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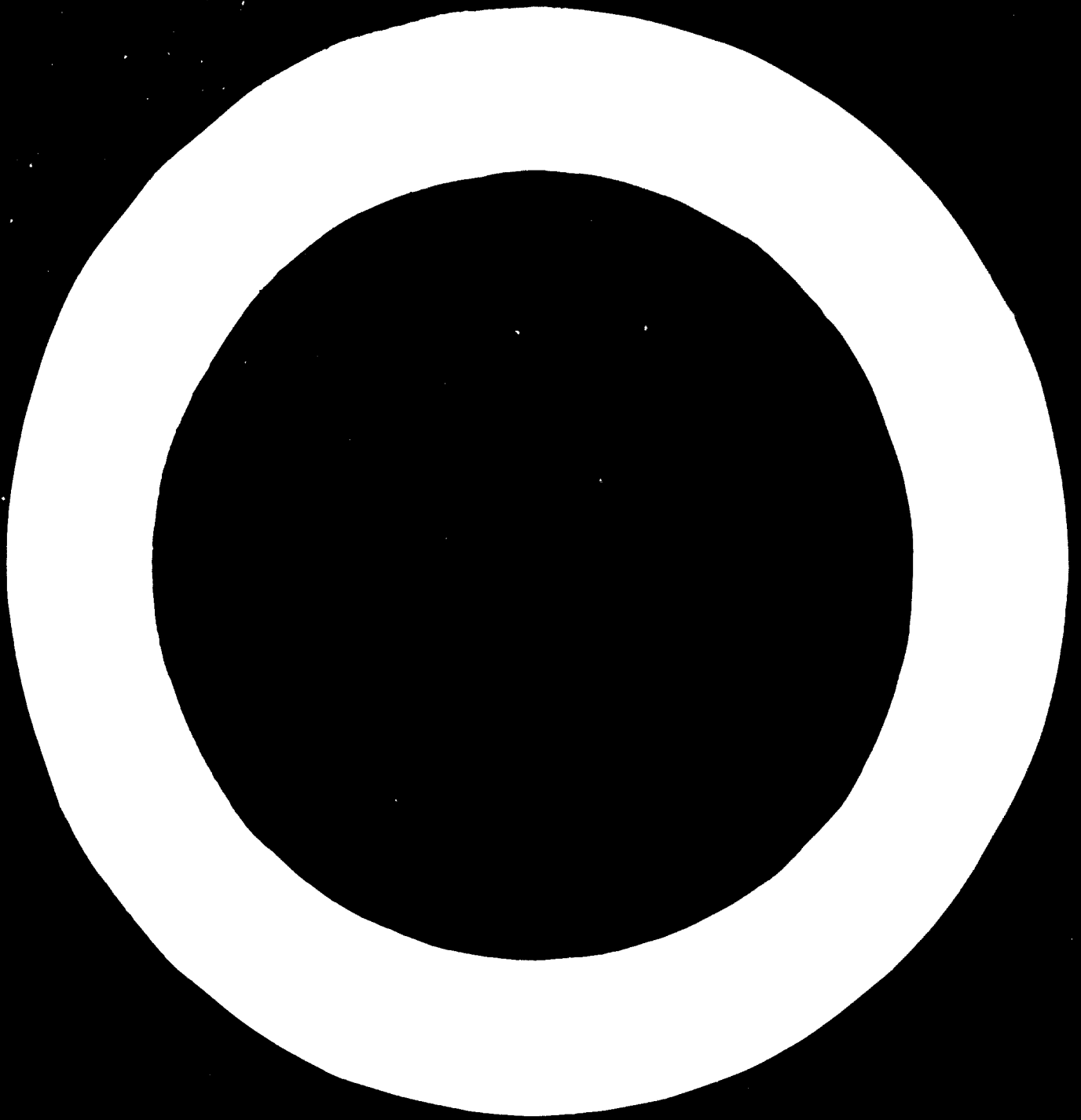
THE FORMULATION AND APPLICATION OF EFFICIENCY MEASURES
IN PUBLIC MANUFACTURING ENTERPRISES 1/

by

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INTRODUCTION

In the preparation of this paper I have drawn extensively upon the experience and the difficulties encountered by the Government in following attempts at the measuring of efficiency in our nationalised industries. Although not all industries that are under public ownership are nationalised within the meaning of the term, the problems of and the needs for efficiency measurement are broadly similar.

a. The aims of Public Ownership Policies

It is important to understand the spirit in which were extracted by Parliament the industry boards as they were under public ownership. The public enterprises were to be non-profit-making and their main aim was to provide a means of financing the 'long haul' of the Government's nationalisation programme to be a source of revenue to the national exchequer.

Secondly, competition and the operation of market forces were considered to be not in the best interests of the nationalised industries. Consequently, the architects of nationalisation regarded the industrial enterprises as management possessing monopolies to be controlled by Parliament in questions of policy. The corporations that were formed were regarded as vehicles for the administration of entire industries rather than as individual firms.

