two examples, representing two extremes of sophistication, will serve to define the boundaries.

In Company X, the bonus is based solely on the quantity of production relative to the defined capacity of the various divisions. In making the case to the General Assembly, the company also refers to the standard list of Ministry of Industry indicators (labor productivity, profitability, turnover, etc.). This list, however, is only utilized in a general way and there is no explicit weighting system. The most important item on the list is "pounds of production per pound of wages" (i.e., labor productivity in value terms).

A much more sophisticated system was in use at Company Y as described in Figure IV-1. While there are some ambiguities in the description, it is clear that the system has been given a lot of thought.

Despite their obvious different degrees of sophistication, the two companies both fall in the the Phase Two pattern. They share four general weaknesses.

Figure IV-1

PERFORMANCE EVALUATION AT COMPANY Y*

"The present incentive system was instituted in 1977 and focuses on three major elements:"

Quantity of production per man hour,

Quality, and

Waste (scrap or a yield measurement)

The average profitability of the Company for the reference years in 1971 and 1972 was computed using the figures for production per man-hour, waste, and quality. A formula has been developed which weights the three performance factors equally and converts this reference year to a productivity index of 100. Profit was then recalculated using factors which produced a productivity index of 120. The difference between the theoretical maximum profit and the reference profit was computed, and one third of this was allocated to the bonus pool. We understand that this is common national practice.

A general table has been developed for the Company department incentives; it is a matrix of departmental productivity indexes from 70 percent through 130 percent versus salary grade from 1 to 11. Each cell in the matrix contains a monthly bonus amount. The bonuses are awarded monthly as a separate line item on the employee's paycheck, and a practical maximum is about 45 LE for a General Manager and 55 LE for the Chairman. The incentive payments during 1977 have represented about 12-15 percent of average base wages paid during the period.

The two main production operations in the plant are weighted 3:1 in favor of rayon versus nylon because the rayon facility is about three times as large as nylon. An overall plant productivity performance is calculated using this weighting. Service departments receive 90 percent of the Egyptian pound amount available to direct labor departments, and administration received 80 percent.

In addition to the departmental productivity index, there is an individual productivity measure, or performance rating, on a zero-to-100 scale, by the which the departmental productivity per Egyptian pound amount in each salary grade is multiplied to calaculate each individual's incentive award. For each employee, a supervisor fills out a monthly report based on four factors: quantity of production, quality of production, absences, and behavior and cooperation. The latter two are calculated by the Personnel Department based on time records and day off without pay for arguments or insubordination. If an employee receives a grade below 70, the reason must be written on his monthly report. Records indicated that the vast majority of employees receive between 90 and 100 performance rating, which is a small spread."

* Extracted from a report by an international consulting firm.

The first problem is with the criteria, which are output oriented. The test of any criterion is to ask how a manager can "cheat:" that is, how can he improve the indicator, and thus his own welfare, at the expense of national welfare? The answers for Company X include:

a) ignore or reduce product quality;

b) increase labor costs;

c) increase raw-material costs;

d) increase other intermediate inputs;

e) increase fixed capital;

f) increase working capital, and

g) fail to meet customer demand in terms of timeliness of delivery, product-mix, marketing, etc.

Company Y adds additional criterion which help to solve problems 'a' to 'c', but the other problems remain. Company Y represents a higher stage of Phase Two evolution, but is still a long way from a complete Phase Three criterion. In general, the biggest shortcoming of existing Egyptian signaling is its focus on production at the expense of cost consciousness. Two manifestations of this are high levels of production for inventory, and distorted product mix (e.g., a steel company is said to produce too high a tonnage of "flats" relative to "sections", because of the greater ease of producing the former).

The second problem is the way in which <u>criterion values</u> are determined (that is, the level of a particular indicator which triggers a particular bonus). In Company X, historic capacity determines the criterion value. If balancing or modernization (let alone new investment) or improved methods increase enterprise potential, the target is not adjusted. Over time, then, the original incentive effect is reduced

as achievement of the target (and with it, the bonus) becomes automatic. Even in Company Y, the targets are apparently not adjusted. In some companies, one even hears of bonuses being paid independently of performance, so long as there is sufficient surplus to pay the bill (and, again by hearsay, some companies pay a bonus because of union pressure even in the absence of a surplus). In such cases, the bonus is no longer part of an incentive system, but merely a portion of the regular wage paid under a different name and time schedule.

The third problem is measurement. In Company Y, the level of profits helps determine the bonus pool and this is a function of prices which are beyond managers' control (as was explained above with reference to the statutory bonus). At Company X, the same is true in so far as the "pounds of sales relative to pounds of wages" indicator is relevant.

The fourth general problem is the limiting of incentives to monetary bonuses. Most importantly, it is not clear that promotion, hiring and firing of managers is based primarily on performance. In addition, good managers desire autonomy, and a cheap way of rewarding good companies is to grant them additional discretionary power (especially in financial matters). This has the further advantage of decentralizing decision-making to a greater extent in those cases where managers have shown themselves capable of utilizing it in the national interest. Given the crudity of the existing systems, it is to some extent a good thing that these additional incentives have not been provided. However, in moving to Phase Three, attention should be given to expanding the range of performance-based incentives.

The problem then is how to improve the existing signaling system to induce enterprise behavior which more closely corresponds to

national welfare. Only a system for use by the government shareholder is considered. Its task is only to evaluate the chief executive and establish a bonus pool for the company as a whole. It is the chief-executives' task to establish his own system of internal performance evaluation for distributing that pool among his employees. The National Investment Bank (or Ministry, or other government shareholder) should emphatically not get involved in the internal performance evaluation effort.

C. Objectives and Performance Criterion

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

The problem with constructing a performance criterion for public enterprise is not that its objectives are multiple, but that some of the objectives are difficult or impossible to quantify, and that

agreement cannot be reached on the trade-offs (relative weights or prices) to be used in aggregation. In dealing with these problems it is useful to think in terms of two sets of objectives: commercial and non-commercial. Commercial objectives are similar to those of private firms and reflected (albeit imperfectly, as will be explained below) in commerical accounting procedures. Non-commercial objectives concern external effects of enterprise operations (e.g., the benefits of opening up a backward area, or the costs of pollution) which are not reflected in private accounting procedures. Non-commercial objectives are particularly troublesome because they are typically difficult to quantify (e.g., the benefits of opening up backward areas) and/or difficult to put weights on (the degree of pollution can be measured in terms of various particulate counts, but how can this be converted to dollars and cents?)

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

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

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

D. Enterprise Performance Criterion: Public Profit

Assume an enterprise has no non-commercial operating objectives. Does it follow that standard private accounting profit serves as a performance criterion? The answer is emphatically "no". Publicly

relevant profit is quite different from privately relevant profit for two sets of reasons: first, publicly relevant accounting categories are different from privately relevant categories; second, publicly relevant prices differ from privately relevant prices.

Accounting differences occur because private costs are often public benefits and vice versa. As one example, consider corporate income taxes. There is a private cost and a private manager should be rewarded for reducing taxes in favor of increasing dividends and/or retained earnings. For a pure public enterprise, however, taxes are not a cost but merely one form in which the benefits are distributed to the government shareholder. A public manager should be neither rewarded nor penalized for reducing taxes while increasing dividends, retained earnings or the depreciation allowance. This is not to say that the distribution of the enterprise's disposable surplus is irrelevant, as there are important financial and motivational implications.[6/] Rather the point is that the purpose of performance evaluation is to encourage the maximization of the socially relevant profit, and the determination of the distribution of that surplus is a separate question. Taxes are a privately relevant cost but not publicly relevant, public performance should be measured before taxes, and private performance after.

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

As a second example of the divergence between public and private relevance, consider a situation in which a manager takes advantage of multiple interest rates to borrow from one government bank at, say, six percent, while depositing in another government bank at, say twelve percent. The shareholders of a private firm should certainly reward a manager for such interest arbitrage activity, but from the standpoint of a government shareholder, such behavior should be neither rewarded nor penalized.[7/] This sort of arbitrage-earning constitutes a private benefit but a public transfer.

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

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

Sales

± Inventory Changes

- Manufacturing Costs

- Administrative and Selling Costs

- Total Employee Costs

+ Depreciation and Ammortization Allowances

- Opportunity Cost of Working Capital

The public profit concept is explained in more detail in Appendix D following a more lengthy critique of private profit and a discussion of the demerits of various partial and multiple indicators in Appendix C.

The second source of divergence between public and private performance criterions lies in the relevant prices. Often, an enterprise is forced to sell its output in a price-controlled market where the price to the enterprise is less than what society is willing to pay; or, it is allowed to acquire imported inputs at a preferential exchange rate below the real value of the foreign exchange to society. In both cases, the actual price received or paid is the relevant price for shareholder evaluation of private enterprise since these are the prices which are relevant in determining their return. From the viewpoint of a government shareholder as custodian of all national resources, on the other hand, the relevant price is that which reflects economic scarcity. In principle, the solution is simple: revalue the accounts using shadow prices, just as is common with project evaluation. In practice, this is unlikely to occur. Shadow prices are complex and controversial at best and it would take a government with great faith in economists to fire an influential manager based on whether the shadow multiplier for unskilled labor was, say, 0.1 or 0.7. My own judgement is that the first-best solution of actually making market

prices reflect social scarcity is more likely to become reality than the second-best solution of using shadow prices to evaluate performance. If neither the first nor second-best solution is likely to eventuate in the near future in Egypt, then how can public enterprises be evaluated?

Fortunately, there is a practial operational way out of the dilemma. It will be argued in Section 'E' that prices are generally beyond management's control and in Section 'G' that the best available standard for evaluating enterprise 'A' in year 't' is provided by the same enterprise in year 't-1'. It follows that for control purposes, managers should be evaluated on the basis of the trend in public profit at constant prices. The solution to the dilemma then lies in the empirical observation that while the levels of public profits will differ when evaluated at shadow as opposed to market prices, the trends will generally be similar. The basis for this result can be seen by considering the simplest possible case of an enterprise with only one output and no inputs. The trend in public profit would then be a quantity index of output which differs by only a monotonic transformation when evaluated at shadow as opposed to market prices. In this extreme case the two trends are strictly identical. Introduction of multiple outputs and inputs eliminates this simple identity, because of the usual index number problem. Nonetheless, it seems reasonable to assume, and there is some empirical evidence to suggest,[8/] that the resulting differences

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

will generally be minor. In sum, the suggestion here is that the trend of public profit at market prices can provided useful and practical approximation to the theoretically ideal, but practically unobtainable, ideal of the fund at shadow prices. The logic is identical to that in looking at the trend in real GNP per capita as a measure of the trend in national welfare. The approximation can be further improved if major differences between market and shadow prices are captured through the introduction of a "social adjustment account", as will be explained in Section 'F' below.

E. Management Performance Criterion

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

The first step is to make a standard adjustment for two readily quantifiable exogenous factors -- price changes and the quantity of capital. Simply divide public profit through by the quantity of fixed capital and convert to constant prices. The resulting indicator -- public profitability at constant prices -- is greatly superior to public

profit (though still imperfect) as a measure of managerial performance and should be routinely computed as part of a performance evaluation system for all enterprises.

For some enterprises, a second step of industry-specific quantitative corrections can be taken. Engineering data on the effects of scale, vintage and technology can sometimes be used to generate adjustment factors for the quality of capital. Low capacity utilization due to shortages of inputs or inadequate demand can sometimes be corrected for by an "as if" expansion factor. Such corrections can alternatively (and perhaps better) be incorporated in the criterion-value calculation, since they are necessarily industry or enterprise-specific.

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

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

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

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

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

One straight-forward solution is to eliminate the problem by simply denying the validity of non-commercial objectives in public enterprises. Any worthwhile non-commercial responsibilities are to be hived-off to separate public institutions, leaving public enterprises free to operate according to strictly commercial principles.

an enterprise which has recourse to non-commercial objectives as an excuse for poor commercial performance. This separation of commercial and non-commercial objectives is not uncommon in practice (e.g., it is explicit in contemporary Chile and implicit in much of the South Korean public enterprise sector).

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

One variant of social adjustment accounting is reflected in the French "Program Contract" system. The basic principle is that the enterprise should pursue only commercial objectives <u>unless</u> specifically

instructed to the contrary by the government. In such a case, a bargain is struck as to the incremental costs incurred in meeting the stated objectives, and the enterpise is compensated in this amount. The obvious advantage of this system is that it allows pursuit of legitimate non-commercial objectives, but controls illegitimate pursuits by subjecting them to an open discussion of costs (and thus of the trade-offs) involved.

One technical feature of this particular variant should be noted. Costs are measured rather than benefits. In principle of course, the ideal solution would be to base compensation on the benefits, allowing the enterprise to earn a social profit on the difference between benefits and the costs, and permitting decentralized, non-bargained decision making. The problem with this is obviously that most non-commerical benefits are difficult or impossible to measure. One does not attempt to measure the benefits of having an army of a particular sort: rather one measures the costs and asks only whether the (unmeasured) benefits are greater than the costs, not how much greater. Similarly, for the benefits of, say, keeping open a factory in a backward area, focusing on costs is a practical second-best alternative to measuring both benefits and costs.

The second variant is similar to the first in being based on a negotiated agreement as to the costs of meeting legitimate non-commercial objectives; it differs in that the compensation is not actually paid. Instead, the expenditure is entered not as a cost above the public profit line, but as a transfer below the line. That is, the expenditure is treated as a dividend paid in-kind to the government. The quantum of public profit is not affected by the non-commercial activity, but some of that profit is distributed in-kind

rather than as taxes, dividends or retained earnings.

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

Social adjustment accounting can also be used to deal with incorrect prices on major inputs and outputs. If fertilizer is sold ex-factory at low prices as a result of a conscious government decision to subsidize farmers and/or wage-goods, then the enterprise can be compensated by a per unit subsidy. Similarly, if the factory is receiving underpriced natural gas or electricity, then a per-unit tax can be levied to make the price faced by the firm approximate real economic value. This is of course a cumbersome second-best alternative to simply setting the right price in the first place, but in some situations it may be the only politically or bureaucratically feasible way to ensure that managers receive correct signals as to economic scarcity. If so, then it is desirable that the tax/subsidy combinations should be actually compensated, but they could also be compensated (via the below-the-line distribution method) if financial viability is not threatened. In the latter case the output subsidy would be credited to sales, the input debited under manufacturing costs, and the net effect entered per contra as a social dividend (levy), implicitly paid (received) in-kind. Public profit would then reflect the real economic surplus generated by the

enterprise and managers could be rewarded according to their real contribution to society, independently of whether or not the right prices were actually paid.

The ultimate variant of social adjustment accounting is to create an entire set of shadow accounts altering each and every accounting entry by a multiplier reflecting the divergence between market and economic prices. While such an exercise is theoretically ideal and has major utility in research,[9/] it is unlikely to be feasible as an actual control device. If not, then the social adjustment account is a practical means of capturing the most important benefits of the theoretical ideal.

