

PRICE DETERMINATION IN PUBLIC ENTERPRISE: THE MARGINAL COST CONTROVERSY AND OTHER RELEVANT ISSUES

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I. INTRODUCTION

Government entrepreneurial activity has become of importance in modern societies, since the state participates directly in the productive process, in fields of an industrial and commercial nature, which have been traditionally regarded as being confined exclusively to private activity. Instances of public ownership can be found in practically every country of the world today. State entrepreneurial activity is acquiring increasing significance especially in the underdeveloped countries, in which public enterprises perform functions promoting the endeavour towards a higher degree of economic development.

There seem to be certain fields which are more likely to have been put under state ownership than others, in most countries. These sectors form the basis on which the whole economic system is founded and as such they have been seen as being part of, or forming the so-called Social Overhead Capital of an economy. The industries forming the Social Overhead Capital are distinct from the Directly Productive Activities which comprise all other productive functions in the country¹. Thus, in most countries state enterprises are to be found in such fields as transportation, ports, communications, electric power, gas, water supply etc., being industries which confer social benefits on the community as a whole and which have relatively high social marginal productivity, although their private marginal productivity, namely their direct profitability to the entrepreneur, may be relatively low.

Much attention has been devoted in recent years to the financial and economic aspects of public enterprises and economists have been

1. See A. O. Hirschman: *The strategy of Economic Development*. New Haven, Yale University Press 1958 p. 83 and G. M. Meier and R. E. Baldwin: *Economic Development: Theory, History, Policy*. New York, John Wiley and Sons Inc. 1959, p. 373.

attempting to formulate principles according to which the policies of state-owned industries should be determined.

Some of the most important problems which arise in this respect, concern the issues inherent in the determination of price policies of public enterprises and they have caused much discussion and controversy among writers. Prices of products of state enterprises, it is argued, are not determined by the market mechanism, being «managed» prices rather than «free» prices. In the absence of competition and of the profit motive which is the main driving force of the private entrepreneur, how should tariffs in public enterprises be determined? What criteria should be used in deciding them? It becomes obvious, it is said, that appropriate substitutes must be found to the profit motive and to the market mechanism which will guide price policies. Thus, many writers have attempted to formulate rules which would be easily applicable by the relevant industries and which, when applied, would permit the achievement of optimum welfare conditions to the individual consumer and to the community as a whole.

II. COSTS OF PRODUCTION AS A GUIDE TO PRICE DETERMINATION.

Most economists, however, seem in principle, to agree that the more appropriate guide to policy can be none other than costs of production and that prices should reflect costs as closely as possible. This should have the meaning, not only that total outlays should be covered but also that relative prices should correspond to relative costs.

Although most writers seem to adopt this general idea, a considerable controversy exists¹ as to which costs should be the ones

1. See H. Hotelling: «The general welfare in relation to problems of taxation and of railway and utility rates» *Econometrica* July 1938.

T. Wilson: «Price and output policy of state enterprises». *Economic Journal*, December 1945.

R. H. Coase: «The marginal cost controversy» *Economica* August 1946.

W. A. Lewis: «Fixed costs» *Economica* November 1946.

H. Norris: «State enterprise price and output policy and the problem of cost imputation» *Economica* February 1947.

C. A. R. Crosland: «Prices and costs in nationalised undertakings» *Oxford Economic Papers* January 1950.

I. M. D. Little: *A critique of welfare economics*. Oxford, Clarendon Press 1957.

J. Wiseman: «The theory of public utility price — An empty box» *Oxford Economic Papers*, February 1957.

M. J. Farrell: «In defence of public-utility price theory». *Oxford Economic Papers*, February 1958.

according to which prices should be determined: should they be average costs or marginal costs? And on which grounds should one of them be chosen as preferable to the other?

If public enterprises operated under circumstances of perfect competition, then price would be equal both to average cost and to marginal cost. But since most of them enjoy a high degree of monopoly, there may be no such possible price equal to both of them. In this way, a divergence between average costs and marginal costs is likely to occur.

Marginal cost will be lower than average cost in decreasing costs' industries and such are most of the public enterprises, owing to the significant «indivisibilities» which are involved in them. In these industries the greater the output produced the smaller marginal costs will be, owing to economies of scale and the fuller utilisation of capacity. Therefore the divergence between average cost and marginal cost can be quite large.