Thirdly, the Nationalisation Acts charged the corporations with the duty of being in the public interest without ever defining its precise meaning. It is meant by this. The Government felt that it was necessary to ensure that the industries were organised and administered efficiently and economically in order to carry out their responsibilities. If this were done then the industries that were under public control would be able to make the maximum contribution towards the economic well-being of the community as a whole.

Finally, ultimate responsibility for the operations of the nationalised industries would be in the hands of the Government. Therefore the Government were responsible for planning the needs of the country, for determining capital expenditure and its financing. Since the industries were supplying goods and services that were basic to the needs of the economy, their operations would have to co-ordinate fully with the aims and objectives sought by the Government for the country as a whole. Although the industries have obligations of a national and non-commercial kind, they are not, in the view of Parliament, to be regarded as the provider of social services absolved from economic and commercial justifications.

b. Italian and United Kingdom Experience

These aims are vague and are not only to be found in the United Kingdom Nationalisation Acts. A similar vagueness of definition concerning the aims and purposes of public enterprise is to be found in Italy. The CNEL¹ complained in its report on the Ministry of State Share Holdings in 1962 that there is an enormous disparity of statement of purpose in the Acts and Statutes setting up the various enterprises. For example, ENI, is endowed with detailed aims by law: "to manage and carry out initiatives of national interest in the field of hydro-carbons and natural gases". The IRI statutes merely state that "IRI runs the share holdings in possession", adding that "it is the duty of the Cabinet to establish its general lines of policy in the public interest." Perhaps this vagueness was necessary due to a desire not to hamper too much the day to day operation of the corporations, together with the uncertainty at the outset of the problems they would encounter. In 1956 the Herbert committee, which was established to inquire into the organisation and efficiency of the electricity supply industry of the United Kingdom, recommended that the Boards should manage their enterprises as economic concerns and make them pay. Capital for the nationalised industries was considered as best being raised on the open market without any special guarantees by the Government. The committee cited specific instances where their recommended policy could apply. For example, in the purchase of heavy electrical plant the Central Electricity Generating Authority had given precedence to British Manufacturers and had not sought tenders from abroad. This policy, the committee argued, should be reversed and the Electricity Boards should seek the best and cheapest plant that it could, irrespective of origin.

c. Problems in Applying the Principles of Commercial Operations

There are, however, difficulties in attempting to apply the principle of commercial operations to the nationalised industries in Britain. These difficulties, in turn, affect our ability to apply those measures of efficiency that are applied by manufacturing enterprises in the private sector. We can distinguish three principal types of difficulties:

1. Social Cost Problems
2. National Economic Planning Problems
3. Socio-Strategic Problems.

In the following discussion upon the various efficiency measures I shall now advance for your consideration, these difficulties which assert themselves with varying degrees of importance throughout every measure.

¹ CNEL (Consiglio Nazionale del 'Economia del Lavoro)
See Coltelli and De Stefano, Seconda Appendice, Milan 1963

(a) Micro-economic Aspects

In all large scale organisations the development of techniques designed to measure productivity together with their application, is of extreme importance to the managements of such concerns. In the case of public manufacturing enterprises, they command a special degree of significance since the normally accepted tests of profitability may be of limited value as an efficiency measurement. The results of efficiency measurement are primarily of interest to management as control data, but they also provide the means whereby supervising authorities such as Ministers and Legislators can form more reliable judgements of performance than would otherwise be possible.

1. The Profit Motive

One of the principle criticisms that supporters of private enterprise make against the management of public manufacturing enterprises is the disappearance of the profit motive. This, they argue, reduces if not eliminates, the spur that competition can provide towards the efficient management of State operated plants; but is this criticism fair? A publically owned undertaking is composed of a number of basic units. For example, the Central Electricity Generating Board is responsible for the generation and bulk supply of electricity to twelve Area Boards in England and Wales. Similarly, British Railways operate through four regional Boards. These can be sub-divided into factories, workshops, stores and warehousing facilities. As a broad generalisation, and bearing in mind that certain major reservations do present themselves, each basic unit performs similar operational functions to the others. It would therefore appear natural for managements to compare the cost structures that prevail between such units. This would automatically take place if each firm or plant were under a system of private enterprise. The theory of imperfect competition would therefore dictate that such a plant would try to increase sales by lowering prices. Other plants would be forced under such circumstances, to lower their profit margins, to reduce costs or ultimately move out of the market. This, of course, is the theory. In practice it is hedged around by so many other factors that one can only discern a tendency towards this process. Management will have to analyse the reasons why any observed cost differences prevail. If these are due to the incompetence or negligence of the manager then dismissal will have to be contemplated. If the organisation of the plant is at fault then cost differentials may possibly be reduced and then eliminated by re-organisation of work. Cost differences may arise due to variances in the capital structure of plants, expressed either in qualitative or quantitative terms. Such variances may not necessarily be due to the lack of competence on the part of the plant-manager. The faults, if they exist at all, may lie within the higher echelons of management. It may also be that the plant is too small to achieve the level of profitability that is desired. The optimum size of plant in the private sector,

is caused by larger firms which are more profitable and a tendency towards concentration amongst the very large companies.