G. Setting Enterprise-Specific Criterion Values

Given the choice of any performance criterion (be it private profit, public profit, labor productivity, capacity utilization, miles per gallon, seconds per hundred yards, or anything else) as appropriate for evaluating a particular endeavor, then the still more difficult task remains of selecting a particular criterion value. While the criterion establishes the scale, the criterion values establishes the point on the scale which distinguishes, say, "bad" from "average" from "good" performance. Consider sprinters. The natural performance crtierion is seconds per hundred yards. The criterion remains valid for men, women, children,

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

senior citizens, and those in wheelchairs; what differs is the standards (criterion values) which distinguish meritorious performance. Similarly for public enterprises. Public profitability is an appropriate indicator for a textile company be it in Alexandria or in Lower Egypt, but whereas a five percent performance might be "good" in the region which is far from the source of imported raw materials, it might be "bad" in the region where there are negligible transport costs for the raw material.

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

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

If there are a large number of similar units operating in similar circumstances, then the problem is mechanical. Simply collect data on relevant variables for a sufficiently large number of units, estimate a regression plane (preferably of the "outer-bound" form) and individual unit performance is measured as a deviation from that norm (plane). If the number of observations is large relative to the number of discriminatory variables, this is a practical approach. A rowing race is run annually in Cambridge in which participation of different age

groups is desired. Historical data on rowing time and age is collected, a regression is run, the effect of age on time is estimated, a correction factor in "seconds per year" is generated, participants actual times are accordingly adjusted to yield age-corrected times and awards are given on this corrected time. This allows seventy-year olds to compete with twenty-year olds.

The difficulty with this approach for public enterprises is that the number of "similar" enterprises is usually small. The number of observations can be increased by international comparisons, but now the number of control variables increases geometrically. In evaluating cement and fertilizer, it is essential to know that the international standard for operating days is 330 and that many LDCs in fact achieve these figures with plants similar to Egypt. However, other exogenous factors (notably the availability, quality and price of energy) differ, making global comparisons difficult. The point is that while comparisons with other domestic or foreign plants can serve as useful partial aids to judgement in setting criterion values, they are in themselves insufficient.

How then is a "similar" enterprise to be found as a basis for comparison? In the entire world, the enterprise most similar to enterprise 'A' in year 't' is generally enterprise 'A' in year 't-1'. This leads to the use of last year's performance as the criterion value against which this year's performance is judged. The focus is on the <u>trend</u> in performance rather than the level. While this is a step in the right direction, it is not a final solution, for two reasons. First, even for a single enterprise things change from year to year. Most importantly, prices change. As already noted, this can (and should) be treated mechanically by shifting to constant price evaluations.

However, other changes (e.g., in demand conditions or the availability of inputs) also affect performance and cannot be treated so simply. Moreover, a second factor needs to be considered, namely, that the room for improvement varies from unit to unit. In a plant which has historically been poorly run, a twenty percent improvement in the indicator might require the same level of managerial effort and skill as that required to produce a two percent improvement in the indicator of a plant that has always been well run.

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

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

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

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

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

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

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

The system is described in more detail in Figure IV-2.

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

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

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

In a single period case with no uncertainty, this is strictly accomplished, as suggested by the examples in Figure IV-1, and proven elsewhere.[10/] The danger of a ratchet effect remains (this year's performance alters

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

Figure IV-2

THE DISCLOSURE BONUS

I. The Scheme

A. Variables

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

B. Process

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

II. Example

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

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

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

Figure IV-2 (continued)

B. Parameters

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

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

C. Alternative Enterprise Strategies and Associated Pay-Offs

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

next year's proposed target/bonus relationship), but this can be reduced by setting targets several years in advance. This is not feasible for price-dependent criterion values, but may be feasible for constant-price criteria. Uncertainty is an unavoidable problem. The disclosure bonus is thus not a panacea, but does provide a useful aid in determining criterion values.

I. The Incentive System:

The mere presence of "bonus" payments in a company's compensation structure is no guarantee that correct incentives are being provided. It is all too common for public enterprises to have bonus systems which are ineffective and/or counterproductive. One possibility is that the bonus is linked to an inappropriate performance criterion, provides socially inappropriate signals, and leads to counterproductive managerial behavior. A bonus system with a poor criterion can be much worse than no system at all.[11/] A solution to the criterion selection problem has been proposed above. In this section we assume that a reasonable criterion has been chosen and inquire into the properties of a bonus system which will result in effective signaling. It is useful to distinguish between a bonus system (in which some portion of compensation is linked to some performance indicator) and an incentive bonus system (in which the bonus is calculated in such a way as to actually affect managerial behavior to a significant degree). Three characterisitcs are necessary for a true incentive bonus system.

11/ For documentation, see the extensive literature on Soviet and Eastern European experience with "success indicators". For example: Janos Kornai, Overcentralization in Economic Administration (Oxford: Oxford University Press, 1959); and Alec Nove, The Soviet Economy, (New York: Praeger, 1969).

First, the bonus must be sufficiently large. I once visited a corporation whose officers proudly explained a rather neat bonus system tied to a reasonably sophisticated criterion and used to control subordinate units. Unfortunately, interviews at the unit level revealed complete apathy towards the system because even the most extraordinary effort over a year's period resulted in a maximum bonus equivalent to about 4½ hours pay. The system was ineffective. Just how large does the bonus have to be in order to be effective? This is a difficult question, but I suspect the answer is that bonus needs to be denominated in months rather than weeks, and certainly not in days. Private firms in Japan and South Korea regularly pay bonuses of two to eight months pay, and sometimes more.

Second, the bonus system must be "taut". Public enterprises in one Asian country also pay up to eight months pay as bonuses, but they have little or no incentive effect since the criterion value is set so low as to be meaningless. In one case the maximum six-month bonus was tied to a level of performance which was about ten percent below the worst performance in the nine year history of the firm. In such a case, the bonus has no marginal incentive effect and simply becomes an accepted part of annual pay which happens to be paid out in semi-annual installments.

Third, the bonus should be continuous. That is, it should not be posed as a discrete all-or-nothing proposition in which achievement of some trip-wire level yields the maximum bonus, with no additional rewards for further improvements in performance. In one public enterprise in another Asian country, a bonus system was initiated in wihch a bonus was to be paid if production exceeded five percent of rated capacity. The bonus was both large (amounting to several months of pay) and at least moderately taut (in that in the previous three years, capacity utilization had averaged 98 percent a maximum of 101 percent). The scheme was at least partially successful in

that subsequent years capacity utilization was 109 percent, 110 percent, 106 percent, and 109 percent. Interviews at the firm revealed, however, the strong liklihood that additional gains were possible. They were not pushed however, because of a fear that a major increase in performance might lead to a rise in the target, with no benefits in current compensation. The fact that they were always a few percent over the target was explained as being due to a "December cushion". That is, they had to come into December a little ahead of target to insure that an unanticipated shut-down did not drive them below the trip-wire level. If December then went smoothly (as it did in all but one year), then they came out a few percent ahead of target

Fourth, the system should include non-monetary incentives. Promotions, hiring and firing should be based on performance and increased financial autonomy should be granted to companies which have proven themselves capable of using that autonomy.

J. Conclusion

Implementation of a Phase Four Signaling System is not a simple matter, but is essential if the organizational reforms are to produce the desired effects. A priority task for the National Investment Bank (or whatever other apex organization emerges from the current debates) is to establish such a system. This might be an appropriate, high-impact focus for some USAID assistance.

Chapter Five

OTHER REFORMS

I. Competition Policy

Increased competition is one of the major advantages of moving from a centrally-planned to a market economy. In the present context, this means that decentralized control by the market can to a considerable extent be substituted for centralized control by the Ministries. Efficiency can thus be enforced in part by exposure to the rigors of the market. This works, of course, only to the extent that two conditions are fulfilled: first, that managers are motivated to respond; and second, that the market provides the correct signals of social scarcity. The previous chapter dealt with the first issue and we now turn to the second.

The chances of the market providing correct signals increase dramatically with the number of competitors. This means that a major principle of economic policy should be to increase the number of participants in a particular market, subject to the limitation imposed by scale economies (dealt with below). In Egypt, two specific reform proposals run counter to this principle and should be resisted, and indeed reversed. One deals with public/private competition and the other with competition among public enterprises.

Some people believe that the Egyptian economy should be partitioned into public and private spheres with certain industrial sectors reserved for the public sector and the remainder left to the private sector. This is a common practice in mixed-economy LDCs (e.g., in India) and the goal seems to be on the one hand to protect the private sector from public competition, and on the other, to ensure public

control of the "commanding heights" of the economy. Are these benefits real and if so are they large enough to offset the resulting reductions in competition? The notion that private entrepreneurs need to be protected from "unfair" public enterprise competition is at best inconsistent with the prevailing view of public enterprise inefficiency.[1/] In many countries, no one is better off than a private enterprise competing with a public enterprise. As one manager (outside Egypt) once explained: "as long as the markets are such that any public competition can survive, I can get rich." If this is not the case, and public enterprises are the more efficient, then why should the inefficienct private enterprise be protected, and thus subsidized, at the expense of the consumer? In either case, public versus private competition should not be prohibited by partitioning, but should be encouraged so as to promote competition. Private entry into previously public markets can promote efficiency and public entry into private markets can preclude oligopolistic practices.

Given the current dominance of manufacturing by public enterprises, it will be some time before private competition is able to exert much pressure on the public enterprise sector. In the meantime, there remains great scope for promoting efficiency by encouraging competition among public enterprises. At present, this is largely precluded by the grouping of enterprises along sectoral lines. One function of the

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1/ The exception is where output prices are regulated at such a level that even an efficient producer loses money, and where the public enterprises ability to absorb losses allows him to survive. This, however, is a problem of price regulation, dealt with in the next section, rather than of competition policy. It is true that public enterprises may have some advantages in dealing with some government regulations but do these really offset the bureaucratic disadvantages?

higher organization and the Ministries is to allocate market shares among enterprises. This is a hold-over from the centrally planned days and is inconsistent with the principles of a market economy. This amounts to a government-run cartel, which makes life easier for managers at the expense of the consumer. The present danger is that this pattern will be perpetuated in the new holding companies. The question is whether the holding companies should be homogeneous or diversified. The advantages of homogeneity are largely technological. If a holding company has only, say, cement plants, then its engineers are in a better position to evaluate performance and investment proposals, to plan and to provide technical assistance. The holding company can also impose more detailed and homogeneous control functions. In fact, the evolutionary logic of thisform of organization is for the enterprises to become mere operating units with all control functions centralized in the holding company. This was the case with the old Moassasats. One disadvantage of homogeneous holding companies is therefore that they tend towards much more centralized decision-making, with reduced enterprise autonomy. More generally, diversified holding companies are more likely to perform a more limited range of financial and managerial controls, leaving a greater range of autonomy to their technologically diversified enterprises. This danger is particularly great in Egypt, given the heritage of central planning. The other major advantage of diversification is its effect on competition. For example, if the nation's cement companies are all under different holding companies they may be more likely to compete for customers by improving the quality of customer service and reducing costs, as opposed to simply dividing up market shares. Serious consideration

should therefore be given to a conglomerate form of holding company organization. This is like to increase both decentralization and ompetition.

The limits of domestic competition are imposed by economies-of-scale relative to the size of the market. Given the modest economic size of the Egyptian economy, there will be many sectors which will support only one or a few modern firms. Here the answer is the international competition provided by imports and exports. These advantages are of course, identical for public and private firms alike and need not be dwelt upon here, except to note two points. First, on the import side, many of the advantages have already been felt. Several of the managers whom I interviewed stressed that the need for organization reform followed from the need to meet the competition provided by imports -- "Before, Company X had to buy my products; now, they can import. I therefore have to be able to have more freedom to deal with workers in order to compete." This is precisely the sort of pressures which competition should bring to bear and I suspect that a significant portion of the current pressures for reform by managers has its roots in this cause. On the export side, similar pressures are as yet unapparent but must be encouraged by the incentive systems (both the public enterprise signaling system, and the broader sort of macro policies suggested in the companion paper by Paul Clark). The greatest advantage of an export-oriented development strategy is not in the foreign exchange it generates, but in the discipline imposed by exposure to the rigors of international competition.

The final element of competition policy is exit -- public enterprises must be allowed to die a natural death. In a private enterprise, necessary

exit is ensured by the profit-orientation of the shareholders but in a public enterprise it is retarded by the opportunity for subsidies. These are sometimes justified by an willingness to eliminate jobs. This is of course an ethically worthy concern and often a political necessity, but there are three offsetting considerations. First, there is the traditional need to replace old products and processes with new ones in the course of economic development. Second -- and much more important in the Egyptian public enterprise context -- is the incentive effect on labor and management throughout the sector. The ultimate collective incentive to effort is knowing that otherwise all employees will lose their jobs. A few well-publicized shut-downs of egregiously inefficient firms, plus warnings to others, can have a marvelous effect on the diligence of employees elsewhere. Finally, there is a real welfare loss in operating inefficient enterprises. Shut-down should occur only when variable social costs exceed variable social benefits and this means that the enterprise is taking more out of the economy than it is putting back in. It is thus destroying resources and reducing welfare.

Unlike organizational and signalling reforms, competition policy is unlikely to be popular with either managers or workers. Even in the U.S. it is often said that entrepreneurs are avid believers in the virtues of competition in every market save their own. Nonetheless, increased competition must be seen as one of the prices managers must pay for increased autonomy. Making public enterprise managers responsive to markets rather than bureaucrats presupposes that the markets give correct signals of social scarcity and this can best be accomplished by mechanisms to encourage competition. Where this is impossible (e.g., for non-tradeables such as electricity) or politically infeasible (e.g., for some foodstuffs) then regulated pricing must be resorted to.

B. Pricing Policy

Public enterprise prices which are too low can lead to three sorts of inefficiency:

1) allocative inefficiency: new resources are attracted to the "wrong" activities;

2) cost inefficiency: existing resources are used in the "wrong" way; and

3) distributive inefficiency: subsidies go to the "wrong" people.

The ubiquity of "low" public enterprise prices in Egypt is too well known to require comment, as is the allocative argument against such prices. This section comments on the second two reasons and also considers the complementary problem of some prices being too high.

In early 1981, a Fiat 128 cost L.E. 3,670 at the gate of Nasser Automobile, having been frozen since 1977. The same auto went for over L.E. 5,000 in the market. Given the opportunity for arbitrage, excess demand is rationed by a "reserve list" system, in theory open to anyone who can afford the considerable deposit. Who benefits from this system? First, the middle or upper-income purchaser who gets an automobile for his own use below cost. Second, the 15-20 middlemen who put up the front-money for employees and relatives to get on the list, then pay them a small commission, resell the car at the market rate and pocket the difference.

In the late 1970s, three millimeter flat glass sold ex-factory for 73 piasters per square meter but sold in the market at 104 piasters. Two successive ministers rejected a price increase, but a third approved a rise to 112 piasters. The process, however, took two years and by then costs and market prices had increased substantially. By 1981, the same glass was imported at $3 per square meter, and sold to wholesalers at

182 piasters. Wholesalers also pay 182 for the local glass, but the company still recieves only the old 112 piasters. It is said that retailers effectively sell at several times the 182 rate -- even though the retail price is controlled -- by adding exorbitant charges for sizing and smoothing. Who benefits? Depending on just how much credence is attached to the "exorbitant" service charge story, the answer is split between the glass retailers, and the contractors (consumers of housing and buildings are unlikely to benefit because of the tight construction market).