If the principle of average cost pricing were adopted, price ought to cover the money outlay required to produce the relevant output (current costs) as well as outlays on the «indivisible» factors, or «overhead» costs. However, it is advocated, that the inclusion in the price charged of payments for «indivisible» factors, prevents the achievement of the optimum welfare conditions in the community, since consumers who are willing to cover the extra costs required to increase output, are denied consumption of the relevant products, because they cannot contribute to the covering of overhead costs. This will lead to relatively small consumption and therefore optimum welfare conditions will not be achieved. Thus, average cost pricing as a guide to price policy, is rejected by many, on the grounds that it prevents achievement of the maximum possible welfare to the consumer.

In view of the fact that average-cost pricing fails to maximise welfare, another rule must be found which will fulfil this requirement. Such a rule is advocated by many to be the marginal — cost principle.

Pricing at marginal cost, requiring only the covering of the money outlays needed to produce additional units of output, would make possible greater consumption of the relevant output and would increase total welfare to the community. It is therefore advocated that the marginal-cost principle should be preferred to the average-cost one, on welfare grounds.

Many problems are bound to arise if this rule were adopted. First of all, if tariffs charged are going to cover only marginal costs, how should then costs on the «indivisible» factors employed in the industry, be covered? Most of the state enterprises are highly capitalised industries, therefore these costs are not likely to be negligible and an appropriate method of covering them should be found.

It is proposed that such a method would be the covering of them by the Government through general taxation. This, however, would imply redistributions of income from non-consumers to consumers of products of state enterprises, disturbing the welfare conditions connected with a given distribution of income brought about by the ordinary redistributive budget process. No comprehensible criterion exists which would justify such a redistribution in favour of consumers of products of public enterprises. Thus while the marginal-cost rule is proposed on «welfare» grounds it is obvious that it should be rejected because it distorts the pattern of income distribution brought about by general taxation: the more so, in view of the fact that overhead costs are likely to be relatively high, most public enterprises being capital-intensive industries.

A second problem arising if marginal-cost pricing were adopted and «capacity» costs were covered by a state subsidy, would be that no definite criterion for investment would exist. If only marginal-costs were covered consumption would increase considerably and it would become necessary to build new plants in order to produce the additional output demanded at that price. This would create over-expansion of the relevant industry which would absorb resources from other industries and in this way the inter-sectoral «balance» which ought to exist, dictated by consumers' preferences, would be distorted. Misallocation of resources would be created in the economy and no realistic check on investment would exist.

A third problem arising, is connected with the indivisibility through time of factors of production employed by public enterprises (temporal indivisibility)¹. The advocates of the marginal-cost principle, distinguish between «current» and «past» opportunity-cost problems and propose that in deciding prices, no account should be taken of opportunity costs borne in the past. However, the problem is that it is not easy to decide which opportunity-costs are «past», because the dura-

1. See the discussion in J. Wiseman: «The theory of public utility price — An empty box». Oxford Economic Papers February 1957.

bility of factors of production employed, depends on arbitrary calculations and value judgements as to the length of life of them. It has to be decided which costs are to be treated as «investment» or «past» and which as subjected to the marginal-cost rule and no principle exists for this decision. Various answers could be given to this question and therefore marginal-cost is a magnitude to be decided subjectively and not objectively. Furthermore, even if a proper criterion for the distinction between current and «past» costs existed it would be impossible to impute with any degree of precision to individual consumers the marginal costs involved in the production of output consumed by them. Arbitrariness would therefore be unavoidable in trying to calculate marginal-costs.

These deficiencies make the marginal-cost rule unacceptable and inapplicable in practice. The marginal-cost principle is offered by economists as a tool which, if applied, would lead to maximisation of welfare and «optimum» allocation of resources. However, the supposedly optimal character of marginal-cost pricing depends upon all the optimum conditions being satisfied in all parts of the economy. The condition «let price equal marginal cost» which is the basic welfare theorem of pure competition, presupposes that «ideal» conditions exist in all sectors. A policy of marginal-cost pricing has no theoretical justification whatever, unless universally adopted by all industries and not only by state enterprises¹.