2. Output per Man and per Plant

Economists have made us familiar with the tendency of industries, to increase their output per head as their total output grows and to increase it faster year by year, than industries that show lower growth rates. This is a partial statistical verification of the law of increasing returns, which refers to return from a whole industry, regardless of the size of its firms and plants, or the scale on which its various lines are produced. Specific studies have shown that the net and gross value of output per worker and the physical output per worker, increases with the size of plant. But this productivity is no complete test of comparative efficiency, since output per man refers to the return from one factor of production only.

The inadequate profitability of a firm or plant is not only determined by its size or the lack of efficiency on the part of its management. It may be that some establishments are badly located or that their transport costs are too high. If, through the process of bringing the industry under state control, the management of the public manufacturing enterprise have acquired such plants, then clearly their high cost of operation in no way reflects adversely upon their new managements. But this does nothing to remove or minimise the loss of profits that are incurred by such undertakings. Under private enterprise there would be every pressure mounted, once the facts were known, to convert the plant to alternative uses or to close it down completely. There are, however, obvious problems involved for the state in pursuing such a policy. The state is more reluctant to adopt a policy of plant closure, because it may wish to show a greater degree of responsibility occurring in its attitudes towards employment than that which is likely to be shown in the private sector.

Nevertheless, this can be taken as a measure of the degree of competition that is taking place between firms or plants. There is no reason why this measure cannot be applied in suitable circumstances to the operation of a publically owned undertaking consisting of a number of depots or warehouses. Of course, the ultimate sanction of bankruptcy is missing, for the undertaking as a whole but, as I shall later point out, subject to certain considerations, this is not altogether a bad thing. From the individual's point of view, the ultimate sanction is dismissal and this sanction certainly can be applied. However, before such action is taken, consideration has to be made for certain conditions that are prevalent in varying degrees to most public enterprises, but which are not so prevalent in the private sector.

... years high cost ... to the income that have been sustained by the ... Railways, this has certainly been the case. ... lished proposals which are designed to ... services in public manufacturing enterprises, ... from the employees ... The result of these proposals ... to resettle the workers involved and their ... alternative uses, or gradually reduce ... leave or are retired. Nevertheless, it is ... and will remain the costly ... conversion of manufacturing facilities or eventual ...

Clearly, the application of an output/cost measure of efficiency to public manufacturing enterprises is more difficult than in the case with private manufacturing organizations. Nevertheless, it is still ... efficiency if we can quantify, albeit ... the social cost element contained in the problems to which I have referred. It is possible for example to ascertain the costs of a unit of time spent over management of average ability and giving due allowance to the burden of social costs each plant has to bear. Differences in costs should ... conditions, the quality of the capital equipment and its utilization. In theory, this should solve the problems that are associated with the utilization of this type of efficiency measure. In practice, however, it is very ... to determine average cost per unit. One of the main ... the manner in which costs that are common to a multi-product plant can be realistically allocated on a product basis. These difficulties can, however, be overcome by the application of costing techniques that have been developed and applied by cost accountants in private manufacturing enterprises. It is, however, true to say that they are still far from ... to treat overhead allocations stock-piling and purchases of stock at irregular intervals.

If we define profit as $P = Q(p - c)$, where Q is unit output, p average price and c average cost per unit of output, then P profit can be increased under three differing sets of circumstances. Firstly, by an increase in price, assuming an elasticity of demand greater than 1; secondly, by an increase in output, assuming this is achieved without a disproportionate rise in cost; or thirdly, by an actual fall in cost. The chief difficulty in testing efficiency in the form of profits is the possibility that profits may arise by exploitation of the consumer since public manufacturing enterprises are frequently state monopolies.

It should be possible for the Board to determine the proportion of a firm's profit margin (or an industry's total profit) which can be attributed to its monopolistic position. This should then be deducted in the same way as the taxes which, under certain circumstances, are levied on the profits of private undertakings. Subject to those safeguards, profits may be used as a test of comparative efficiency, providing care is taken that the items included in cost such as depreciation and purchase of stocks are comparable.

The final stage remains however for some profit to net ratio but the result of a subtraction sum, it will naturally be proportionate to the scale of operations. Thus, a large firm, other things being equal, can expect a larger profit than a smaller firm. Therefore, a denominator has to be applied that will indicate the scale of 'input' of resources used. Usually indices that have been used are total sales or turnover and total capital employed including loan capital.