The point of these stories is that the beneficiaries of many public enterprise pricing policies are not the poor, but rich middlemen or upper-class consumers. Even for the many products which are sold directly to the poor, the rich benefit disporportionately. An important study by USAID estimates that three-quarters of the L.E. 2.9 billion food and energy subsidies in 1979 went to relatively affluent urban areas and only one-quarter to rural areas (see Table V-1). Further, of the subsidies going to urban areas, sixty-two percent went to the richest half of the population and only thirty-eight percent to the poorest half (see Table V-1).

The important point is that the usual allocative arguments for raising public enterprise prices are not offset, but rather reinforced, by distributional considerations. For many products, (e.g., autos, glass) the benefits go almost wholly to the rich and raising prices would generate additional revenues which could be used, for example, for increased elementary education, medical care, and jobs for the truly poor. Even where the poor do benefit (e.g., food, clothing), improved targeting could greatly improve the (distributional) benefit to cost ratio. The magnitude of the subsidies and political realities may make

Table V-1

BENEFICIARIES OF EGYPTIAN FOOD AND ENERGY SUBSIDIES: 1979*

A. Magnitude by Sector (L.E. Billion)

Item	Urban	Rural	Total
Food	1.0	0.0	1.0
Energy	1.2	0.7	1.9
Total	2.2	0.7	2.9

B. Distribution of Subsidy Among Urban Households by Expenditure Class (percent

	Percent of Total Subsidy Received		
	Food	Energy	Total
Poorest 26.6 percent	21.7	15.5	18.4
Next 23.7 percent	22.1	18.1	19.9
Next 28.5 percent	24.2	27.1	28.1
Richest 21.2 percent	22.1	39.3	33.6
	100.0	100.0	100.0

*Source: USAID, "Egypt's Food and Energy Subsidies in 1979" (Cairo: USAID, undated), p. 3A.

it impossible to immediately rectify the problem,[2/] but progress in this direction - is dictated by both efficiency and equity considerations.

Cost efficiency also points in the same direction. Companies which are losing money because of arbitrarily low prices may be less efficient for several reasons. First, they may face a liquidity shortage which reduces their ability to operate in an inflationary environment. Second, scarce managerial resources may be diverted from more important areas to the search for additional short-term-capital or to lobbying for price increases. Third, losing companies may not be in a position to pay bonuses even for good performance and morale and efficiency may slip. Fourth, such companies may find it hard to raise funds even for relatively small, but highly productive, investments in balancing and modernization.

The cost efficiency problem is exacerbated when either regulators or enterprises use a "cost plus" pricing formula. In an Asian country there are two identical fertilizer plants built in the same year to the same design by the same contractor. Both are joint ventures between the government and a multi-national (though a different multinational in each case). One would expect these two firms to behave quite similarly, and in many ways they do (e.g., they have identical levels of output). However, their variable cost structures were quite different. Firm A had controllable variable costs fifty percent higher than firm B. Since both A and B produce the same quantity and quality of output, it is difficult to escape the conclusion that firm A was "X" or "cost"

2/ For a balanced program of progress in this direction, see: Henry Bruton, "Four Issues on Economic Policy in Egypt" (Cairo: Ministry of Economy, Economic Studies Unit, 1980), pp. 1-17.

inefficient. Why did this come about? The only plausible explanation was a difference in pricing policies. Firm A's sales contract with the government set prices on a "cost-plus" basis, while firm B's prices were set on the basis of world prices. If firm A cut costs, it earned the benefits only in the short period until a new price was set; at that point the new price was based on the lower costs and any benefits to the firm were wiped out. For firm B, on the other hand, a reduction in costs resulted in a permanent annual increment to profits. Firm B therefore had an incentive to keep costs down, while Firm A did not.

This is a natural and almost inescapable result of cost plus pricing and it would be surprising if it did not have a similar effect in Egypt. This problem may get worse before it gets better, if the general principle of price decentralization is ultimately tempered with some sort of regulatory approval process. It therefore needs to be stressed that optimal pricing for the public enterprise sector as a whole begins with application of a three-part rule. Set price:

1) at the competitive price (if $p > mc$) if the firm is a price-taker; or
2) at the rationing price if the firm is a price setter <u>and</u> if there is excess demand (at $p=mc$); or
3) at marginal cost if the firm is a price setter and if there is excess supply (at $p=mc$).

The first two of these rules are often forgotten, giving a bad name to marginal cost pricing as leading to deficits. Once they are remembered, marginal cost pricing is in principle as likely to lead to surpluses as to deficitis for any one unit, and the sector as a whole would tend to break even (including the cost of capital).

The failure to remember the third part of the above rule leads to

a situation in which public enterprise prices may be set too high. Consider export pricing. In deciding whether or not to export, the question should be whether or not the F.O.B. price is above or below the social marginal cost of production. If excess capacity exists, it is widely recognized that capital costs are not part of the relevant marginal cost. What is not so widely recognized is that in the Egyptian context, neither are labor costs, since labor must be retained and paid whether or not there is enough work. In Egypt, most demand-constrained firms already have enough labor to operate at full-capacity. Under these circumstances, labor is a fixed rather than a variable cost. Such companies could therefore improve their position by seeeking out all export opportunities where the price covers little more than intermediate input costs (including increased maintenance). This recommendation is not a piece of pie-in-the-sky academic theorizing. It is precisely the policy of large industrialists in Japan, where life-time employment policies mean that they also cannot lay off workers. When they have excess domestic capacity, they often sell internationally at what seems to be absurdly low prices and this is often referred to perjoratively as "dumping". It is no such thing. It is the natural result of profit-maximizing, marginal cost pricing when labor is a fixed cost for institutional reasons. The Egyptian public enterprise sector should apply the same principle in seeking out export marekts where excess domestic capcity currently exists. High DRCs and pessimistic reports of international competitiveness are of course relevant to investment decisions where new capital must be attracted and new workers hired. They must, not, however, be allowed to obscure real opportunities for use of existing fixed capital and labor. This argument, of course, applies to domestic as well as export sales.

C. Mixing Policy

Egypt is moving towards a mixed economy in which public and private capital co-exist across enterprises. It is also possible for public and private capital to co-exist within enterprises. This section considers the merits of such mixed enterprises. Two quite distinct forms of mixing must be distinguished, depending on whether the

1) government sells shares on the stock market to a diversified set of investors or
2) to a single individual or company.

The first form -- diversifed mixing -- is said to have the following advantages:

1) financial -- generating funds for investment and freeing enterprise and government money for other purposes;
2) control -- adding representatives of private interests to the board helps insure financial discipline and efficiency;
3) openness -- public disclosure policies of most stock exchanges expose the enterprises to public scrutiny, which further improves performance;
4) capital market development -- the addition of a new investment instrument (equity shares) deepens and broadens the capital market and thus increases the savings rate and improves the allocation of loanable funds; and
5) distributional -- benefits of government operation are disbursed more widely.

This sounds awfully good, but the experience of two countries -- South Korea and Pakistan -- who have made extensive use of diversified mixing suggests many of the benefits are ephemeral. First, the control

effect will almost certainly be negligible since minority shareholders are unlikely to have much of a voice on a board, even where the board is not largely a rubber stamp for managers. Second, macro-economic financial benefits will not be realized unless the savings rate is affected or foreign funds are attracted. Pakistan has created a State Enterprise Mutual Fund largely to attract repatriated earnings from Pakistanis working in the Middle East. This is quite creative and in pursuit of a laudable goal but thus far there has been only modest success in diverting Mid-East eranings from the traditional use for home construction and consumer durables. Third, the distributional impact is most perverse. In an effort to make public stocks attractive, Pakistan has put only the most profitable companies on the stock exchange and South Korea has essentially guaranteed a high dividend for diversified shareholders. The resulting transfer can be seen as being from the poor (who might otherwise benefit from government revenues) to the upper classes who are the buyers of securities. This may well be a small price to pay for capital market development, which is certainly a valuable goal. Openness is also to be supported. These last two benefits are certainly real, but may be modest in magnitude. Diversified mixing may on balance therefore be positive, but is not to be expected to have major benefits. Still, any step forward is to be supported and Handoussa has analyzed the potential for implementation with particular companies.[3/]

3/ Heba Handoussa, "Policy Study on Issuing Shares of Public Companies" (Cairo: Ministry of Economy, Economic Studies Unit, March 1979).

The advantages of concentrated mixing are quite different. In so far as foreign firms are involved, there may be a real financial gain for the economy and improved access to foreign markets and technology. Further, there is likely to be a real control and training effect as international management systems are introduced. Participation of local private capitalists is likely to be less beneficial on all these grounds. Concentrated mixing, particularly with foreign partners, is thus to be encouraged.

Appendix A

PUBLIC ENTERPRISE DATA SOURCES

I. General

Public enterprise data in Egypt has one overwhelming advantage -- its high quality -- offset by an equally overwhelming disadvantage -- its limited accessibility. An immense amount of data in an exceptionally useful format is regularly reported to parent ministries and aggregated by the Ministry of Finance and the Central Agency for Public Mobilization and Statistics. The aggregate data is however, released only after a five to seven year lag and the enterprise level data is closely held within the government. This imbalance between existence and accessability is a source of great frustration to current research but great potential for future research. I know of no other mixed-economy LDC with anywhere near this quantity of good enterprise level data. Add to this the large size of the sector, and the opportunity for serious quantitative analysis of public enterprise behavior is without parallel. It was not possible to use much of this data in the current project, but perhaps this Appendix will allow others to do so by saving them the time necessary to ferret out the various sources.

II. The Unified Accounting System (U.A.S.)

The quality of the data derives from the existence of a Unified Accounting System issued by the General Accounting Agency in 1966. It can be thought of as a mix of traditional business and national income accounting, designed to provide a uniform basis for reporting in support of both conventional micro (enterprise) control and macro (sector and economy-wide) analysis. The strength of the system are its uniformity and the mix of business and economic concepts.

III. CAPMAS Reports

Since 1966/1967, the non-financial, non-authority public enterprise sector, U.A.S. data is collected, aggregated and published annually by C.A.P.M.A.S. in its:

1) National Economic Statistics: (1)

2) National Economic Statistics: (2) Statistics and Economic Indicators for Public Sector Companies (Excluding Banking and Insurance Companies).

Data are presented both in aggregate and broken down by a (roughly) 3-digit industrial classification. The first volume uses business accounting concepts, and the second, national income accounts. The strength of these documents is their completeness and internal consistency. Although there is not as much detail as one would like and there are occasional conceptual problems,[1/] the accounts are a delight to work with. Figures A-1-a to A-1-h give the basic formats. The major weakness is availability. As of 1981, the most recent year available was 1974, published in 1979. In addition to the publication lag, there is a serious problem of retention. CAPMAS does not keep a complete set and a search of other libraries yielded only the following issues:

	66/67	67/68	68/69	69/70	70/71	71/72	73	74
Volume I	✓	✓	✓	✓	✓		✓	
Volume II		✓	✓	✓	✓			✓

The more important data for available years are summarized in Tables A-2-a to A-2-f. Updates for some series were made available by the

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1/ Except for 67/68, they treat inventory revaluations as part of value-added, contrary to official U.N. practice. See:

Ministry of Finance and these are given in Tables A-3-a to A-3-e. Figures from both sources for manufacturing alone appear in Tables A-4-a and A-4-b.

IV. Ministry of Industry and Mineral Wealth (MOIMAW)

For enterprises under its control MOIMAW collects a much broader range of data and publishes them in its annual Report on the Achievements and Results of the Industry and Mineral Wealth Sector. This appears in two volumes. Volume I (blue) gives aggregate data broken down into five sectors

1) Spinning, weaving and clothing
2) Foodstuffs
3) Chemicals
4) Basic Metals and Metal Products
5) Metallurgy

Volume II (green) gives data by company. The impressive coverage of these volumes is indicated by the chapter summaries in Figure A-5.

V. Company Reports

Most, and perhaps all, public sector companies produce an annual Performance Evaluation Report. In addition to a general descriptive section, these contain an immense amount of data, as shown by the format in Figure A-6.

VI. Quarterly Statistics on Industrial Production

C.A.P.M.A.S. produces a Quarterly Statistics on Industrial Production which distinguishes between public and private producers (though it is not known how mixed enterprises are categorized) and gives a breakdown

by government. Coverage is of all firms employing more than a specified number of workers, varying as follows:

1) 1960: 100 workers

2) 1961: 50 workers

3) 65/66 to date: 25 workers

Data for selected years are given in Tables A-7.

CAPMAS also produces an annual Production of Manufactured Goods with a public/private breakdown, but this is available only through 1974.

VII. Other Public/Private Breakdowns

Other published public/private breakdowns are reproduced in the following tables:

A-8: Value-Added, Wages and Property Income by Industrial Sector in the 1977 Input/Output Table

A-9: Public and Private Value-Added in the 1976 Input/Output Table: 1976

A-10: Exported Public and Private Value-Added by Industry: 1979.

Figure A-1-a

C.A.P.M.A.S. PRODUCTION ACCOUNT

Uses	Value		Revenues	Value	
	Subtotal	Total		Subtotal	Total
Production Materials			Sales at market prices		
Goods			Net sales of final product		
Services			Trade margin		
Taxes			+ Own account production		
Depreciation			+ Contract work		
Difference in valuation of:			+ Services sold		
final product inventory			+ By-products		
inventory of goods to be resold			± Change in commodity inventory		
Net value added			Finished products		
			Revaluation of final product inventory		
			Unfinished products at cost		
			Goods to be sold at cost		
			Revaluation of goods to be resold		
			+ Subsidies		
			Products		
TOTAL USES			= TOTAL REVENUE		

Figure A-1-b

DISTRIBUTION OF NET VALUE ADDED TO FACTORS OF PRODUCTION

	Value	
Item	Subtotal	Total
Wages		
Net Wages		
Benefits		
Social Insurance		
Rent		
Rent Expenses		
Opportunity Cost of Owned Assets		
Interest		
Returns to debt		
Opportunity cost of invested capital		
Net returns of productive operations		
Total Returns to Factors of Production		

Figure A-1-c

CURRENT TRANSFERS AND SAVINGS AIC

Uses			Revenues		
	Subtotal	Total		Subtotal	Total
Expenses not contributing to value added			Returns to production operations		
Real Estate Taxes			Revenues from securities		
Income Taxes			Revenues from transfers		
Other			Other Revenues		
Distributed Surplus			Opportunity cost of owned assets		
Employee Share			Opportunity cost of owned capital		
States Share			Opportunity cost of invested capital		
Shareholders Share					
Other Shares					
Savings					
TOTAL USES			TOTAL REVENUES		

Figure A-1-d

CAPITAL AND FINANCIAL USES AND REVENUES ACCOUNT

Uses	Subtotal	Total	Revenues	Subtotal	Total
Fixed Capital Formation			Savings		
			Depreciation		
Addition to Fixed Assets			Inventory Revaluation		
Own Account Construction at Cost			final goods resale goods		
Change in commodity inventory			Capital and Financial Transfers		
Finished goods Resale Goods Goods in Process			Borrowing		
Revaluation of Final Goods Inventory					
Revaluation of Inventory of Goods to be Resold					
Total Capital Formation					
Capital and Financial Transfers					
Debt Instruments					
TOTAL USES			TOTAL REVENUES		