To overcome the deficiencies demonstrated above, two modifications of the marginal-cost principle have been proposed by some writers :

a) The two-part or multi-part tariff² is the proposition that the price to be charged should be the sum of two parts : a marginal-cost part designed to cover outlays required to produce additional output and a «fixed» part which would cover «overhead» costs. In this way, it is argued, total costs of production will be covered while a clearly defined relationship between additional outlays needed to produce «marginal» units of output and tariffs charged, will be established. Furthermore, a realistic check on investment will in this manner be created and inter-sectoral resource allocation according to consumers' preferences will not be distorted.

This could be so, if a satisfactory method of calculating these

1. See I. M. D. Little: *The Price of Fuel*. Oxford : Clarendon Press, 1953, p. XIII.

2. See R. H. Coase: *op.cit.* p. 170 ff.

two types of costs and imputing them to individual consumers, according to objective criteria, could be formulated. In the absence of such a method, arbitrary means must again be used in the relevant calculations. Therefore this modification though providing a solution for the covering of total costs and the avoidance of subsidisations from the government, does not provide an objective means of tariff determination.

b) Another modification proposed by some economists is the so-called «club» principle. This is a proposition to consider the consumers of products of public enterprises as a «club», which has been created to arrange both the amount of the goods or services each individual shall consume and the amount he shall pay for them. In this manner, total costs will be covered and marginal consumers will not be denied the output which they are willing to consume. Therefore welfare maximisation will not be prevented.

The application of this principle would inevitably result in price discriminations, leading to the charging of different prices for identical products according to the «ability» or «willingness» of consumers to contribute to costs. As no criterion exists for this discrimination, arbitrariness would again creep in. Moreover, income redistributions from one group of consumers to another would be unavoidable. Therefore this modification also presents serious deficiencies, which make it unacceptable.

From the above discussion of the proposed principles it is apparent that no one of them is without serious faults and therefore no general pricing rule can be held unambiguously to bring about an «optimum» use of resources by public enterprises. No single formula according to which tariff fixation could be brought about spontaneously, can be found. In the complicated real world one should not expect such simplicity and spontaneity.

Although economists advocate that the marginal-cost principle if used, would maximise welfare, the only way of using it in practice, would probably be to calculate additional costs from a new plant and this being considered as the marginal productive unit, to try to attribute the average costs of the marginal firm, to new consumers. The marginal approach in this sense, has some value and meaning if broadly enough interpreted, although as Mr. Crosland points out this is marginal-cost pricing in the «old-fashioned» sense¹. According to his view, this would also be an appropriate criterion for investment, in the sense that

1. Crosland: *op.cit.* p. 55.

if price more than covered the average cost of the marginal plant, this would be an indication that productive capacity should be expanded through new investments.

However, this could be only a very rough guide, which cannot be said to establish the merit of the marginal-cost rule as providing an unambiguous tool in price determination. One should not expect, therefore, to have a single formula according to which, prices, should, so to say, automatically be determined. Even in the private sector entrepreneurs mainly concentrate their efforts on covering their overall costs of production and making aggregate revenues exceed as much as possible aggregate outlays, approaching in a pragmatic sense the profit maximisation process.

Public enterprises like private ones, aim primarily in covering their overall costs of production, as well as fulfilling the obligations imposed upon them by Parliament. Especially in less developed countries the role of the public enterprises is important in the effort to promote economic development. In trying to perform their tasks they have to deal with complicated practical problems, which no single pricing formula can solve, and have to pursue aims, which are not always mutually compatible. Many currents and cross-currents underlie price determination in public enterprises. The price policy of them must compromise conflicting objectives of a very delicate nature and no rough-and-ready calculation can be of much use for that purpose.

Bearing in mind all these, one should agree with the statement of Mr. J. Wiseman that «... failing some universally acceptable theory of public economy by reference to which policy could be decided (and the possibility of such a theory is doubtful), economists would find their efforts better rewarded if they ceased to seek after general pricing rules and devoted attention to the examination of the policies actually adopted by governments, in order to discover their effects and make clear to the government and to the electorate the nature and consequences of the policies actually being pursued»¹.