3. Overall Return on Net Assets Employed

A measure of efficiency that is of an increasing extent being applied in the private sector is the overall return on net assets employed in the firm or plant. In Britain, the Nationalised undertakings have had statutory obligations imposed upon them that prescribe that their revenues should, on an average of good and bad years, be not less than sufficient to meet all items properly chargeable to revenue, including interest, depreciation, the redemption of capital and the provision of reserves. Thus the nationalisation acts thus prescribe a minimum performance to be achieved. Furthermore, this performance is defined in terms of a surplus or deficit, which differs from the normal commercial definition of profit or loss since provision is required to be made from revenue for all the items mentioned above before a surplus in the statutory sense arises. The undertakings were thus expected to make some profits in the ordinary sense of that term in order to accumulate reserves from them. This has led to curious results. For example, a Regional Board which believed in making profits would ~~make~~ profits but another Board that believed that profits should not be made did little better than break even. Consequently, the customers of the different Boards would, in fact, be treated differently over the years.

The nationalised industries therefore, in theory, have to provide out of revenue sufficient sums to provide not only for the payment of interest on capital, but also both for depreciation and capital redemption. If these requirements were stringently interpreted they would impose upon the industries concerned the responsibility not merely for the maintenance of their capital assets, but eventually of ridding themselves of capital liabilities. In practice they have not been required nor have they sought to make provision on this

... If the ... (including supplementary report ... reserves) it has not been ... that have been ... also apply in the case of ...

The financial results of public corporations ... industry to industry, ... conditions for each industry ... competition, ... the weight of ... Therefore the ... individual industries ... have ever the ... of return on capital ... comparison of ... same rate of return ... its nature and ... majority of the ...

4. The Tert-Disciplinary

The ... which the principles of the ... are based. ... favourable terms. ... after allowing for the ... first time, return on capital ... public sector. Thus the electrical industry, ... earning 12.4% gross covering ... over the five year period April 1962 ... The ... industry, on the other hand, was given a target of 10.2% ... industry was in some difficulties. Its fortunes, however, revived dramatically and in the industry expanded as its target was raised to 12.1% gross.

No doubt there exists considerable room for refining the receipts by which target rates of return are calculated. For example, the Government should make explicit the losses that it is prepared to meet and insist that losses beyond this level would not be underwritten. There is also a danger that any target set may be regarded as a goal to be achieved and not as a minimum expectation. The only case where the target rate should be treated as a minimum expectation is where an industry possesses a marked degree of monopoly power. Unless this is done then it is possible to obtain a higher return on capital by exploitation of the consumer. In order to appraise the efficiency of new investments the Treasury recommended the use of discounted cash flow techniques. These enable comparisons to be made between alternative projects, the receipts and outlays from which are expressed in terms of present value by the use of a rate of discount. The technique is based on the theory of interest, interest being the factor which links sums of money due at different dates. What precisely the rate of discount should be is a debatable point, but clearly all industries using the same methods of appraisal should adopt the same test rate. Without this there would likely occur a distortion in investment as between industries and projects. For this reason the Government are asking the Nationalised Industries to use a common test discount rate of 8%. This means that using D.C.F. techniques, new investment projects will have to show either that receipts will be greater than costs discounting future returns at 8% per annum, or that there is some special social or wider economic justification for the investment. Under these circumstances, social cost benefit studies may have to be undertaken.

This technique is a useful aid to judgement since it brings clearly into view complex changes in revenues and costs spread over the expected life of a project. But the technique is only as good as the figures and forecasts upon which they are founded. By themselves they do not provide 'the' answer. The assessment of risk does not enter into the test rate of discount. Therefore in order to remedy this, alternative calculations would have to be produced based upon the most pessimistic and most optimistic assumptions. Sometimes it may be advantageous to take a single best estimate of present value and test its sensitivity to changes in assumptions about future costs, prices and sales.

5. Price

From the consumer's point of view, a test of efficiency, perhaps the only test they apply, are the prices that are charged for the goods and services which are produced. Most manufacturing industries and firms have a diversified production which prevents the use of physical productivity as a test of their efficiency. For the consumer, therefore, price appears an attractive alternative test. It is attractive because it is simple, too simple. If comparatively low prices are charged because an uneconomic price is being levied, then either the

capital equipment is run down or the losses made good by exchequer payments. In either case the consumer pays in time for the inability of the industry to pay its way. Of course managements of industries that are pursuing such a policy may not be to blame for this. Frequently public manufacturing enterprises are providing the basic raw materials consumed by the economy as a whole. Any price increase therefore affects the costs of goods being consumed in home and export markets. Under certain circumstances these increases could be inflationary, hence the Government's desire to keep the size and frequency of such increases to a minimum. Although the Government possesses the formal power to determine prices in the nationalised industries, such undertakings have in fixing their prices given great weight to considerations of the national interest that have been brought to their attention. British experience leads one to the conclusion that so far as price increases have been concerned it has been a question of too little, too late. Unless greater freedom and flexibility in the pricing policies of the nationalised industries are allowed, then an element of subsidisation is incorporated into their price structure which will tend to distort resource allocation within the economy as a whole.

