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MARGINAL PRICE POLICY AND DISTRIBUTION OF RESOURCES

—Controversies about the effects of Nationalization—

by

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1. Preface

Following the nationalization of some fundamental industries in England since 1945 the economic problems of that nationalization have been discussed not only in practice but also in theory by many economists[1]. For instance; problems about efficiency, management, and labour relations under nationalization. Among these problems the price-policy by which the price of the products of the nationalized industries should be determined contains many problems of great importance, because it affects the allocation of resources, distribution of income and proper balance between work and leisure[2]. The price of the products of these industries cannot be determined by the principle of supply and demand of free market economy, since these industries are owned by the State and the price must be determined according to the principe of the welfare of the whole nation.

1) The following two books discuss the whole range of problems of nationalized industries in England.
W. A. Robson: "Problems of Nationalized Industry", 1952, London, George Allen & Unwin Ltd.
Ben W. Lewis: "British Planning and Nationalization", New York, George Allen & Unwin Ltd, 1952.

2) J. E. Meade: "An Introduction to Economic Analysis and Policy", London, Oxford University Press, 2nd. ed. 1937. pp. 206–258, pp. 167–189 (cited as Meade I).

In practice a considerable degree of freedom in fixing the price is permitted to the Public Cooperations of these nationalized industries in England. The only statuory obligation in the price-determination requires that a nationalized industry should avoid incurring a continuing loss[3]. There is, however, nothing to prevent it from making a profit.

In theory, however, there have appeared at least 3 princples in determining the price:

1. "Marginal cost pricing",
2. "Average cost pricing",
3. "Some sort of two-part (or multi-part) tariff.

The "Marginal Cost Pricing" had been advocated before 1937 by J. E. Meade and Abba P. Lerner[4] as a correct pricing principle for a nationalized industry. Since 1945, however, controversies have arisen about the advantages and disadvantages of this policy[5]. The other

3) W. A. Robson: op. cit., p. 335.

4) Abba. P. Lerner: "The Economics of Controll", New York, The Macmillan Company, 1944.

5) The following is a list of the main contributions.

a) J. E. Meade & J. M. Fleming: "Price and Output Policy of State Enterprise". Economic Journal, Dec., 1944 (cited as Meade II).

b) R. H. Coase: "Price and Output Policy of State Enterprise: A Comment". Economic Journal, April, 1945. (cited as Coase I).

c) T. Wilson: "Price and Output Policy of State Enterprise" Economic Journal, Dec., 1945.

d) R. H. Coase: "The Marginal Cost Controversy", Economica, Aug. 1946 (cited as Coase II).

e) R. H. Coase: "The Marginal Cost Controverse: Some further Comments" Economica, May. 1947 (cited as Coase III).

f) A. M. Henderson: "Prices and Profits in State Enterprises", Review of Economic Studies, XVI (1948-49). pp. 13-24 (cited as Henderson I).

g) A. M. Henderson: "The Pricing of Public Utility Undertaking", Manchester School, XV (Sept., 1947). pp. 223-50 (cited as Henderson II).

h) J. M. Fleming: "Production and Price Policy in Public Enterprise," Economica, XVII (Feb., 1950). pp. 1-22.

i) E. F. Durbin: "Problems of Economic Planning." London, Routledge & Kegan Paul, 1949.

j) Harry Norris: "State Enterprise and Output Policy and Problem of Cost Imputation," Economica, XIV (Feb. 1947). pp. 54-62.

k) J. A. Nordin: "The Marginal Cost Controversy: A Reply" Economica, XIV (May 1947). pp. 134-39.

two principles were introduced by the opponents agaist the "Marginal Price Policy" during the process of the controversies.

The theory of "Marginal Cost Pricing" war founded at first by A. C. Pigou[6] and refined by A. P. Lerner and J. E. Meade[7]. The idea "The optimum distribution of resources" which is an objct of these controversies was also established by A. C. Pigou[8]. The controversies since 1945 concern the examination of the marginal price policy and the difficulties which arise in its application.

It is proposed to introduce the controversies about the effects of the marginal price policy on the distribution of resources since 1945 and to examine the contents of the controversies. For this purpose it is needful first of all to understand "Marginal Price Policy".

2. Marginal Price Policy

Accoring to J. E. Meade[9] the industries which should be socialized and to which this policy should be applied are those where monopolistic conditions exist and where there is an appreciable discrepancy between the prices paid for the hired factors of production and the value of their marginal products.

The principle of the "Marginal Price Policy" can be expressed as follows:

I) Those in charge of a socialized business should always produce more of the product so long as the price offered for the product is in exess of the current market prices of the factors which would be necessary to produce another unit of the commodity.

II) They should substitute one factor for another to produce the same output, if the current price of the factor thrown out of employment is greater than the current price of that amount of the other facter, which is just sufficient to take its place.