The most appropriate method of approaching price policies of state enterprises would be to attempt an analysis of the problems and sub-problems which are likely to occur in practice and try to discover on what principles, if any, they are or they should be based and what means are employed to pursue the desirable ends. It is not as easy as it is sometimes thought to trace the relationship between ends and

1. J. Wiseman: op.cit. p. 74.

means, or it may be that the means employed lead to other ends than it was originally intended. The analysis therefore seems quite necessary and only after such an analysis would one be able to understand the true meaning and impact of price policies in the real world.

Price policies of state enterprises must be discussed and evaluated within the scope and in relation to :

- a) The given set of economic circumstances and the degree of development of an economy.
- b) The general government policy.
- c) The position of the relevant enterprise in the given economy, and the influence it can exercise on economic circumstances.

III. RETURN ON CAPITAL.

In the previous pages it has been advocated that all writers seem to agree that prices should follow closely costs of production, although it was shown that no agreement exists whether marginal-costs or average costs would be the ones according to which prices should be determined. What is, however, exactly meant by «costs»? Would it be acceptable that in costs ought to be included a return on the capital invested in public enterprises? This problem is another point on which no agreement exists and it is, therefore, necessary to consider what would be the answer to be given to such a question.

In private economy, the profit motive is the main driving force and the entrepreneur must expect to earn some surplus over and above costs of production in order to undertake certain economic activity. This is not and should not be the case however, it is advocated by some economists, with state enterprises, which are established in order to «serve the public» and to pursue the «national interest». State enterprises, it is said, having a «public utility» non-profit character should not expect any return above their paid-out outlays and they should charge tariffs just high enough to cover costs of production.

This idea overlooks the actual role and obligations of state enterprises in a contemporary society. It is unrealistic, besides being incompatible with the provisions of the statutes, in most countries, which usually require public enterprises to operate and behave «commercially» and «according to the rules of private economy».

The making of a surplus by public enterprises above their paid-out costs, must be considered not only as permissible but as absolutely necessary for the progress and expansion of the relevant enterprises

and for the maintenance of a proper inter-sectoral «balance» as regards allocation of resources according to consumers' preferences.

However, it should be worthwhile to examine the arguments of those writers who oppose the making of a return on capital by state enterprises, so as to see if they have validity and if so, to what extent they could influence the framing of policies in the real world.

It is firstly argued, that a return on capital would mean higher prices of the goods and services provided by public enterprises. Given the fact that consumers tend to buy less of more expensive goods, this would result in restricting consumption of these products.

In this way, consumption might become «inadequate», not only from the point of view of the individual consumer, but also from the point of view of the community as a whole, given the fact that increased consumption of certain products satisfies «merit» wants, bringing about social benefits additional to the benefits obtained by the individual consumer of such products. For instance, the larger consumption of electric power is, the more it is likely to create such additional social benefits as the improvement of educational and technical standards of the population of a country, apart from the benefits of the individual consumer who makes use of the «extra» amounts of electricity. Therefore, it is said, it would be against the interests of the community as a whole to charge higher tariffs in order to create surpluses in public enterprises. This policy would result in inadequate consumption¹ and under-expansion of the relevant industries. It should, therefore, be avoided, even if the consequence would be that no surpluses are made.

This argument fails to take into account the fact that if tariffs charged for products of public enterprise did not contain any «profit», while prices of all other goods in the economy did contain such a «profit», prices of the former would be too low as compared with prices of the latter. This would result in excess increase of consumption of products of public enterprises, bringing about over-expansion of the relevant industries, in the expense of all other sectors of the economy. Thus, the public sector would attract more resources than economic consi-

1. This argument acquires greater importance, if demand for products of public enterprises is elastic (e.g. because of the existence of close substitutes). Then a small rise in price can greatly reduce demand and output. If demand is relatively inelastic, the argument loses most of its importance. See W. A. Lewis in Robson ed. *Problems of Nationalised Industry*. London, George Allen and Unwin Ltd. 1951, p. 182.

derations would justify and «optimum» allocation of resources according to consumers' preferences would be distorted. This would be against the «ideals» of a democratic society, in which one of the primary aims is the maintenance of the freedom of choice of the consumer.