6. Sales Volume

Price, however, represents only one side of the efficiency equation. The volume of sales that are achieved at a particular price level, with a given labour force and capital structure represents the other components. Everyone who runs a capital intensive undertaking knows that increasing unit sales are vital in keeping down unit costs. A measure of productivity can be obtained by calculating the value added per employee and relating it to firms in the private sector with similar capital structures. For example, the Electricity Generating Board has a very high capital investment per employee and a consequent higher than average added value which in 1966 was £4,600. If, however, the Electricity Councils' TOTAL activities are taken into account, this falls to approximately £2,330 per employee per annum as compared to a national average in manufacturing of approximately £1,020 per head per annum. This appears to indicate a highly satisfactory position. One must, however, remember that any industry, private or public, that absorbs such a large part of the country's capital should be expected to produce high productivity rates. The real question to be answered is whether, considering the amount of capital being drawn into the industry, productivity is rising fast enough.

b. Macro-economic aspects

Productivity provides a useful measure of industrial efficiency but is not without serious disadvantages. For example, the basis upon which the productivity formulae are based must be consistent in order to enable accurate comparisons to be made between the public and private sectors of industry. Then how does one treat capital works that are in the process of construction and changes in money values at the beginning and end of each period? Not that these problems are insurmountable, but they do require very careful handling, if a meaningful comparison is to be achieved. Productivity measures between firms and plants that are under common ownership can be more easily calculated since many of the problems, even if not eliminated entirely, are reduced to manageable proportions.

1. Cost Benefit Analysis

A common justification for losses or small profits is that profit and loss figures by themselves take no account of the benefits, real or imaginary, that are conferred upon members of the community other than consumers. Furthermore they take no account of the costs that are borne on behalf of the community, as opposed to the consumers within it. I have already referred to some aspects of this problem which are essentially social in character. In an attempt to quantify these problems and incorporate them into measures of efficiency, economists have conducted social cost/benefit studies into specific projects. It has been felt for some time that if social benefit arguments are left 'open ended', they would seem to justify any size of deficit incurred by a public manufacturing enterprise. Any government that is interested in economic efficiency cannot condone this approach since it makes all attempts at technical control ultimately futile. In any case it would be irrational. The fact that the benefits and costs in question are indirect does not mean that they cannot be bought at too high a price. They do have a finite value even though, admittedly, it is one that is difficult to quantify. Nevertheless, if we are at all serious in calculating and applying measures of efficiency, we must try.

The devising and implementation of policies to deal with such benefits and costs needs to be a function of central Government rather than of individual industries. Only the Government can take appropriate account of the community benefits and costs that are in question. For example, if the National Coal Board is considering whether to close a mine that is unprofitable in terms of direct returns, a problem of localised unemployment may be involved. The Board should only be directly involved in this problem to the extent that it makes good commercial sense to subsidise the movement of miners to other pits. To adopt any other course, such as allowing the mine to continue uneconomic operations, must either raise the price of coal or involve the Government in a

coal subsidy policy. In the first case the Board is imposing the general social costs upon the consumers of coal thereby tending to reduce the long term demand for the product. In the second case the re-deployment of the displaced miners is being treated as a different problem from the re-deployment of labour from any other localised force.

2. Cost of Exchequer Borrowing

Clearly, therefore, public manufacturing enterprises should be subjected to the same kinds of Government policies as other industries in respect of social/cost benefit problems. They should have access to the same subsidies for the same purposes and be subject to the same obligations to report, refrain and compensate, as private industry. From that point on however they should be required to behave commercially. If any Ministry wishes to allow a manufacturing enterprise to behave in any other way then the Ministry should make adequate financial provisions in their estimates and pay the enterprise accordingly. This procedure would provide an incentive for the Ministry concerned to find the most economic means to provide the benefit in question. Furthermore it would produce a means of evaluation and make explicit the subsidy that the public enterprise should receive in respect of any social benefit that it provides.

In the private enterprise sector of the economy the cost involved in raising finance is a measure of the efficiency of a particular firm that is held by the money market. A company that has a good management record, that produced a satisfactory return on its employed capital and offered a high consequence of good return to investors, would find the raising of a price cheaper and easier than would be the case for a company where financial performance was mediocre. Unfortunately, as a means of efficiency, this cannot be applied to the public enterprises in the United Kingdom due to the Government's decision in 1966 to discontinue the borrowing for such enterprises to take place on the open market. The Committee on the Working of the Monetary System (CMD 827) felt that a return to the raising of finance on the open market did not present, for the time being at least, a realistic alternative. The sums of money needed were considered to be too large to be raised in the open market without Government support. Furthermore the industries are of necessity closely associated in the public mind with the Government, so that it is difficult for the market to regard them as independent financial concerns. Consequently, in the United Kingdom, where public enterprises borrow from the State, it is possible to avoid the consequences of a high gearing ratio by "insuring" interest payments. In Italy however, where State enterprises borrow from the market on debentures, the interest can never be paid. In consequence, interest free State borrowments may be regarded as a necessary offset to the heavy dependence of public enterprises on the market.