Figure A-1-e

CAPITAL ADDITIONS OF FIXED ASSETS ACCORDING TO TYPE OF CONSTRUCTION

Item	Value
Land Improvements	
Buildings, Construction and Infrastructure	
Machinery and Equipment	
Transport	
Tools and Instruments	
Furniture and Office Equipment	
Livestock	
Capitalized Expenses	
Own Account at Cost	
Fixed Capital Formation	

Figure A-1-f

NET CAPITAL FORMATION

ITEM	Value Subtotal	Value Total
Fixed Capital Formation		
Capital additions of fixed capital		
Own Accounts Construction at cost		
± Change in commodity inventory		
Finished product		
Resale Goods		
+ Revaluation of final Goods		
+ Revaluation of Resale Goods		
= Total Capital Formation		
- Depreciation		
Net Capital Formation		

Figure A-1-g

SOURCES OF FUNDS

ITEM	Subtotal	Total
Savings		
Depreciation		
Net Capital and Financial Transfers		
Revaluations		
Finished Products		
Resale Goods		
Total Sources of Funds		

Figure A-1-h

TOTAL PRODUCTION AND PRODUCT AT MARKET PRICES

AND TOTAL AND NET PRODUCT AT FACTOR COST

ITEM	VALUE Subtotal	Total
Production at Market Prices		
- Production Intermediates		
= Total Product at Market Prices		
- Taxes and Duties		
+ Subsidies		
= Total Production at Factor Cost		
- Depreciation		
- Revaluation of inventory of:		
Final Goods		
Resale Goods		
= Net Product at Factor Cost		

Table A-2-a
PRODUCTION AND DISTRIBUTION FLOWS[1/]
NON-FINANCIAL PUBLIC COMPANIES

(L.E. Thousands)

	66/67	67/68	68/69	69/70	70/71	71/72	1973	1974
Production @ m.p.		1,203,903	1,391,112	1,560,099	1,733,167			2,495,654
- Indirect Taxes	133,034	149,952	204,889	230,873	235,393			335,179
+ Subsidies	12,502	15,401	22,378	18,620	16,055			22,630
= Production @ f.c.		1,069,352	1,208,611	1,347,846	1,513,829			2,183,105
- Intermediate Inputs		658,180	763,008	828,398	929,958			1,287,609
- Gross Value Added @ f.c.[2/]		411,172	445,603	519,448	583,871			895,496
- Employee Comp.	181,981	198,068	222,375	247,235	265,093			373,929
- Rent	3,615	3,669	4,096	4,594	4,820			5,338
= Gross Operating Profit		209,435	219,132	267,619	313,958			516,229
+ Other Income		31,604	59,544	74,394	82,802			133,495
- Other Expenses		18,007	2,356	30,501	35,198			49,322
= Gross Profit		223,036	276,320	311,512	361,562			600,402
- Return to Debt		20,958	26,361	26,048	30,076			37,007
- Income Tax		21,155	30,544	30,277	39,036			97,625
= Return to Equity		180,923	219,415	255,187	292,450			465,770
- Employees Share		13,774	18,963	25,272	27,984			40,026
- Shareholders' Share		14,234	14,789	17,431	18,429			20,415
- Other Shares		5,370	5,915	7,936	9,365			16,204
- State's Share		31,641	51,229	59,198	71,248			99,520
= Savings		115,904	128,519	145,350	165,424			289,605
- Depreciation Allowance	61,629	69,160	77,764	84,773	95,982			139,447
= Retained Earnings		46,744	50,755	60,577	69,442			150,108

1/ Source: C.A.P.M.A.S.

2/ Differs from source in excluding inventory revaluation.

BALANCE SHEET

NON-FINANCIAL PUBLIC COMPANIES

(L.E. Thousands)

	66/67	67/68	68/69	69/70	70/71	71/72	1973	1974
I. Asset								
A. Fixed Assets	964,731	1,034,997	1,149,688	1,324,610	1,530,669		1,785,058	
B. C.I.P.	169,273	271,139	324,067	386,839	360,320		338,214	
C. Inventory	564,709	665,879	715,306	806,738	875,222		1,090,089	
D. Long-Term Borrowing	13,465	38,046	48,762	51,252	62,590		64,874	
E. Financial Investments	62,629	61,088	162,445	131,335	216,522		322,307	
F. Debt	525,704	446,389	452,904	509,735	575,253		622,723	
G. Various Debit Accts.	79,946	256,340	386,890	327,585	359,165		406,327	
H. Cash	149,510	166,598	226,879	253,835	240,693		269,044	
I. Retained Losses	28,225	72,807	76,872	86,473	104,465		113,527	
Total	2,558,192	3,013,283	3,543,813	3,928,402	4,324,899		5,012,163	
II. Liabilities								
A. Paid-in Capital	504,302	555,991	645,360	802,056	880,524		895,811	
B. Reserves & Retained Surplus	237,390	329,639	374,765	417,745	476,839		627,715	
C. Provisions	278,605	713,837	796,989	925,053	1,032,768		1,249,109	
D. Long Term Debt	254,591	341,512	459,719	452,563	505,377		493,307	
E. Bank Loans	182,874	194,742	187,570	216,247	239,429		313,078	
F. Creditors	494,003	575,050	660,368	627,416	683,823		787,553	
G. Various Credit Accts.	103,433	302,512	419,042	487,322	506,139		645,590	
H. Retained Profits	8,615	-------	-------	-------	--------		--------	
Total	2,063,813	3,013,283	3,543,813	3,928,402	4,324,899		5,012,163	

Source: C.A.P.M.A.S.

USES AND SOURCES OF FUNDS[1/]
NON-FINANCIAL PUBLIC COMPANIES

(L.E. Thousands)

	66/67	67/68	68/69	69/70	70/71	71/72	1973	1974
Sources		620,866	511,649	531,705	530,133			852,406
Internal Savings		115,904	128,519	145,350	165,424			289,605
New Debt	254,714	61,398	126,876	87,411	98,655			268,046
Other		443,564	256,254	295,449	266,054			292,488
Error		--	--	3,495	--			2,267
Uses		620,866	517,819	531,706	530,133			852,406
Fixed Capital Formation	117,394	82,745	109,363	111,897	196,012			318,338
Inventories		25,090	17,131	40,524	21,604			86,237
Debt Instruments		101,577	118,019	101,557	39,779			-18,123
Others		411,454	273,306	277,727	272,738			465,954

1/ Source: C.A.P.M.A.S.

Table A-2-d
DETAILS OF FIXED CAPITAL FORMATION[1/]
NON-FINANCIAL PUBLIC COMPANIES

(L.E. Thousands)

Land Improvements	--	1,212	1,298	1,767	8,385			7,161
Buildings	24,873	21,810	37,369	32,636	46,220			101,743
Machinery	60,440	30,408	22,282	31,277	73,623			104,423
Transport	16,856	8,948	27,749	21,666	22,935			53,015
Tools, Instruments	3,755	3,690	3,285	5,237	5,915			9,156
Office Equipment	3,278	1,516	2,472	3,036	3,996			3,427
Livestocks	792	--	3	34	375			3
Own Account	--	9,286	5,187	6,939	13,075			14,063
Other	542	--	--	--	--			--
Total Fixed Capital	110,536	76,870	99,645	102,592	174,424			292,991
Intangibles	6,858	5,875	9,718	9,305	21,588			25,347
Total Capital	117,394	82,745	109,363	111,897	196,012			318,338

1/ Source: C.A.P.M.A.S.

EMPLOYMENT BY SECTOR
NON-FINANCIAL PUBLIC COMPANIES

	66/67	67/68	68/69	69/70	70/71	71/72	72/73	1974
Agriculture and Hunting	8,587	1,583	5,005	23,698	26,048			4,339
Fishing	655	661	1,189	1,462	1,613			1,991
Agriculture and Fishing	9,242	2,244	6,194	25,160	27,661			6,230
Metals Extraction	--	--	1,685	1,202	530			162
Hydrocarbons	5,261	2,939	2,178	4,844	4,923			4,540
Quarrying	2,895	2,485	11,621	10,800	11,149			10,722
Non-Metallic Minerals	8,740	9,439						
Mines and Quarrying	16,896	14,913	15,484	16,846	16,602			15,424
Food Production (non. bev.)	49,336	61,178	84,438	88,906	98,293			100,156
Beverages Industry	5,591	5,389						
Tobacco Industry	11,245	11,189						
Spinning and Weaving	190,877	193,955	210,305	216,543	240,914			286,267
Shoes, Clothing & Cloth	2,256	2,694						
Wood	308	593		2,670	2,777			2,936
Furniture	7,438	8,115	2,220					
Paper & Paper Products	11,449	10,601	12,374	12,645	12,658			11,076
Printing & Publishing	2,358	2,124						
Leather & Leather Products (except shoes & clothing)	997	1,952						
Rubber Production	3,481	3,379	67,860					
Chemicals	47,080	48,580		71,363	77,057			83,083
Petroleum & Coal Products	10,375	10,042						
Non Mineral Raw Material Products (except oil & coal)	17,413	17,277	24,778	24,639	26,876			28,477
Basic Metal Products	24,098	24,535	25,372	26,711	29,265			50,541
Metal Products (non-Machines, non-transport)	14,208	30,245	75,329	80,641				
Machine Industry (non-	1,911	2,133			94,090			111,320

(continued)

	66/67	67/68	68/69	69/70	70/71	71/72	72/73	1974
Electric Machines, Appliances	13,959	14,057						
Transport Industry	13,987	19,542						
Other Manufactures	3,702	4,169	490	508	470			518
Manufacturing	432,069	471,728	503,166	524,626	582,400			674,374
General Contracting (building)	42,532	39,779						
General Contracting	24,237	33,550	70,765	68,115	90,658			99,417
Partial Contracting	11,159	10,119	2,686	5,094	4,734			5,103
Construction	77,928	83,448	73,451	73,209	95,392			104,520
Production & Distribution of Electricity, Gas & Steam	3,652	3,004	3,364	3,526	3,935			4,595
Water & Garbage Collection	3,918	7,542						
Sewer System								
Electricity, Gas & Water	7,570	10,546	3,364	3,526	3,935			4,595
Wholesale Trade	29,162	23,751	30,431	30,809	29,751			37,440
Retail Trade	23,212	35,878	37,210	38,020	38,571			39,553
Real Estate	912	1,682						
Hotels & Restaurants			6,732	6,818	6,627			6,576
Commerce & Trade	53,286	61,311	74,373	75,647	74,949			83,569
Transport & Storage	38,348	39,945	53,770	49,648	55,536			52,995
Storage	2,895	2,502						
Transport & Storage	41,243	42,447	53,770	49,648	55,536			52,995
Work Services & Real Estate	814	634	2,405	2,550	2,631			3,208
Real Estate & Work Services			2,405		2,631			3,208

Table A-2-e
(continued)

	66/67	67/68	68/69	69/70	70/71	71/72	72/73	1974
Recreation Services	2,300	2,028	2,138	1,743				
Personal Services	6,988	6,527	1,067	1,105	1,105			1,908
Service Sector	10,102	9,189	3,205	2,550	1,105			1,908
Total Number Employed	648,336	695,826	735,412	774,060	860,211			946,923

Table A-3-a

PRODUCTION AND DISTRIBUTION FLOWS: 1975-1979

NON-FINANCIAL PUBLIC COMPANIES*

(L.E. Thousands)

	1975	1976	1977	1978	1979
Value of Production @ market prices	3,028,439	3,509,861	4,173,267	4,780,613	5,607,132
-(Indirect Taxes) + (Export subsidies)	-238,030	-291,166	-283,982	-252,519	-304,133
=Value of Production @ factor cost	2,790,409	3,218,695	3,889,285	4,528,094	5,302,999
-Intermediate goods & services	1,671,012	1,829,006	2,180,537	2,637,514	3,071,111
=Gross Value Added @ factor cost	1,119,397	1,389,689	1,708,748	1,888,580	2,231,888
-Depreciation	155,081	188,854	237,262	270,195	329,812
=Net Value Added @ factor cost	964,316	1,200,835	1,471,486	1,618,385	1,902,076
-Wages	463,487	558,448	660,216	786,864	920,006
-(other expenses) + (other income)	-100,485	-68,447	-33,736	-184,749	-145,757
=Distributed Surplus	363,002	489,951	566,486	602,115	774,749
-Income Tax					138,313
-Reserve for Government Securities					23,587
-Other Reserves					154,413
-Coverage of pervious losses					27,807
-Nasser Bank Share					13,506
-Workers' Share					75,201
-States' Share					363,404
-Shareholders' Share					7,123
-Management Share (?)					39,152
-Sports Activities					2,873
-Error					3,961

*Source: Ministry of Finance

Table A-3-b

ASSETS AND LIABILITIES 1/

NON-FINANCIAL PUBLIC COMPANIES

(L.E. Thousands)

	1975	1976	1977	1978	1979
I. Assets	6,709,400	8,561,100	10,122,200	11,845,200	13,712,400
A. Current	3,572,900	4,428,900	5,400,100	6,304,300	6,701,000
1. Inventory	1,778,500	2,227,400	2,774,800	3,184,200	3,641,800
2. Debtors and Debt Accts.	1,387,500	1,786,900	2,092,600	2,387,500	2,097,600
3. Cash	406,900	414,600	532,700	732,600	961,600
B. Fixed	2,868,000	3,828,500	4,421,500	5,193,200	6,129,900
1. C.I.P.	622,100	923,400	1,188,500	1,571,100	2,086,000
2. Fixed Capital	2,245,900	2,910,180	3,233,000	3,622,100	4,043,900
C. Semi Fixed	268,300	303,700	300,600	347,700	380,200
1. Long Term Loans	57,200	56,500	69,800	59,400	57,600
2. Financial Invest.	211,100	247,200	230,800	288,300	323,400
Error 2/	200	0	0	0	4,987
II. Liabilities	6,709,408	8,566,100	10,122,100	11,844,200	13,712,400
A. Current	2,835,800	3,621,800	4,438,800	5,102,400	5,798,700
1. Creditors & Credit Accts	2,192,200	2,607,600	3,289,700	3,592,900	4,046,000
2. Credit from Bank	643,500	1,014,200	1,149,100	1,509,500	1,752,500
B. Invested Funds	3,873,600	4,944,300	5,683,300	6,741,800	7,913,700
1. Ownership					
a. Capital	1,223,600	1,770,000	2,140,000	2,496,900	3,098,900
b. Reserves	750,400	904,200	1,017,400	1,212,200	1,393,100
c. Deficit	-108,500	-95,800	-122,800	-145,100	-174,000
2. Depreciation Reserve	1,061,200	1,193,600	1,339,700	1,508,400	1,720,700
3. Other Reserves	455,800	651,800	753,900	927,200	967,000
4. Loans	491,100	520,500	555,100	742,200	908,000

1/ Ministry of Finance

2/ Residual necessary to make assets equal liabilities. Listed on asset side, but could equally well be on laibility side.