Moreover, it cannot be easily proved that increased consumption of a product provided by a state enterprise e.g. of telephone services, is of more importance to the community than the increase of consumption of certain goods produced by private firms e.g. foodstuffs. Therefore no precise criterion exists as to why public enterprises should be favoured against all other industries, and why the benefits stemming from increased consumption of their products would be «superior» from those stemming from larger consumption of other goods and services.

A second argument against a return on capital in public enterprises, is that to make such a return would mean to tax the consumer of products of public enterprises, for the benefit of the taxpayer. Any return in the public sector, it is said, represents some form of indirect taxation. It is therefore inequitable because it does not take into account relative economic positions of those subjected to taxation, but is imposed on all consumers indiscriminately. In this way, it has redistributive effects, distorting the given distributional pattern brought about by general taxation.

If it is felt that a return on capital must be made, it is argued, it would be better to consider the relevant enterprises as a means of redistributing income, namely as a part of the general system of indirect taxes and subsidies. In this way, their price policies would be discussed by Parliament at the same time as the annual budget and the rest of the tax policy, so as to take into account the redistributions of income which they cause.

The idea that the return on capital is a «tax» is not correct. Public enterprises should be treated as all other bodies which pursue economic activities, therefore their surpluses should be considered as «payment» to a factor of production, namely to capital. The fact that public enterprises belong to the state does not alter enough their character, as to give the features of a tax to any profit which they gain. Such profits therefore are not indirect taxes and the argument of redistributing income cannot be considered as of any validity.

A third argument presented, is that in private economy the main justification of profits is the risk-bearing of the entrepreneur. The greater the risk is, the higher profits expected must be, to persuade the private entrepreneur to indulge in certain economic activity. But

in state enterprises, it is said, no risk exists and therefore no profit is justified ¹.

The fact is that risk does not disappear when an industry passes from private to public hands, but it is supposedly transferred to the community at large, namely to the taxpayer who will cover any deficits, if losses occur. If the enterprises are expected to operate «commercially» however, there is no reason why they should expect the taxpayer to cover their losses. They should be in a position to cover deficits from funds accumulated in previous years.

Furthermore, it must be borne in mind in connection with this argument that profit in the private sector is not justified only because of the existence of risk, but may be due also to other factors such as the exploitation of technical innovations. If therefore public enterprises could by innovation earn profits, there is no reason why they should be stopped. They should not be denied an incentive for development which has had such importance for the technical progress of our time.

A fourth argument against, is the «marginal-cost» argument, stemming from the discussion of the previous section. In order to maximise welfare to the community, it is advocated, price should equal marginal-cost, therefore no «profit» should be made. It was indicated above, however, that the marginal-cost principle is inapplicable in practice, therefore it could not justify the opposition to a return on capital.

A fifth argument is that higher prices of goods and services provided by state enterprises, might induce an increase of consumption of close substitutes which have to be imported from abroad (e.g. high price of electric power might increase imports of petroleum and coal). Thus, imports would increase and a drain on the foreign exchange reserves of the country would be effected, which might create difficulties in the balance of payments.

This is unlikely to happen, at least to a considerable extent, given the fact that prices of the close substitutes to be imported will normally include «profits» and will also be burdened with relatively high transport costs in comparison with the locally produced goods of state enterprises.

If in spite of all these, imports of close substitutes increased, con-

1. Similar is the argument of the Herbert Committee that reported on the electricity supply industry in Britain according to which public enterprises are not justified to make a return because they do not win it as a «price» for «efficient rivalry» as private enterprises supposedly do. See Report of the Committee of Inquiry into the Electricity Supply Industry (Herbert Committee) Cmd. 9672/1956.

siderably, this would simply mean that products of public enterprises are produced at extremely high cost, therefore all efforts should concentrate on suppressing costs of production. Or else, this might mean that the exchange rate of the relevant country is not the proper one, therefore a devaluation of the currency might be necessary¹.