EFFICIENCY RELATIVE TO PRODUCTIVITY PRICES AND INCOMES POLICY

(a) Outline of the United Kingdom Policy

Recently, measures to improve efficiency through increasing productivity have assumed a central role in the attempts made by the Government to solve the economic difficulties facing the United Kingdom. An integral part of this approach is to ensure that increases in incomes are kept in line with increases in productivity. A norm for wage increases is set as an average percentage rate which at present is 3 per cent. This is felt to be the level of incomes increase that would be consistent with the general level of prices. Pay increases above the norm can be made but they are to be regarded as exceptional and will only be granted in the following circumstances. (CMB 3235).

1. Where the employees concerned, for example by accepting more exacting work or a major change in working practices, make a direct contribution towards increasing productivity in a particular firm or industry. However, in such cases some of the benefits should accrue to the community as a whole in the form of lower prices.
2. Where it is essential in the national interest to secure a change in the distribution of manpower and a pay increase would be effective for this purpose.
3. Where there is a general recognition that existing wage and salary levels are too low to maintain a reasonable standard of living.
4. Where there is widespread recognition that the pay of a certain group of workers has fallen seriously behind the level of remuneration for similar work and needs, in the national interest, to be improved.

(b) Case - British Iron and Steel Corporation

The application of these criteria have, predictably enough, precipitated waves of industrial action on the part of labour which are, in part at least, due to the difficulties involved in efficiency measurement. Recently, however, the Steel Company of Wales, which is a part of the state owned British Steel Corporation, has concluded a productivity bargain which could provide the pattern for similar agreements to be concluded with labour in the other divisions of the Corporation.

It was generally accepted that the Steel Company of Wales was overmanned. Accordingly, in April 1966 the Company outlined proposals for major improvements in productivity which would inevitably lead to a reduction in manpower requirements.

A Manpower Productivity Plan is proposed which would reduce the labor force by 5,200 men and secure the replacement of 600 contract employees by 1971. At the end of this period the manual labor force would be reduced by 11%. This reduction was to be achieved, in the main, through the removal of occupations that at present exist between the unions. At the same time it is proposed, in the craft unions employed in the plant, that the number of employees, by 1971, be reduced to 65 different occupational classifications and 200 employees by 1971. By 1971 these will be reduced to 100 employees.

Job evaluation is being used to define the job structure and will be used to establish future wage differential levels. The system was accepted by the unions to determine correct minimum levels, provide a basis of work. The results of these investigations will be available to the unions, but if the unions are not satisfied they can appoint their own independent appraisers at the expense of the Company.

All adjustments in pay, holiday remuneration, and fringe benefits will be financed out of the savings that accrue from the reduction in labor that will flow from the implementation of the plan. These savings will be shared on the basis of 56 1/2% to management, 43 1/2% to the unions and to be administered by a joint management-union committee. In this regard the agreement is very similar to the one concluded in the early 1960's by the Kaiser Steel Corporation of the United States with the steel workers union.

This agreement follows the guidelines laid down by the National Labor Relations Board in its decision on the criteria for the criteria previously discussed. If, however, the wages and income policy becomes an ineffective instrument of economic policy, then pressures to provide measurements of efficiency and productivity will intensify.

MANAGEMENT PROBLEMS

(a) Factors upon which efficiency depends

This report has been concerned with measures of efficiency in public manufacturing organizations and the desirability for and difficulties inherent in their implementation. In the final analysis the magnitude of these problems depends upon the quality of factor inputs that enter the public organizations. There are a number of ways by which the efficiency of organizations and therefore their productivity can be increased. Human qualities and attitudes that affect output such as higher educational standards, more sophisticated management and operative

skills in time lead to more efficient levels of operation. Attitudes, however, change slowly and while it is vital that Governments continue their progress in these areas, the rewards are long term in nature. Where rapid increases in efficiency can occur is by a deepening and broadening of the capital base upon which the structure of an industry rests. The benefits accruing to increases in efficiency that are brought about in this way are exponential in character and in themselves lead to a high take-off point being reached for the next growth stage earlier than would otherwise be the case.