Table A-3-c

GROSS VALUE ADDED OF FACTOR COST IN PUBLIC COMPANIES

BY INDUSTRY: 1975-1979 1/

(L.E. Thousands)

	1975	1976	1977	1978	1979
Agriculture	46,938	66,715	79,525	99,528	148,700
Manufacturing & Mining	540,324	628,061	819,442	883,652	1,029,402
Energy	100,863	153,336	118,599	132,083	218,012
Construction & Housing	144,486	211,753	263,363	307,258	298,326
Transportation	108,166	135,166	190,854	223,808	262,853
Trade	177,891	193,277	235,171	241,653	222,685
Other Services	729	1,381	1,794	1,598	1,910
Sub-Total: Non-Financial	1,119,397	1,389,689	1,708,748	1,889,580	2,181,888
Finance	166,603	209,917	251,766	408,922	577,982
Total: Public Companies	1,286,000	1,599,606	1,960,517	2,297,502 2/	2,809,870 3/

1/ Sources: Ministry of Finance

2/ Figures add to 2,298,602. Error of 1,000 in original

3/ Figures add to 2,759,870. Error of 50,000 in original.

Table A-3-d

EMPLOYMENT IN PUBLIC COMPANIES BY INDUSTRY: 1975-1979*

(# of workers)

	1975	1976	1977	1978	1979
Agriculture	40,208		75,469	82,213	89,000
Manufacturing & Mining	592,234		640,234	656,084	656,910
Energy	33,161		36,510	37,778	37,393
Construction and Housing	123,199	147,403	152,919	169,175	173,000
Transportation	76,333	83,828	87,331	91,286	96,006
Trade	115,537	118,529	114,952	128,885	132,657
Other Services	1,148	1,153	990	1,566	2,133
Sub-Total: Non-Financial	981,820	1,064,621	1,108,414	1,166,987	1,187,099
Finance	33,070	34,763	38,175	37,600	41,362
Total: Public Companies	1,014,890	1,099,382	1,146,589	1,204,587	1,228,461

*Source: Ministry of Finance

Table A-3-e

TOTAL WAGE AND AVERAGE WAGE IN PUBLIC COMPANIES BY INDUSTRY: 1975-1979

(L.E. Thousands)

	1975	1976	1977	1978	1979
I. Total Wage					
A. Agriculture	22,429	43,636	35,976	44,870	50,132
B. Manufacturing & Mining	253,869		357,206	418,683	490,871
C. Energy	23,147		36,156	41,959	54,037
D. Construction & Housing	70,126	94,442	104,722	124,684	136,367
E. Transportation	42,030	45,287	60,152	76,875	94,266
F. Trade	50,984	57,586	64,974	78,578	92,683
G. Other Services	902	956	990	1,215	1,640
Sub-Total: Non-Financial	463,487	558,448	660,176	786,864	919,996
H. Finance	21,681	25,094	32,615	48,877	60,569
Total: Public Companies	485,168	583,542	692,831	835,741	980,575
II. Average Wage					
A. Agriculture	558	549	477	546	563
B. Manufacturing & Mining	429	481	586	638	747
C. Energy	698	840	990	1,111	1,445
D. Construction & Housing	569	641	680	737	788
E. Transportation	551	540	689	832	982
F. Trade	441	486	565	610	699
G. Other Services	786	829	1,000	776	769
Sub-Total: Non-Financial	472	525	596	674	775
H. Finance	656	722	854	1,300	1,464
Total: Public Companies	478	531	604	694	798

Table A-4-a

PRODUCTION AND DISTRIBUTION FLOWS

MANUFACTURING PUBLIC COMPANIES

1975-1979*

(L.E. Thousands)

	1975	1976	1977	1978	1979
Value of Production @ market prices	1,650,681	1,810,418	2,244,240	2,550,448	3,029,687
-(Indirect Taxes) + (Export subsidies)	-198,173	-221,122	228,848	183,579	235,534
=Value of Production @ factor cost	1,452,508	1,589,296	2,015,400	2,366,869	2,794,153
-Intermediate Goods & services	912,184	961,235	1,195,958	1,483,217	1,764,751
=Gross Value Added @ factor cost	540,324	628,061	819,442	883,652	1,029,402
-Depreciation	72,120	88,245	111,862	124,705	159,787
=Net Value added @ factor cost	468,604	539,816	707,580	758,947	869,615
-Wages	253,869	297,306	357,206	418,683	490,871
-(other expenses) + (other inc.)	-83,020	-167,609	-129,018	-191,902	-242,106
=Distributed Surplus	170,849	189,697	228,188	226,781	248,765
-Income Tax					54,140
-Reserve for Government Securities					9,268
-Other Reserves					50,302
-Coverage of previous loans					4,378
-Nassr Bank Share					4,846
-Workers' Share					29,055
-States' Shares					80,839
-Shareholders' Share					3,001
-Management Shares					12,044
-Sports Activities					892
Error					0

*Source: Ministry of Finance

Table A-4-b

ASSETS AND LIABILITIES

MANUFACTURING PUBLIC COMPANIES: 75-79[1/]

		1975	1976	1977	1978	1979
I.	Uses	3,429,200	4,033,500	4,909,100	5,807,700	6,814,700
A.	Current	1,576,300	1,840,900	2,376,800	2,832,500	3,269,100
1.	Goods Inventory	1,016,300	1,214,900	1,597,900	1,845,200	2,098,900
2.	Debtors and Debt Accts.	472,400	525,500	663,500	804,600	932,000
3.	Cash	87,600	100,500	115,400	182,700	238,200
B.	Fixed	1,697,600	2,034,700	2,389,000	2,845,400	3,410,800
1.	C.I.P.	411,600	539,300	674,400	904,200	1,175,400
2.	Fixed	1,286,000	1,495,400	1,714,600	1,941,200	2,235,400
C.	Semi-Fixed Uses	155,300	157,800	143,300	129,900	134,200
1.	L.T. Loans	31,400	28,800	19,600	12,000	9,600
2.	Financial Invest.	123,900	129,000	123,700	117,900	124,600
3.	Error [2/]	0	+100	0	-100	+600
II.	Sources	3,429,200	4,033,500	4,909,100	5,807,700	6,814,700
A.	Current	1,149,500	1,385,600	1,828,800	2,075,600	2,362,600
1.	Creditors & Credit Accts	808,400	895,300	1,188,300	1,352,500	1,594,800
2.	Credit from Banks	341,100	489,600	640,500	723,100	768,800
B.	Invested Funds	2,279,700	2,648,200	3,080,300	3,732,100	4,452,100
1.	Ownership					
	a. Capital	787,300	925,200	1,149,600	1,406,400	1,766,400
	b. Reserves	465,100	517,400	571,700	636,300	714,700
	c. Deficit	-52,900	-60,400	-87,700	-101,100	-118,700
2.	Depreciation Prov.	581,900	610,100	703,200	783,600	934,400
3.	Other Provisions	202,000	277,600	331,400	433,500	479,200
4.	Loans	296,300	378,300	412,100	573,400	676,100

1/ Source: Ministry of Finance

2/ Residual.

Figure A-5

CONTENTS OF ANNUAL MINISTRY OF INDUSTRY REPORTS

a) Production in current prices and in last year's prices, planned production for the current year and a comparison of actual production with planned production. General figures for the public sector as a total are included.

b) Cost of production services for each sector. Production services include agriculture, electricity, gas and water vapour production, water epuration, transport etc...

c) Quantitites of main products produced in 1977 and 1978.

d) Current operations revenue for each of the five sectors in 1977 and 1978.

e) A breakdown of revenue for the whole of the public sector into production at market prices, goods bought for resale, and rejects.

f) (d) and (e) for each of the five sectors separately.

g) Total sales for each of the five sectors for 1977 and 1978. In 1978, there is a further division between domestic sales and exports (FOB).

h) The effect of exports on the balance of payments, by sector, actual and planned 1978 and actual 1977 for each of the five sectors.

i) Financial position of each of the five sectors showing the availability to each sector of foreign exchange, and the terms on which it is available.

j) The labour force computed by labour type for each of the five sectors for 1978, a comparison with the total for 1977.

k) Wages, comprising money wages, fringe benefits, and social security contibution of the employer, computed for each of the five sectors, compared with the total wage bill for each sector for 1977.

l) Labour productivity and the productivity of a pound of wages for workers in each of the five sectors, computed for 1977 and 1978, and separately for all workers, and all workers - "other workers".

m) Profit and Loss Statement, before and after internal taxes for each the five sectors, planned and actual for 1978, and compared with actual 1977.

n) Division of the profits between the government, legal reserves and the workers for each of the five sectors for 1978, and compared to 1977.

o) Figures on loss-making companies, by sector and by individual company and compared with 1977. A discussion of the individual problems of each of these firms.

p) Share of employees in profits in cash, for each of the five sectors compared with 1976 and 1977

Figure A-5
(continued)

q) Incentive and bonus payments to employees of firms fulfilling their quotas, by sector.

r) Value added in 1978 divided by each of the five sectors and by the components of the value added, and figures for depreciation by sector, compared with the situation in 1977.

s) Amounts accruing to the state as taxes, duties, and share of profits, from each of the five sectors, and compared to 1977.

t) The distribution of investments in the five sectors, between renovation, and projects under completion, together with the sources of the capital (domestic, foreign), planned, and actually achieved in 1978.

u) Inventories on 31/12/1978, in each of the five sectors, divided by materials, fuel, spare parts, rejects, semi-finished products, finished products, goods with others, goods for sale, goods bought on letters of credit, and compared with inventories on 31/12/1977.

v) Current operational account for each of the five sectors, and compared with 1977.

w) Balance Sheet for each of the five sectors for 1978, compared with 1977.

x) Net money invested for each of the five sectors, together with the ratio of owned to invested capital, the ratio of owned capital plus the share of the government to invested capital, the share of the worker in invested capital self-financing to invested capital, the ratio of the provision for depreciation to fixed assets excluding land, the ratio of fixed assets, and projects under financing, and to self-financing. All figures for 1978 and for 1977.

y) Achievements of General Organizations, and their subsidiaries. There are no statistics in this part.

z) Laws and decrees relating to the public sector.

Figure A-6

COMPANY PERFORMANCE EVALUATION DATA FORMAT

I. Basic Indicators (all for current year, previous year and target plan)

1. Output of finished products
   Output at current prices

   at planned prices
   at previous year prices

2. Marketing
   Domestic Sales
   Exports

3. Profits available for distribution before income tax

4. Net value added at factor cost

II. Analytic Indicators

1. Rate of return and its development (current and previous year)
   Percent Net Profit from current activities to capital employed (excluding projects under execution)
   Percent Net Profit from current operations to capital employed (excluding projects)
   Percent Profit available for distribution to capital employed (excluding proejcts)

2. Profit from Sales and their development (current and previous year)
   Gross surplus from production and trading to sales (%)
   Net surplus of current operation from current activities to sales (%)

3. Inventory sufficiency and its development (current and previous year)
   (in months) Holding period for finished goods =

$$\frac{\text{Ending Inventory of Finished Goods}}{\text{Sales}} \div 12$$

   (in months) (Holding period of a raw material =

$$\frac{\text{Ending Inventory of Raw Materials}}{\text{Raw Materials utilized}} \div 12$$

4. Productivity Indicators and their development (current and previous year)
   Percent utilization of capacity

   Percent loss of raw materials

Figure A-6
(continued)

Productivity of labour (IE) = $\frac{\text{Value of Output at market prices}}{\text{Labour (excluding new workers)}}$

Productivity of wages (IE) = $\frac{\text{Value of Output at market prices}}{\text{Total Wage Bill}}$

Percent loss of working days due to extraordinary reasons (absent) = $\frac{\text{Days lost for extraordinary reasons}}{\text{Days available for work}}$

5. Indicators of liquidity and its development
Percent of LT Liabilities to Fixed Assets (including projects under execution)
Current Ratio (%) = $\frac{\text{Current Assets}}{\text{Current Laibilities (including some provisions}}$ X 150

Liquidity ratio (%) = $\frac{\text{Cash and Banks + Notes payable}}{\text{Current liabilities}}$ X 100

Quick ratio (acid test?) (%) = $\frac{\text{Cash + Bank}}{\text{Current Liabilities}}$ X 100

Collection period for accounts receivable (days) = $\frac{\text{Client + Notes payable}}{\text{Sales/day}}$

Average period of credit (days) = $\frac{\quad}{\text{Sales/day}}$

III. Statistics

A. Production Formats

1. Production of final goods and services
Measurement of the degree of goal attainment and improvement in production.

2. Productivity by stages

3. Capacity by stages and operations

4. Capacity utilization

5. An analysis of the quality of production

6. Control of the quality of output for production centers.

B. Marketing Formats

1. Total sales

2. Exports

3. Local sales

4. Turnover of final products

5. A comparison of costs with selling prices

Figure A-6
(continued)

C. Employment Formats

1. Employment and wages

2. Changes in employment for permanent and temporary workers

3. Number of days of work available

4. Extraordinary holidays

D. Intermediate products formats

1. Quantities bought of intermediate products

2. Intermediate products used, and in stock

3. An analysis of the change in the prices of direct materials

E. Foreign Exchange format

1. Foreign Currency Accounts

F. Costs and Profits formats

1. An analysis of the unit production costs.

2. An analysis of discrepancies of the total production surplus

3. Results of operations

4. An analysis of provision funds

G. Value Added format

1. Value added

H. Sources and Uses of funds

1. A comparison of long term financing and its uses

2. A detailed table of the sources of long term finance and invested capital

3. A detailed comparison of fixed uses

4. A detailed comparison of current assets

5. A detailed comparison of current liabilities

6. An analysis of capital movements

Figure A-6
(continued)

I Investment Follow-Up formats

1. The situation of projects under completion

2. The change in the actual costs of projects under completion during the year

3. Changes in investment expenditure

4. Changes in the sources and uses of new projects

5. Developments in the execution of particular projects

Table A-7-a

INDUSTRIAL PRODUCTION: 1971/72

PUBLIC AND PRIVATE[1]

	Value of Output	Minus Inter-mediate Inputs	Equals Gross Value Added	Minus Wages	Equals Rough Operating Surplus	Number[2] of Units	Number[2] of Workers
I. Public and Private (L.E. Thousands)							
A. Mining & Quarrying	62,676	3,124	59,552	5,711	53,841	32	15,393
B. Food, Beverages, Tobacco	556,718	365,231	191,487	23,019	168,468	823	108,927
C. Textiles, Leather	369,474	185,615	183,859	60,401	123,458	655	257,509
D. Wood & Wood Prod.	10,983	6,070	4,913	1,779	3,134	79	9,259
E. Paper & Paper Prod.	49,002	25,119	23,883	6,810	17,073	89	25,604
F. Chemicals	199,022	88,258	110,764	22,206	88,558	147	69,917
G. Non-metallic Mineral Products	58,330	22,812	35,518	8,198	27,320	303	33,302
H. Basic Metals	96,233	53,633	42,600	11,754	30,846	39	33,249
I. Metal Prod. & Mach.	141,526	73,359	68,167	22,187	45,980	288	77,308
J. Other	5,208	2,922	2,286	370	1,916	14	1,763
Total: Mining & Manufact.	1,549,172[3]	826,143	723,029[3]	162,435	560,594[3]	2,469	634,310
Total: Manufacturing Only	1,486,496[3]	823,019	663,477[3]	156,724	506,753[3]	2,437	618,917
I. Share of Public In Total (percent)							
A. Mining & Quarrying	24.0	74.0	21.4	77.1	15.5	84.4	89.7
B. Food, Beverages, Tobacco	93.0	91.5	100.2(?)	33.7	97.2	55.0	-0-0(?)
C. Textiles, Leather	93.0	90.4	95.6	93.7	96.6	32.8	90.6
D. Wood & Wood Prod.	72.6	65.3	81.7	73.6	86.3	30.4	67.2
E. Paper & Paper Prod.	67.7	69.5	65.8	50.6	71.3	22.5	55.3
F. Chemicals	92.9	92.5	93.3	93.4	93.3	61.2	93.7
G. Non-metallic Mineral Products	86.4	81.5	89.6	83.2	91.5	17.8	69.9
H. Basic Metals	94.9	93.1	97.2	97.9	97.0	38.5	96.3
I. Metal Prod. & Mach.	91.4	89.4	93.5	92.1	94.1	45.1	89.0
J. Other	91.0	90.9	91.1	84.9	92.3	35.7	82.7
Total: Mining & Manufact.	89.0	90.0	87.8	89.8	87.2	41.8	87.1
Total: Manufacturing Only	91.7	90.1	93.7	90.3	94.8	41.3	87.1

Notes to Table A-7-a:

1/ Source: Aggregated from C.A.P.M.A.S., Quarterly Survey of Industrial Production

2/ 4th Quarter

3/ There is a 1,000 consistency error in the original for each of these totals (attributable to the 4th Quarter Private Sector Figures).