A sixth argument is that higher tariffs for the goods and services produced by public enterprises would increase costs of production in general, since most of such products enter prominently into the costs of all other enterprises. Thus, external diseconomies would be created which would have adverse effects on investment, restricting expansion of already existing firms or preventing the establishment of new industries, their operation being made uneconomic. This would constitute a hindrance to development and therefore tariffs in state undertakings should be kept as low as possible, to create external economies for industry.

This argument has some validity, especially for less-developed countries, where cost conditions are particularly unfavourable to industry. It is necessary that every possible effort should be made to create external economies and minimise costs, in order to promote industrialisation. However, the external economies which would be created by charging slightly lower prices for products of public enterprises would be relatively unimportant and would not be able by themselves to compensate for other factors which are missing (such as for instance the small size of the market, or the lack of skills), and other more effective government measures would be needed. Therefore this argument does not provide enough grounds to justify the prevention of making surpluses in state enterprises.

Finally, a seventh argument presented is that if surpluses were made by public enterprises, requirements for higher wages and salaries might be induced by this, if employees saw that the enterprises make «profits». If wage-increases were given this would not only push costs of production up in the enterprises themselves, but might also induce requirements for wage-increases in private industry. Moreover, as products of state enterprises enter in costs of production of most other sectors, this might create cost-increases in the economy at large, creating dangers of inflationary tendencies.

As regards this argument, it should be recognised that price and

1. See W. A. Lewis in W. Robson ed. op.cit. p. 185.

salary increases in the public sector should be granted with the greatest possible caution, because of the widespread implications which they can have on all parts of the economy. But tariffs of products of public enterprises alone cannot bear the burden of checking inflationary tendencies¹. Even if such tariffs were kept down, all other prices in the economy would still be subjected to inflationary pressures. Therefore other more general means of stabilising the economy should be applied.

From the above discussion it is obvious that the opposition to the making of a return on capital is not justified. Most of the arguments against the making of a return on capital are ambiguous and they do not provide sufficiently strong reasons according to which public enterprises should not be allowed to make a return on capital.

The only arguments which seem to have some validity are the two last-mentioned ones, concerning the creation of external diseconomies and the danger of inflationary tendencies. These would give some reason for avoiding as much as possible price increases in the public sector, but they are not strong enough in themselves to justify the prevention of the making of surpluses.

On the contrary, some very important reasons which exist make not only desirable but also utterly necessary the accumulation of reinvestible funds by public enterprises. These reasons are the following:

First, public enterprises, being mostly either industries having to cope with a rapidly increasing demand (e.g. electricity) or industries with installations and equipment of a high degree of obsolescence (e.g. railways), need enormous amounts of capital to finance modernisation schemes and expansion programmes, so as to be in a position to provide the «adequate» standards of service expected from them. In underdeveloped countries, public enterprises must also promote economic growth in their respective fields and thus they need still greater amounts of capital in order to perform this task.

These great amounts of funds they cannot easily find from elsewhere in the present conditions of scarcity of capital, both in the internal and the external capital markets. It is necessary that they should provide a considerable part of the funds needed from their own resources. They have no other alternative, if they want their investment programmes to be carried out.

Second, it is well known that the most important source of capital

1. See W. A. Lewis: in Robson ed. op.cit. p. 185.

of private enterprises today, are profits ploughed-back into the business. In Britain for instance, it is estimated that no less than seventy-five per cent of the funds which financed investments in the last five years or so, came from undistributed profits¹.

Public enterprises, like private ones, must contribute to saving and capital formation, otherwise total amount of saving will be smaller, and less funds will be available for new investments². It must be kept in mind that surpluses of state enterprises represent some form of compulsory saving and therefore are likely to increase total amount of accumulation, promoting expansion and development in the economy. It would not be desirable, from the point of view of growth, to pass on the benefits from lower prices to the consumer. The individual consumer might not be induced by that to save more and as regards the industrial consumer, he might just as well not use the resulting higher profits for purposes compatible with further growth. Therefore it is to the interest of the relevant country to have public enterprises create surpluses, in order to contribute to saving and capital formation. This is more so in under-developed countries in which the scarcity of capital and the needs stemming from the effort for economic growth point to the desirability of making surpluses in public enterprise.