If we can apply more effectively efficiency measures, then we should be better equipped to ascertain the quality of the managements that operate the public enterprises. The calculation and comparison to costs is just as necessary for developing the freedom of action of managements as for increasing productivity. If the efficiency of their management is judged by results, they can be given greater freedom to choose whatever methods they wish to take to meet a situation. In particular, the process of decentralisation should be able to proceed faster as techniques for establishing factory costs are worked out. It has been suggested in Britain that an Audit Commission be established that would be able to initiate its own investigations and provide a source of information for Ministers and other interested parties. Sweden has found that the implementation of this suggestion is not as simple as it sounds although I believe that there is much to commend in this idea that we could further discuss.

(b) Public Accountability

There are also political problems that arise partly as a result of the monopolistic nature of many public manufacturing enterprises and partly resulting from the philosophy upon which they are founded. These manifest themselves in the concept of public accountability. There are several points in time at which accountability may be enforced. There is an ex. ante-control when investment programmes are debated and requests for appropriations are made and an ex. post-check when the accounts are audited. Where investigation of current problems occur, there is an additional operational control.

(c) The Swedish Experience

In Sweden the interesting features have emerged from their attempts at enforcing accountability. Firstly, special attention is paid to those enterprises which are monopolies. The Crown exercises rigorous control over financial policy, while Parliament has always demanded special powers over such organisations. Secondly, where enterprises do not pay their way, Parliament again demands

special powers and in this connexion has shown particular interest in the State railways in which large sums of money have been invested with apparently little return. Public enterprises in Sweden are given differing degrees of status and the system allows a review of status to be undertaken as conditions change. A subsidy for example may cease to be necessary: the degree of risk attached to an investment may sharply decline. On the other hand, an enterprise may be given a different status along a scale of control which in one extreme shows continuous scrutiny by Parliament while at the other it becomes spasmodic and selective. Is this one method by which a competitive spirit can be injected into the public enterprise system?

ISSUES TO BE RAISED

This paper has raised several issues connected with the measurement of efficiency in public manufacturing concerns which one can discuss further. The following appear to be the main questions involved:

1. Efficient allocation of resources means investing where the returns to the economy as a whole are greatest. This calls for a common measure of return on new investment. What specific measures can be used to assess the efficiency of investment and how effective are they?
2. How far can 'target' rates of return on capital be realistically employed without removing from the public enterprise system its rather special social obligations?
3. What happens if these 'targets' are not met? Should Government subsidies be applied or a moratorium imposed upon the obligations that have been incurred. Should an enterprise that did not meet its 'targets' yet increase its output nevertheless be regarded as inefficient?
4. If the 'targets' are met, how should surpluses be disbursed?
5. How far should public manufacturing enterprises be free to expand their operations into allied manufacturing activities?
6. How far is it possible to operate public manufacturing enterprises on a commercial basis?
7. What are the problems associated with the recruitment, selection, training and development of personnel engaged in public manufacturing enterprises? What incentives can and should be provided in order to motivate workers?

- and management to achieve a higher degree of efficiency in their tasks?
8. Do you feel that a Prices and Incomes policy, based upon the British model outlined in this paper, will promote increased efficiency in public manufacturing enterprises?
 9. How far should the concept of public accountability be modified in order to provide managements with greater freedom of action in the manner in which they operate their enterprises?
 10. Can efficiency be tested and improved by making international comparisons between public manufacturing enterprises?

TABLE 1
FINANCIAL STATEMENTS OF THE PUBLIC SECTOR
1966-67

	Average Net Assets	Net Income	Net Income as Percentage of Assets	Fixed Investment in the U.K.	Exchequer Loans	Exchequer Loans as Percentage of Fixed Investment	Total Employees at March 1967
	£m.	£m.	%	£m.	£m.	%	'000s
Post Office	1,584	126.5	8.0	266.4(2)	130.0	48.8	422
National Coal Board	794(4)	29.0	3.7	89.9	37.7	41.9	492
Electricity Council and Boards in Eng- land and Wales	3,876	200.4	5.1	644.8	397.0	59.7	229
North of Scot- land Hydro- Electric Board	258	12.8	5.0	9.9	21.3(5)	215.2	4
South of Scot- land Electricity Board	316	14.7	4.6	47.1	21.4	45.4	16
Gas Council and Area Gas Boards	966	46.5	4.8	215.0	164.4	76.5	124
British Overseas Airways Corp.	134	29.0	21.7	11.8	-2.8	-23.7	19
British European Airways	102	4.8	4.8	17.1	5.6	32.7	20
British Airports Authority	54	5.6	10.3	7.0	-	-	3
British Railways Board (6)	1,931	-70.2	-3.6	106.8	5.0(1)	4.7	361
London Transport Board (6)	218	1.1	0.5	22.1	19.5(1)	88.2	74
British Transport Docks Board (6)	95	5.1	5.4	9.8	3.3	33.7	11
British Waterways Board (6)	13	-0.6	-4.9	1.0	0.2(1)	20.0	3
Transport Holding Company (6)	175	14.3	8.2	23.3	10.0	42.9	103
Total, all industries:	10,516	419.3	3.9	1,490.0	817.6	54.4	1,881

(1) These figures exclude debt grants of £150.7 million for British Railways, £5.9 million for L.T.P. and £1.2 million for British Waterways, but even so, do not give directly self-financing ratios for borrowings, which are affected by changes in working capital requirements.