Table A-7-b

INDUSTRIAL PRODUCTION: 1977

PUBLIC AND PRIVATE[1/]

	Value of Output	Minus Inter-mediate Inputs	Equals Gross Value Added	Minus Wages	Equals Rough Operating Surplus	Number of Units [2/]	Number of Workers [2/]
Public and Private (E.E.'000)							
A. Mining & Quarrying	425,630	5,648	419,982	14,947	405,035	32	17,215
B. Food, Beverages, & Tobacco	946,168	658,927	287,241	45,800	241,441	829	118,686
C. Textiles, Leather	614,152	318,005	296,147	123,656	172,491	590	292,370
D. Wood & Wood Prod.	28,180	15,709	12,471	4,243	8,228	78	9,908
E. Paper & Paper Prod.	96,066	45,917	50,149	13,230	36,919	82	26,752
F. Chemicals	422,454	221,340	201,114	46,800	154,314	144	87,698
G. Non-metallic Mineral Products	144,217	38,806	75,411	17,253	58,158	335	36,128
H. Basic Metals	232,733	154,031	78,702	31,953	46,749	36	57,227
I. Metal Prod. & Mach.	361,583	194,549	167,034	46,997	120,037	278	91,455
J. Other	3,197	1,746	1,451	545	906	11	1,103
Total: Mining & Manufact.	3,244,380	/1,654,678	/1,589,702/	345,424	/1,244,278/	2415	738,542
Total: Manufacturing Only	2,818,750	/1,649,030	/1,169,720/	330,477	/ 839,243/	2383	721,327
Share of Public in Total (%)							
A. Mining & Quarrying	31.1	89.7	30.3	69.7	28.8	87.5	86.3
B. Food, Beverages, & Tobacco	93.3	92.8	94.6	89.4	95.6	52.4	87.1
C. Textiles, Leather	92.9	91.4	94.6	95.0	94.3	27.6	92.2
D. Wood & Wood Prod.	82.4	79.2	86.3	80.7	89.2	28.2	73.2
E. Paper & Paper Prod.	52.6	61.5	44.4	37.4	46.9	18.3	51.8
F. Chemicals	91.5	89.3	93.9	94.4	93.7	63.2	94.7
G. Non-metallic Mineral Products	82.9	78.5	85.2	80.4	86.6	15.5	72.9
H. Basic Metals	97.4	97.0	98.2	98.8	97.9	36.1	98.1
I. Metal Prod. & Mach.	92.8	92.2	93.5	93.6	93.4	41.4	90.9
J. Other	82.0	78.5	86.1	85.0	86.9	18.2	77.0
Total: Mining & Manufact.	83.4	91.0	75.5	90.1	71.4	38.7	89.2
Total: Manufacturing Only	91.3	91.0	91.7	91.1	92.0	38.1	89.2

Notes to Table A-7-b

1/ Source: C.A.P.M.A.S., Quarterly Survey of Industrial Indicators

2/ Average of four quarterly reports.

Table A-7-c

PUBLIC VERSUS PRIVATE PRODUCTION IN 3-DIGIT MINING AND MANUFACTURING INDUSTRIES
71/72, 1977

(L.E. Thousands

	71/72			1977		
	Public	Private	Total	Public	Private	Total
al	0.0	0.0	0.0	0.0	0.0	0.0
Petroleum, Natural Gas	7.1	47.3	54.4	114.6	293.0	407.6
tallic Ores	1.4	0.0	1.4	2.2	0.0	2.2
Other Mining & Quarrying	6.6	0.3	6.9	15.5	0.3	15.8
ood	326.9	26.4	353.4	511.7	46.6	558.3
Beverages	23.4	2.0	25.4	49.4	3.3	52.7
obacco	167.8	10.0	177.9	322.0	13.1	335.1
pinning, Weaving	328.7	19.9	348.6	547.9	34.4	582.3
Clothes	1.3	1.6	2.9	2.7	3.7	6.4
hoes	8.0	1.4	9.4	6.3	3.5	9.8
Leather	5.6	3.0	8.6	13.7	1.8	15.6
ood	6.9	1.0	7.9	20.5	1.5	22.0
Furniture	1.2	2.0	3.1	2.7	3.5	6.2
aper & Paper Products	30.1	2.4	32.5	47.3	4.1	51.4
Publishing & Printing	3.1	13.4	16.5	3.2	41.5	44.7
ndustrial Chemicals	39.7	0.4	40.1	79.8	0.4	80.2
Other Chemicals	80.5	11.7	92.2	159.4	31.3	190.7
etroleum Refining	17.4	0.0	17.4	34.0	0.0	34.0
ther Coal and Oil Products	26.3	0.0	26.3	69.8	0.0	69.8
Rubber Products	13.2	1.0	14.2	22.3	1.2	23.5
ther Plastics	7.8	1.0	8.8	21.3	3.0	24.3
China and Pottery	3.4	0.2	3.7	5.6	0.5	6.1
lass & Glass Products	5.2	2.7	8.0	13.5	5.4	18.9
Other Non-metallic Miner. Prod	41.7	5.0	46.7	75.6	13.6	89.2
asic Iron & Steel	75.3	4.3	79.6	164.9	5.2	170.1
Other Basic Metals	16.0	0.6	16.6	61.9	0.7	62.6
etal Products	32.1	7.5	39.6	68.1	14.0	82.0
achinery	18.0	2.5	205.3	92.0	7.9	99.9
lectrical Equipment	34.5	1.4	35.9	56.5	2.8	59.3
ransport Equipment	44.2	0.6	44.8	118.8	1.1	119.9
cientific Instruments	0.5	0.1	0.6	0.1	0.3	0.4
ther Manufacturing	4.7	0.5	5.2	2.6	0.6	3.2
Total	1,378.8	17 .4	1,549.2	2,705.9	538.5	3,244.4

Total value of output from: CAPMAS Quarterly Survey of Industrial Production

Table A-8

PUBLIC/PRIVATE VALUE-ADDED, WAGES AND PROPERTY INCOME BY INDUSTRIAL SECTOR

IN THE 1977 INPUT/OUTPUT TABLE[1/]

(1,000 L.E.)

	Value Added			Wages			Property Income		
	Total	Public Sector	Private Sector	Total	Public Sector	Private Sector	Total	Public Sector	Private Sector
1. Agriculture, food	417,400	18,000	399,400	128,100	10,000	118,100	289,300	8,000	281,300
2. Agriculture, non-food	855,100	16,000	839,100	212,500	14,000	198,500	642,600	2,000	640,600
3. Cotton	170,900	9,100	161,800	94,700	5,400	89,300	76,200	3,700	72,500
4. Other agriculture	602,700	15,000	587,700	30,500	5,700	24,800	572,200	9,300	562,900
5. Mines and quarries	21,000	15,800	5,200	9,700	6,700	3,000	11,300	9,100	2,200
6. Crude oil[2/]	398,700	398,700	-	15,729	15,729	-	382,971	382,971	-
7. Food industry	172,600	60,000	112,600	76,900	41,500	35,400	95,700	18,500	77,200
8. Beverages	16,800	14,300	2,500	6,000	5,400	600	10,800	8,900	1,900
9. Tobacco and products	33,600	31,400	2,200	9,000	8,700	300	24,600	22,700	1,900
10. Spinning and weaving	220,500	180,500	40,000	139,000	126,600	12,400	81,500	53,900	27,600
11. Made-up cloth and footwear	86,300	11,400	74,900	36,800	10,600	26,200	49,500	800	48,700
12. Wood and wooden products	36,700	3,500	33,200	5,100	[3/]	5,100	31,600	3,500	28,100
13. Paper and products	22,900	22,400	500	4,900	4,700	200	18,000	17,700	300
14. Printing and publishing	20,500	9,200	11,300	13,100	4,600	8,500	7,400	4,600	2,800

1/ Source

2/ This public/private breakdown seems to ignore the fact that much of production is by private foreign firms.

3/ Implausible.

Table A-8--continued

	Value Added			Wages			Property Income		
	Total	Public Sector	Private Sector	Total	Public Sector	Private Sector	Total	Public Sector	Private Sector
15. Leather and leather prod.	8,900	1,600	7,300	4,700	1,100	3,600	4,200	500	3,700
16. Rubber and products	9,100	8,500	600	3,400	3,300	100	5,700	5,200	500
17. Chemical industries	126,200	100,500	25,700	38,500	33,900	4,600	87,700	66,600	21,100
18. Petroleum prod. and coal	76,600	76,600	-	11,809	11,809	-	64,791	64,791	-
19. Non-metallic industries	45,900	34,600	11,300	21,400	14,200	7,200	24,500	20,400	4,100
20. Basic metallic industries	75,100	69,400	5,700	38,500	37,000	1,500	36,600	32,400	4,200
21. Metallic products ind.	33,200	20,500	12,700	26,100	16,700	9,400	7,100	3,800	3,300
22. Non-electric machinery ind.	12,400	10,700	1,700	5,000	4,700	300	7,400	6,000	1,400
23. Electric machinery ind.	43,400	39,900	3,500	22,800	22,400	400	20,600	17,500	3,100
24. Means of transport ind.	54,600	49,900	4,700	20,400	19,600	800	34,200	30,300	3,900
25. Other industry	57,400	50,900	6,500	3,000	2,100	900	54,400	48,800	5,600
26. Electricity	84,941	84,941	-	21,205	21,205	-	63,736	63,736	-
27. Construction	285,000	200,000	85,000	148,700	108,900	39,800	136,300	91,100	45,200
28. Transport & communication[1/]	290,000	24,200	265,800	170,800	18,000	152,800	119,200	6,200	113,000
29. Suez Canal	165,000	165,000	-	14,700	14,700	-	150,300	150,300	-
30. Housing	140,000	12,000	128,000	14,900	1,400	13,500	125,100	10,600	114,500
31. Tourism	116,700	42,000	74,700	12,900	9,000	3,900	103,800	33,000	70,800
32. Other services	2,040,859	1,535,459	505,400	1,410,557	1,112,957	297,600	630,302	422,502	207,800
TOTAL	6,741,000	3,332,000	3,409,000	2,771,400	1,712,600	1,058,800	3,969,600	1,619,400	2,350,200

[1/] This public/private breakdown is highly implausible. The reverse would make more sense.

Table A-9

PUBLIC AND PRIVATE VALUE-ADDED IN THE 1976 INPUT/OUTPUT TABLE*

(L.E. Thousands)

Sector		Public	Private	Total
1.	Staple Food	28.0	289.0	317.0
2.	Non-staple Food	74.0	731.9	805.9
3.	Cotton	-	202.0	202.0
4.	Other Agriculture	-	438.0	438.0
5.	Food Processing	30.4	133.6	164.0
6.	Textiles	169.3	160.7	330.0
7.	Other Industries	459.5	109.5	569.0
8.	Construction	178.3	75.7	254.0
9.	Crude Oil & Products	266.1	57.9	324.0
10.	Transport & Communication	425.8	28.2	454.0
11.	Housing	10.1	123.9	134.0
12.	Other Services	956.0	1093.0	2049.0
	Total	2,597.5	3,443.4	6,040.9

Source: Richard Eckaus and others, "Multi-Sector General Equilibrium Models for Egypt" (Cambridge: MIT, undated), Section 5.

Table A-10

EXPECTED PUBLIC AND PRIVATE VALUE-ADDED BY INDUSTRY: 1979*

Sector	1979 Expected Public	Private	Total
Agriculture	63	2,520	2,583
Industry	1,013	448	1,461
Oil	1,104	276	1,380
Electricity	100	--	100
Construction	260	160	420
Sub-Total	2,540	3,404	5,944
Transportation, Communication & Storage	355	80	435
Suez Canal	399	-	399
Trade & Finance	643	427	1,070
Sub-Total	1,397	507	1,904
Housing	15	146	161
Public Utilities	27	--	27
Services	1,302	508	1,810
Sub-Total	1,344	654	1,998
Grand Total	5,281	4,565	9,846

Source: Ministry of Planning, General Framework for Socio-Economic Development: Five Year Plan, Cairo: MOP, October 1979, Volume II, p. 19.

Table A-11

INDUSTRIAL ORIGIN OF GDP: ORIGINAL AND REVISED SERIES: 1975 TO 1979

(L.E. Thousands)

I. Original Series[1/]	1975	1976	1977	1978	1979
a. Agriculture	1,406.9	1,553.0	2,038.0	2,241.0	
b. Industry, petroleum and mining	1,013.7	1,302.6	1,581.0	1,881.0	
c. Electricity	71.9	77.5	83.0	93.0	
d. Construction	230.5	249.0	285.0	336.0	
e. Transport & Commun.	224.2	355.3	455.0	657.0	
f. Trade and Finance	538.5	680.0	809.0	910.0	
g. Housing	130.0	136.3	140.0	149.0	
h. Public Utilities	17.8	21.7	24.0	25.0	
i. Other Services	1,145.5	1,079.7	1,326.0	1,517.0	
GDP @ factor cost	4,779.0	5,455.1	6,741.0	7,809.0	
II. Revised Series[2/]					
a. Agriculture	1,468.1	1,744.0	2,037.6	2,285.8	2,687.6
b. Industry & Mining	887.6	993.1	1,119.6	1,318.9	1,478.4
c. Petroleum	149.0	246.9	467.8	626.1	1,907.7
d. Electricity	69.2	75.0	83.1	98.0	102.3
e. Construction	242.5	279.0	357.5	509.1	651.0
f. Transportation & Comm.	219.6	259.7	321.6	394.9	471.8
g. Suez Candl	38.8	140.9	169.2	293.9	423.1
h. Trade and Finance	777.3	959.3	1,188.2	1,544.0	1,953.8
i. Housing	208.7	222.1	243.5	261.8	287.0
j. Public Utilities	18.6	20.5	23.1	26.6	31.4
k. Other Services	981.9	1,223.5	1,388.7	1,649.0	1,942.4
GDP @ factor cost	5,061.3	6,164.2	7,399.9	9,008.1	11,936.5

1/ As reported in Ikram, Egypt, p. 400.

2/ Ministry of Planning, as reported by IMF.