Third, if public enterprises were not in a position to contribute at least partly to the financing of their projects, they would have to ask for additional funds from the Treasury. But as the amounts which they would need, would be relatively large, it would be difficult for the Exchequer to provide the necessary funds, without imposing higher taxes. An increase in the level of taxation might thus, become inevitable, in order to provide money for this purpose. However, this might be undesirable from the point of view of the Government's general economic policy. Tax-increases may be undesirable on the grounds that they might have adverse effects on investment decisions in the private sector and create rigidities and extra burdens that impede further growth. Instead of choosing the roundabout method of letting private firms accumulate higher profits through low prices in public enterprises and then having to take them again through taxation, why not adopt instead, the more convenient method of permitting a return on capital directly?

1. W. Robson: *Nationalised Industry and Public Ownership*. London, George Allen and Unwin Ltd. 1960. p. 307.

2. See I. M. D. Little: *A critique of welfare economics*. Oxford. Clarendon Press 1957, pp. 214-216.

Fourth, if not through the Treasury, then the amount of capital required would have to be found through borrowing, internally or externally. If public enterprises borrowed more funds internally, this would create a strain in the domestic capital market, since they need to borrow very vast amounts of money. They would have to compete with private enterprises and this would force up interest rates and would increase capital costs to the economy. Less funds would be available for private firms and their expansion would be restricted.

If state enterprises wished to borrow more, externally, it is doubtful whether they would be able to find the amounts they need. It must not be forgotten that scarcity of capital exists also in international capital markets. Thus, in a way, they have no other alternative if they want their investment schemes to be carried out, but to provide through self-financing, at least some of the funds which they need.

Furthermore, even if funds came through borrowing, the burden would again have to be borne in the long run by the consumer who would be charged higher tariffs in order to pay interest on these loans. This might also bring about redistributions of income in favour of certain members of the community (bondholders).

A fifth reason for which a surplus should be made by public enterprises is that customers of such enterprises, should be charged something against the privileges public enterprises enjoy when borrowing with Treasury guarantee. In doing so they benefit from borrowing terms based on government credit rather than their own¹. Thus, the interest rate which they pay is usually lower than that which they would have to pay to borrow directly from the market. Also by borrowing through Treasury guarantee public enterprises «avoid the queue». When it is realised that access to the market is not always free, but up to a certain point it is controlled, it becomes of importance that they enjoy some sort of priority². Against these two advantages it is reasonable to charge something on the customers of these enterprises, otherwise their prices would not reflect true costs of production.

Sixth, it must be borne in mind that the capital of state enterprises, is usually partly granted to them by the Treasury and partly borrowed. For the part which they borrow they have to pay interest

1. This especially benefits those industries with low credit-rating, such as the railways, which would have to offer much more tempting terms to borrow directly from the market.

2. See R. S. Edwards: «The influence of nationalised industries». Public Administration, Spring 1961, p. 45.

and amortization. For the part which was granted to them by the state they usually have no obligation to pay any return¹. For this latter portion of capital they should be obliged to make a return *in lieu* of interest, so as to introduce a similar treatment of both types of capital. Otherwise the lower capital costs which result, would bring about an over-expansion of the relevant industries.

Seventh, it is well known that in private industry entrepreneurs try to cut down costs and take certain risks in order to increase profits. Thus, the directors of big companies try to make as large profits as possible for the sake of the shareholders. In a similar way, directors of public enterprises might be induced to minimise costs and adopt more economical practices, in order to make surpluses, if they were allowed to do so, finding that the industry which they administer, gains in prestige if higher profits are realised. It is desirable that similar incentives for better operation and management exist for public enterprises as they do for private ones. It is therefore necessary that public enterprises are not denied the incentive of profitability which has been of such importance for the progress of our time.

From the above discussion, it becomes clear that while the arguments against the making of a return on capital are mostly vague and unrealistic, the reasons in favour of it, are of extreme importance, and this is a matter on which the whole future of public enterprises and the progress of society depends. It should therefore be accepted as a principle that a necessity of this kind exists today and proper provisions should be included in the statutes, enabling and if necessary compelling public enterprises to make a return on capital and accumulate surpluses.

3. See the analysis in Pella Lenoudia «The finance of public enterprises in Greece» Ph. D. thesis (typescript) London University 1962 p. 230 ff.