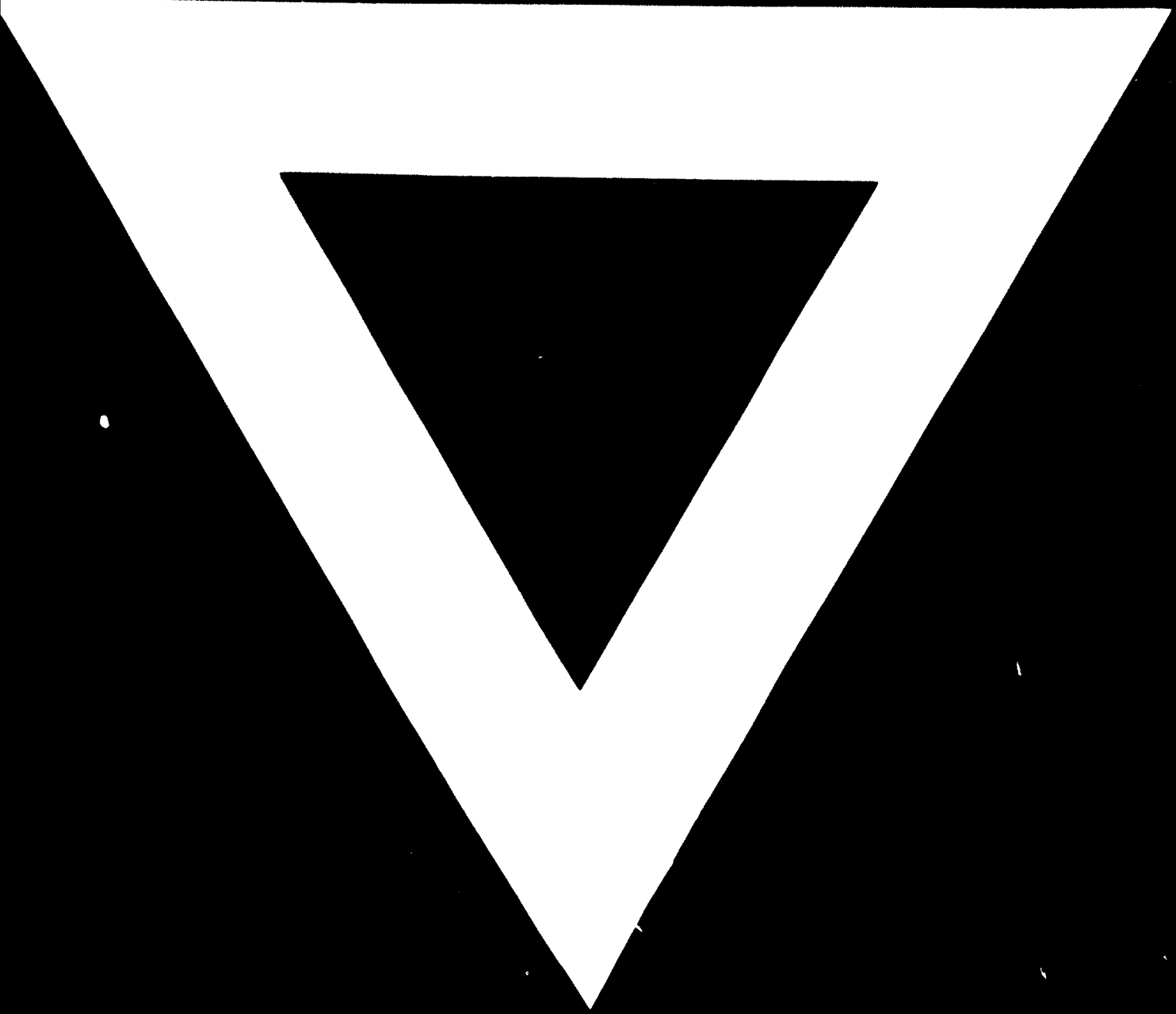
(2) Includes Giro Development Expenses of £0.4 million financed from Exchequer advances.

TABLE 1

(Continued)

- (3) The N.C.B.'s financial year ran from 27 March, 1966 to 25 March 1967
- (4) Reflects only part of the capital reconstruction under the Coal Industry Act 1965. Approximately £156.5 million remained at 25 March 1967, to be written off from the Reserve Fund.
- (5) Includes £14.8 million advanced to finance both market purchases of the Board's own stock for cancellation, and the redemption of £13.2 million of the Board's 4½% 1965-66 stock.
- (6) For the calendar year 1966.





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