Appendix B

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Appendix C

CRITIQUES OF PROFIT, PARTIAL AND MULTIPLE INDICATORS*

Can Profit be used as an Indicator?

A natural place to begin the search for a performance indicator is with standard private accounting profit. Assume that a Minister has decided to evaluate all of the enterprises under his control and that he has chosen profit as the indicator. We may then judge the efficacy of this indicator by the degree to which it is unfair to some managers. That is, can they argue that it is inappropriate for their enterprise and that therefore they should be excused from its application? Four classes of objections will be considered.

The first set of problems involve "valuation" difficulties. These take the form of an arguemnt that market prices are not a correct reflection of the contribution of the enterprise to society. Enterprise A objects that the price of his output (say electricity or water or fertilizer) is controlled by the government as part of national policy. He shows an accounting loss for this reason but if his product were valued at their real value to society, he would show a substantial profit.

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* From: Leroy P. Jones. "Evaluating the Performance of Public Enterprise", (pp.9-17). Paper presented at Conference on "Performance of Public Enterprise: The Case of the Oil Producing Countries of the Arabian Peninsula" in Abu Dhabi, December 1979.

Enterprise B points out that the same thing is true of him for the 20 percent of his product which he markets domestically (though not of the 80 percent which he exports). Enterprise C notes that while his output price is fair, he is forced to buy inputs from a very expensive public enterprise which sells at 25 percent above the world market. He loses money only because of the high cost of these inputs forced upon him by government policy. Another variant of the valuation problem occurs where the price is not only wrong, but completely omitted from the standard accounting framework. Enterprise D points out that in addition to running his enterprise he is being forced to build and operate a town, an educational system, and a health and welfare service for his workers. The costs of this activity appear on his profit and loss statement, but not the benefits. If the value of these services to his workers were included, then he would show a profit.

A second set of problems involves "technical" difficulties in the accounting methods appropriate for public and private enterprises. Enterprise F points out that his performance is exactly the same as that of Enterprise G except that Enterprise G is not taxed while Enterprise F is taxed at ten percent. Both companies are identical from the social point of view, the only difference being that with Enterprise F the government gets the surplus as taxes and with Enterprise G it gets it as retained earnings or as dividends. Taxes are a social benefit but a private cost and accordingly, the "correct" measure of profits will differ in the two cases. Similar considerations apply to the treatment of depreciation, interest earned, dividends received, interest payed and a host of non-operating expenses and non-operating income items.

A third set of problems are "attributional". That is, the profit position may accurately depict the contribution of the enterprise to society but it is not to be attributed to the enterprise itself. Changing prices is the first sub-category. Enterprise H notes that it uses petroleum as an input while Enterprise I produces petroleum. Last year the price of petroleum increased by 50 percent and the most efficient manager of Enterprise F could not have prevented his profits from plummeting, while the most inefficient manager of Enterprise G could not have avoided a rise in profits. For many, if not most, public enterprises the dominant factor in explaining differences in the profit level over time is relative price movements which are beyond the control of management. Accordingly, most enterprises can be excused from repsonsibility for profit trends. Enterprise J objects that although he and Enterprise K are operating in the same price environment, Enterprise K has modern equipment whereas his own is 15 years old. As a result he cannot be expected to achieve the same level of profits as the more modern firm. Differences in the quality of capital thus also may exclude firms from being compared according to a profit standard. Enterprise L points out that this is a terribly hot country but the government for some strange reason decided to build a plant to produce home heaters and he is accordingly losing a great deal of money as compared with Company M which is producing home air conditioners. The wisdom of the original investment decision and subsequent changes in market conditions explain a large share of changes in profits and these are not to be attributed to management. Finally, Enterprise N notes that the reason he is not making profits is because of the continued intervention of the government bureaucracy. They prevent him from hiring

the people he wants, from paying the wages necessary to attract good people, from rewarding good performance, from procuring materials in a timely fashion on the international market, etc. His low profits are due to this and he himself cannot be blamed.

The fourth set of objections are "structural". That is, we are measuring performance with a single-period indicator whereas in fact many actions taken now have consequences in future periods and these effects are ignored in profit indicators. For example, the manager of Enterprise O maintains that he is doing badly this year because his predecessor did well by ignoring repair and maintenance. The costs of that neglect are being felt this year in increased downtime. Enterprise P notes a similar problem with regard to earlier efforts in marketing, customer service, and research and development.

The possible objections by enterprise managers to being judged by profit could be extended from Q to Z and well beyond. The point, however, should be apparent that virtually any manager should be able to make a case for several of the foregoing objections and thus exempt himself from being judged by profit as a performance standard. Even if he is making a tidy profit and does not complain, the government itself may have good reason to exclude him because his profit may very well be to the converse of the above propositions: that is, in many countries the most profitable enterprises are in fact most inefficient because the high profits derived from advantageous output markets eliminate any pressures for cost control. For example, domestic cigarette monopolies and resource extraction enterprises selling on the international market are often in a position to make a magnificant profit independently of the efforts of their management.

In sum, there are few, if any, public enterprises to which several of these objections to profits do not apply. We must regretfuly conclude that standard private profit is inappropriate as an indicator for evaluating and controlling public enterprises. If low profits can be excused and high profits questioned, then the indicator cannot be used to distinguish "good" from "bad" performance.

Can Partial Indicators be Used?

If profit fails as an indicator, then the Minister may well decide to substitute something simple and straight-forward. He therefore simply instructs his managers that henceforth they will be judged on the basis of the quantity of production (or something similar such as degree of fulfillment of plan or capacity utilization). The question then becomes what the manager might do which would get the indicator up but which would be detrimental to society as a whole. In the present instance, one obvious negative response would be to ignore the quality of output, producing shoddy goods which either could not be sold or could be sold only at a very low price. This problem may, at least in part, be corrected by adding a quality indicator or by shifting to a "value of sales" measure. However, costs have still been ignored, there is no incentive to efficiency, and the manager may hire redundant workers, build up excess inventory and make wasteful use of capital. These problems become apparent after a few years, and the Minister announces that for the next year the enterprises will be evaluated according to the percentage production of their costs. This, of course, simply reverses the problem and the quantity and quality of production suffer severely.

These problems may seem so obvious that one wonders why they should be mentioned, but these errors have been repeated often enough in the real world (most notably in Eastern Europe and the Soviet Union) that it is necessary to be specific about the nature of the problem. Simply stated, in evaluating performance it is essential to measure each benefit once and only once and every cost once and only once. This -- the first principle of performance evaluation -- is violated by all the partial indicators which, by definition, measure some benefits or costs but ignore others. Another partial indicator which fails this test is labor productivity (output per worker). This includes the benefits (output) and the cost of labor but ignores the associated costs of capital and intermediate inputs. A company can raise its indicator simply by using more capital or more expensive inputs (e.g., by fancier bagging or packaging which cost a dollar but only increases the sales price by ten cents). All partial indicators give the wrong signals to managers and create the danger of improving efficiency in one area at the expense of reducing it in another.

Can Multiple Indicators Solve the Problem?

If partial indicators fail, then the obvious solution is for the Minister to try a set of multiple indicators. Now a long list of goods and bads is made up and the enterprise is judged on its performance across the set of indicators as a whole.

If such a set is unweighted, the dangers are illustrated by a story from the Soviet Union where an airplane factory discovered that by not drilling the small traditional small holes in the structural frame of the aircraft it could improve no fewer than five indicators:

furst, labor use declined; second, machine tool use declined; third, consumption of electricity declined; fourth, it was a new rationalizing measure; and fifth, the volume of scrap metal decreased. The difficulty was that while the procedure saved ten thousand rubles in production costs, it ultimately increased the fuel requirements for the downstream airline by one-hundred thousand rubles over the life of the airplane. The problem here again is that the first principle of performance evaluation has been violated. Some factors are multiple counted (one cost reduction is credited five times) while another is ignored (benefits, reflected in value of the airplane to the purchaser).

The danger of multiple indicators is not confined to such blatant cases. Take a government which chooses a three indicator measure consisting of profits (because surplus is important for financing), labor productivity (for efficiency), and quantity of output (capacity utilization and growth). This seems sensible enough, but we must ask what erroneous signals this might give. Consider a simple enterprise which produces output using only intermediate inputs, labor and capital. Accounts of this enterprise might look as shown in Figure 1:

Figure 1

	Year I	Year II
Sales	100	120
- Purchased Goods and Services	50	70
= Value Added	50	50
- Labor costs	40	40
= Profit	10	10

Note what has happened between year 'I' and year 'II'. The only thing that changes is that the company buys twenty more dollars worth of intermediate inputs and passes this on to the consumer in the sales price.

It has simply bought something from one producer and sold it to another producer or consumer. In the process it has added nothing of value and therefore from society's point of view the firm's contribution is identical in both periods. However, the multiple indicator shows a clear increase regardless of the weights on the three components: profit is unchanged (since the increase in sales is precisely offset by the increase in intermediate inputs); labor productivity rises (because the increased revenues are recorded but the costs are ignored); and the output indicator also rises (costs are ignored). As a result, the enterprise is rewarded for behavior which is clearly neutral from the standpoint of society. Similar examples could be quickly constructed to show positive movement of the multiple indicator when real performance declined. Structurally, the problem here again is that the first principle of performance evaluation has been violated since output is measured three times whereas costs (here, intermediate inputs) are measured only once. Multiple indicators are dangerous because they almost always introduce such an asymmetry.

This is all very well and good, but isn't there <u>some</u> combination of weighted indicators that correctly reflects the contribution of a public enterprise to society? The answer is: of course. Take the simple enterprise of Figure I. There is one benefit, namely production. There are three costs: namely, those associated with intermediate inputs, labor and capital. One way of incorporating all of these into an indicator is as follows: production minus intermediate inputs minus labor over stock of capital. This of course is simply called profitability. It measures all benefits and all costs once and only once, and it is therefore unambiguously superior to any partial indicator and to most multiple indicators.

In more complicated cases, profit suffers from all the problems mentioned earlier, but so do all the alternatives. Obejctionable as profit is, it is superior to the alternatives in being at least structurally correct. Profit is simply the difference between what the company takes out of society in any one period (variable costs) and what it puts back in (variable benefits). Its contribution to society is measured by the size of this difference relative to the quantity of capital (fixed factors) that it has at its disposal. There is no simple alternative to profit. The earlier objections must therefore be addressed directly. The solution is not to find an alternative to profit, but a way to measure profit correctly.

Appendix D

SOCIAL ACCOUNTING SYSTEM*

I. Scope of Study

This paper presents an accounting system for monitoring the economically relevant behavior of a public enterprise.[1/] The aim is to provide a data base for performance evaluation of the individual enterprise as well as for determining the role of the enterprise (and the sector) in major macroeconomic aggregates.

An enterprise is conceptualized here as a "black-box" filled with a stock of things which yield flows of value. In any given accounting period there are a variety of reciprocal flows of goods and services between this box and other economic actors. The box is described by quantifying these stocks and flows, and evaluated by examining relationships among the flows and between flows and stocks.

A complete control information system consists of three components:

(1) an accounting system to identify relevant flow and stock categories at market prices;

(2) a valuation system to adjust market prices to reflect intertemporal value changes and real social scarcity;

and (3) an evaluation system to select particular flow/stock relations as reflective of the efficiency of the decisions of various economic actors.

1/ While the system is developed for public enterprises, it is not fundamentally different from that for evaluating any productive entity from some broader perspective (e.g., the efficiency of a "profit center" from the viewpoint of the entire enterprise, the role of an individual company from the standpoint of an economy, or even the performance of an entire national economy relative to the world.)

* Leroy P. Jones and Sakong Il. "A Social Accounting System for Public Enterprise." Seoul: KDI Working Paper 7604, July 1976.

This paper only deals with the accounting component; the other two items will be covered in a companion piece. 2/

The starting point for quantification is provided by the enterprise's basic financial accounting documents -- Profit and Loss Statement, Surplus Disposal Statement, Manufacturing Cost Statement and Balance Sheet. These business accounts must then be converted into social or economic accounts; this translation is the subject of the remainder of this paper. Standard national accounts methodology provides the basic framework for the required system, but being designed for economy-wide aggregation, it must be modified to meet the requirements of enterprise-level efficiency evaluation. The major differences are as follows:

(1) Completeness and consistency: national accounts methodology typically relies on single-flow methods in which only selected items are extracted from the business accounts. This captures the most common flows, but ignores idiosyncratic elements which can seriously affect evaluation at the firm level. The present system, by contrast, uses double-flow methods which adhere strictly to the principle that every business accounting entry represents an economically relevant transaction which must be incorporated into the social accounts. 3/

2/ Leroy P. Jones, "Towards a Social Efficiency Audit for Performance Evaluation of Public Enterprises" (Seoul: KDI Working Paper, forthcoming).

3/ For elaboration on this point see Leroy P. Jones, Public Enterprise and Economic Development: The Korean Case (Seoul: KDI Press, 1975), pp. 63-66.

(2) Financial intermediation: national accounts treat all non-financial enterprises as pure producers. In fact, virtually all firms also perform a financial intermediation role, holding non-operating assets yielding a return to investors without affecting the enterprise's value-added. Any calculation of "profitability" must incorporate these flows, while sharply distinguishing them from "profits" arising from the firm's own production activities (see Section IV-B).

(3) Money and other current assets: money has a real opportunity cost, yet it must be held in order to avoid the transaction costs of barter. It is therefore considered to be part of a firm's operating assets or the capital stock which contributes to production (see Section III-B).

The accounting system proposed here is thus a hybrid of business and social accounting in which the integrity of the raw accounting data is maintained. The entire system is designed for automatic data processing, so that it can be "sold" to bureaucrats interested only in traditional accounting methods. The derivative translation to social accounts is relatively inexpensive once the business accounting package has been installed.

The basic structure of the proposed system is first presented in terms of flows (Section II) and stocks (Section III). The detail

required to make the system operational is given in Section IV, which presents a complete system of flows with technical comments on the treatment of individual entries. An Appendix presents an illustrative example of the complete system, beginning with raw accounting documents.

II. Basic System of Flows

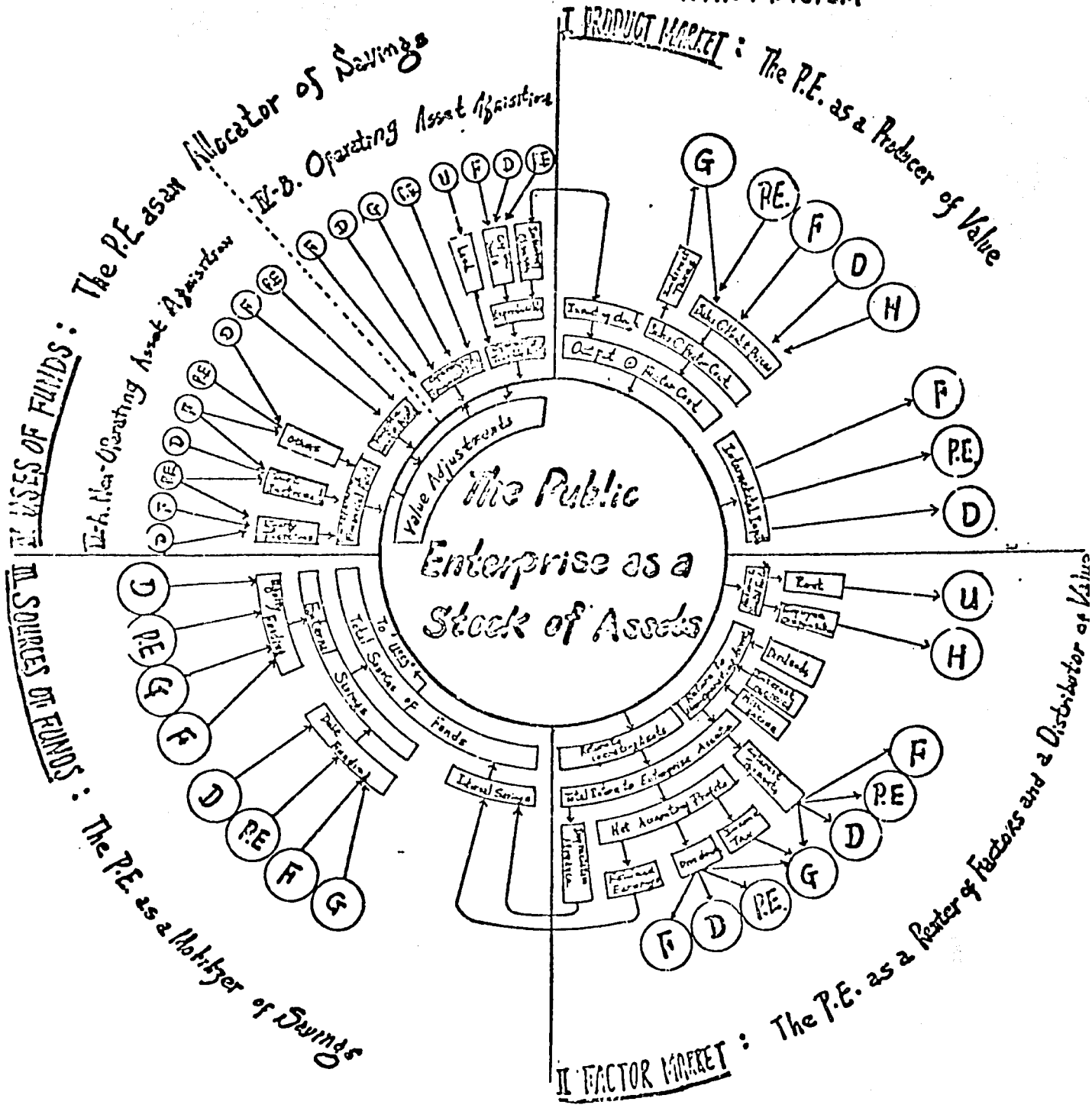
A. Graphics

The basic structure of the system is presented in Figure I. The central circle represents the black-box enterprise as a stock of assets. In any accounting period there are a variety of flows between the box and other economic actors. Depending on the nature of the transaction, all such flows are classified into one of the four following categories: the first quadrant shows the role of the firm as a producer of value in the product market; the second quadrant represents its operation in the factor market as a renter of factors and a distributor of value; the third quadrant shows the firm's role in mobilizing both internal and external savings; and the fourth quadrant represents the role of the firm as an allocator of savings.

In addition to these flows which bring new assets into the box, there is a fifth category termed "value adjustments" which includes all changes in the value of <u>existing</u> asset stocks (e.g., depreciation, revaluation, foreign exchange adjustment). Since these value adjustments do not represent direct transactions between the firm and other entities, they are depicted graphically as internal to the enterprise.

FIGURE I

SIMPLIFIED SOCIAL ACCOUNTING SYSTEM


I PRODUCT MARKET : The P.E. as a Producer of Value
II FACTOR MARKET : The P.E. as a Renter of Factors and a Distributor of Value
III SOURCES OF FUNDS : The P.E. as a Mobilizer of Savings
IV USES OF FUNDS : The P.E. as an Allocator of Savings
IV-A. Non-Operating Asset Acquisition
IV-B. Operating Asset Acquisition
The Public Enterprise as a Stock of Assets
Value Adjustments
Total Sources of Funds
External Sources
Internal Sources
Public Enterprise
Private Enterprise
Others
Rent
Interest
Dividends
Profits
Wages
Salaries
Taxes
Net Accounting Profits
Total Income to Enterprise Assets
Net Income to Factors
Output @ Factor Cost
Input @ Factor Cost
Intermediate Input
Sales Output & Price
Factor Cost
Depreciation
Retained Earnings
Dividends
Income Tax
Sales Tax
Other Taxes
Other Income
Other Expenditure
Other Sources
Other Uses
Net Acquisition of Financial Assets
Net Acquisition of Fixed Assets
Net Acquisition of Inventories
Net Acquisition of Other Assets
Net Acquisition of Other Liabilities
Net Acquisition of Financial Liabilities
Net Acquisition of Fixed Liabilities
Net Acquisition of Inventory Liabilities
Net Acquisition of Other Liabilities
Net Acquisition of Financial Assets
Net Acquisition of Fixed Assets
Net Acquisition of Inventory Assets

Each line on the right-hand side of the diagram represents a two-directional flow: there is a real flow of goods or services in one direction and a monetary flow in the opposite, price being the linking conversion factor. For convenience sake, an arrow shows the normal direction of the monetary flow.

Left-hand side flows are also two dimensional. In the "sources of funds" quadrant, for example, financial claims on the firm flow in one direction and offsetting funds in the other. However, it is simplest to think of these arrows as single-dimensional fund flows which do not enter the firm until being converted to some form of asset (e.g., money or a lathe). They then enter the firm as a "use of funds" in quadrant four.

B. Quadrant Summaries

1. Production of Value (Quadrant I)

Intermediate inputs are purchased, processed and sold. The difference between inflow and outflow remains (temporarily) within the box as value-added calculated via the product flow method.

2. Distribution of Value (Quadrant II)

The value-added in production is distributed to various economic actors. A portion goes to rented factors (largely labor), while the rest is a return to the enterprise's stock of operating assets. Together with returns to non-operating assets, this is further distributed to debt holders as interest, to the government as taxes and to equity

holders as distributed earnings, retained earnings and depreciation allowance. With the net Quadrant I inflow (product flow value-added) thus completely distributed in Quadrant II (income-flow value-added), nothing is left within the box by right-hand side operations. However, retained earnings and the depreciation allowance are returned to the enterprise in the next quadrant as internal savings.

3. Mobilization of Savings: Sources of Funds (Quadrant III)

In addition to the internal savings from Quadrant II, the firm may acquire additional debt or equity capital. These new funds are then used to finance asset acquisition in Quadrant IV. They do not enter the box directly and do not affect the stock.

4. Allocation of Savings: Uses of Funds (Quadrant IV)

New funds may be used to acquire operating tangible assets (e.g., capital goods, inventories), money or "non-operating assets" (e.g., securities, land for speculation). All of these flow into the enterprise and alter the stock of assets.

5. Value Adjustments

Revaluation and depreciation represent changes in value attributed to an asset stock, or a change in the quality of that asset, rather than a new flow between the enterprise and some other entity. The many limitations of the business accounting treatment of these categories is treated elsewhere as part of the "valuation system". In the accounting system,

the business valuations are used to maintain the consistency of the accounts and provide a basis for later adjustment. Note that depreciation enters the accounts twice — once as a valuation adjustment and once as a distribution of value-added to provide a real source of funds. The two are conceptually quite distinct and are equivalent only under business accounting conventions.

C. Identities

The system is complete in the sense of being internally consistent and self-checking. The major relationships may be summarized as follows.

(1) The sum of Quadrant I flows gives value-added at factor cost by the product-flow approach, while that of Quadrant II gives value-added by the income-flow approach.

(2) The sum of right-hand side flows is zero, since product-flow and income-flow value-added are arithmetically equal but algebraically opposite in sign.

(3) On the left-hand side, "Sources of funds" are exactly equal to "Uses of Funds".

(4) Uses of funds plus intertemporal value adjustments equals the change in the value of the stock within the box. At accountants' prices, this is equal to the change in total assets between successive balance sheets.

(5) Sources of funds plus intertemporal value adjustments at accountants' prices equals the change in total liabilities and net worth between successive balance sheets.

(6) All entries in the profit and loss, surplus disposal and manufacturing cost statements appear somewhere on the right-hand side.

(7) All changes in successive year's balance sheet entries appear somewhere on the left-hand side.

It should be noted that the flow-of-funds defined above is based on a "net" concept which differs somewhat from that of business usage. In constructing his flow-of-funds, the business accountant begins with changes in balance sheets and then deletes all changes which do not involve flows of funds. This process is identical to our allowance for "value adjustments" and thus far the two definitions are identical. In addition, however, the business accountant adds a number of transactions which are netted out in our system. For example:

(1) In business usage, dividends paid are added as a "use" and a like increment added to retained earnings as a "source". In our system, payment of dividends is a current transaction which does not affect stocks of liabilities or assets.[4/] Our flow is accordingly lower than that under business usage.

4/ Except where payment is deferred and the resulting reserve is treated by us as short-term borrowing (see Section IV-I below).

(2) Under business practice, sales of used assets at book are added as a "source" (they generate cash) and as a "use" (acquisition of new fixed assets). In our system, revenues (at book) from asset sales are treated as a negative use rather than a source.

The additional flows which are "de-netted" in this manner vary somewhat among accountants, but all result in flow-of-funds totals which excede that of the net concept used here. If the "gross" flow-of-funds is desired as a tool of financial management, it is readily obtained using the appropriate subtotals incorporated in our system. For purposes of stock/flow efficiency analysis, however, the "net" usage is more straightforward and is adopted here.

D. Transactors

For each flow it is also highly desirable to identify the second partner in the exchange. This is useful for three reasons: first, for descriptive interindustry work; second, to allow netting out of intrasectoral transactions in preparing consolidated statements; and third, and most important, for use in evaluating flows -- e.g., dividends paid to the government may well have a social value different from that of a like amount paid to foreigners. The basic transactors, and the abbreviations used in Figure I, are:

G	Government
PE	Other Public Enterprises
D	Domestic Private Enterprises
DH	Domestic Households
F	Foreign Enterprises, Households, and Governments
U	Undifferentiated, Unknown, or Unimportant

III. Stocks

A. Assets: Operating Versus Non-Operating

An enterprise's stock of assets represents an accumulation of previous years' flows, so that the relevant stock categories are the same as for "Uses-of-Funds". Figure II summarizes the asset morphology used here.

A crucial distinction is made between operating and non-operating assets. Our use of these terms is facilitated by clarification of the terms "assets" and "factors". To the economist, factors of production are things which are not free, which contribute to the production of goods and services, and which are not consumed in the process of production.[5/] To the accountant, assets are "valuable resources owned by a business which were acquired at a measurable money cost.[6/] One minor

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5/ We thus choose to use the term "factor of production" to designate a stock whose service flow enters the conventional theoretical production function. This differs from those such as Boulding who treat the flow as the factor. The difference is merely semantic as no matter of principle is involved. See: Kenneth Boulding, Economic Analysis: Vol. I, 4th ed. (New York: Harper & Row, 1966), p. 246.

6/ Robert Anthony, Management Accounting Principles (Homewood, Ill.: Richard D. Irwin, 1972), p. 30.

Figure II

The Enterprise as a Stock of Assets

I. Operating Assets
   - A. Tangible
     - 1. Reproducible
       - a. Capital-Goods
       - b. Inventories
     - 2. Land and Other Non-reproducible Assets
   - B. Intangible
     - 1. Purchased (Patents, Goodwill, etc.)
     - 2. Self-produced (R&D, Pre-operational Expenses)
     - 3. Other
   - C. Financial
     - 1. Money (Currency and Demand Deposits)
     - 2. Accounts Receivable
     - 3. Promissory Notes
     - 4. Prepaid Expenses
     - 5. Other

II. Non-Operating Assets
   - A. Tangible Assets
     - 1. Capital-Goods
     - 2. Land
   - B. Intangibles
   - C. Non-Operating Financial Assets
     - 1. Time Deposits
     - 2. Equity Holdings
     - 3. Debt Instruments
     - 4. Other

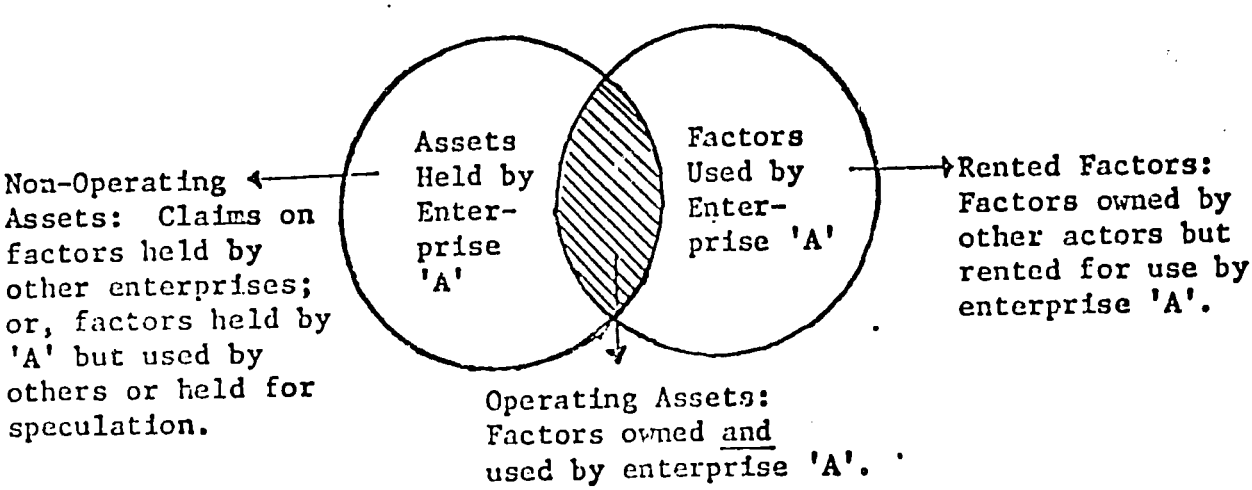
III. Construction in Progress

difference between the two concepts is that a good acquired without "measurable money cost" may nevertheless have a positive current market value and therefore be a factor but not an asset. More importantly, assets include financial instruments which are claims on factor returns rather than factors themselves. Factors are thus necessarily assets, but not vice versa.

With this distinction in mind, we use "operating assets" to refer to factors of production which are owned and used by the firm in conjunction with rented factors (mostly labor) to produce value. "Non-operating tangible assets" are factors owned by the firm but held for speculative purposes or rented to other enterprises for use in their production process. "Non-operating financial assets" are not factors, but claims on the return to factors employed by other enterprises. Diagramatically:

Figure III

Assets and Factors



The returns from non-operating assets are netted out in calculating value-added, but cannot be ignored in efficiency evaluation since the secondary role of manufacturing public enterprises as financial intermediaries is often quite significant. For example, a major Korean public enterprise regularly shows an accounting surplus despite losses on its production operation, thanks to dividends from its highly profitable subsidiaries. A somewhat more obscure, but no less important, example involves interest arbitrage, a process whereby a firm borrows cheap and lends more dearly. Both sorts of financial intermediation are dealt with in greater detail in Section IV. The point here is simply that the enterprise must be viewed as conducting two operations -- production and financial intermediation -- using two distinct stocks of assets.