III) They should offer for the hired facror of production —labour, land, capital, or raw materials— prices which were equal to the value

6) Arther C. Pigou: "The Economics of Welfare", London, Macmilian, 1950 (Fourth Ed.). pp. 803-4.
7) J. E. Meade I, pp. 190-205. A. P. Lerner, op. cit., pp. 117-136, pp. 72-87.
8) A. C. Pigou, op. cit. p. 225.
9) J. E. Meade I, op. cit., p. 190.

of the marginal product of these factors[10].

IV) As the marginal cost is below the average cost, the amount paid for the total product is smaller than the total cost, that is to say, there must be a loss.

V) The amount by which total costs exceed total receipts (the loss, as it is sometimes termed) should be a charge on the Goverment and should be borne out of taxation[11].

What are the effects of this "Marginal Price Policy"?

1) The amount of products in the monoplistic industries after sociolization will be increased, because more factors of production can be employed up to the point at which the value of their marginal product is equal to the price for the factor. It is nothing but the modification of monopolistic conditions, in which the reward of production factors is made less than the value of their marginal products[12].

2) Better use of production factors can be achieved, because they flow into those industries in which their output is most desired by consumers and because the ratio between the marginal products of the different employed factors of production can be made nearly equal in every industry by thie flow[13].

3) If there is not rational buyer's preference, the output of an industry may be concentrated on a correct number of firms so that economy of large-scale production can be achieved and the wastes of monopolistic conditions eliminated.

4) If there is rational buyer's preference, the measures by which the state can decide to set up or to close down a particular single firm which produces all the necessary amount of a commodity can be taken according to the value of the marginal product of the management of that single firm[14].

In short the condition of perfect competition can be achieved after socialization through the application of the "Marginal Price Policy"; namely the discrepancy between the prices paid for the factors and the value of their marginal products is removed and the factors of

10) J. E. Meade I, op. cit., p. 193.
11) Coase II, loc. cit., p. 169.
12) J. E. Meade I, op. cit., p. 181.
13) J. E. Meade I, op. cit., p. 180.
14) J. E. Meade I, op. cit., p. 160-163.

production will be employed in the most efficient combinations in difierent industries[15].

3. Controversies about the effect of the "Marginal Price Policy" on the distribution of resources.

One point of the controversies concerns whether the best use of resources can be achieved by this policy, as J. E. Meade, A. P. lerner maintain, and what sort of difficulties the policy must face in its application. Especially controversies have arisen about the method of financing the losses which the socialized industries must incur through this policy. A tax affects the distribution of resource, income and the proper balance between work and leisure[16]. Therefore, if the losses would be covered by subsidy from the State, a tax for that prupose must be chosen which will cause least harm to the best distribution of resources.

There are four objections against the marginal price policy.

1) The first objection is that even the most appropriate method of financing the losses would be harmful to the optimum distribution of resources. J. M. Fleming and R. H. Coase raise this objection[17]. The reason of this objection is that, if the losses were financed out of a tax levied on the product of the socialized industries, which Mr. Coase thinks the only practicable way of raising the additional money, it would, in effect, mean charging a price equal to average cost[18]. There are three possible ways to avoid this difficulty. One of them is by use of the income tax[19]. The second is a tax which is levied on output in general in propartion to the price[20]. (an ad valorem tax.) The third is a tax on land-lent[21]. Meade himself admits that though in the relation of optimum distribution of resources the income tax is the best, it has a disadvantage of disturbing the proper balance bet-

15) J. E. Meade I, op. cit., pp. 113-116.
16) J. E. Meade I, op. cit., p. 233.
17) J. E. Meade II, loc. cit., pp. 332-335; R. H. Coase I, loc. cit., pp. 112-113.
18) J. E. Meade II, loc. cit., p. 333; R. H. Coase I, loc. cit., p. 113.
19) J. E. Meade I, op. cit., p. 235.
20) J. E. Meade II, loc cit., p. 333.
21) Hottelling: "The General Welfare in relation to problems of Taxation and of Railway and Utility Rates", Econometrica, July, 1938. pp. 256-7.

ween work and leisure[22]. Coase rejects income tax because Income taxes are usually so framed that marginal units of income are taxed and therefore an income tax will have the same unfortunate effect on consumers' choice as a tax on goods and "it will produce results similar in character to those which follow from charging an amount for additional units of output greater than marginal cost"[23]. The second method may not offset the effect for the better distribution of resources but annuls some of the benefits of socilaization……the increase in the proportion of national income accruing to labor, the rising of the incentive to work to its appropriate level because the gap between marginal cost and price will remain as great as ever[24]. The disadvantages of the third method are also noted by R. H. Coase[25]. Thus, these two opponents do not expect so great a advantage of this policy in this relation as Meade and Lerner.

Fleming concludes[26]:

> If it is right, after the socialization, to finance the losses resulting from the socialization by method x rather than by a general indirect tax, it would have been right before the socialization to raise money by method x in order to finance a general subsidy on output. The only benefit, therefore, which is properly attributable to the socialization is that of an improved inter-industrial distribution of resources. Any other benefits which may accrue from the fact that the socialization is financed by some other way than by a general indirect tax, could have been obtained by appropriate fiscal measures, without socialization.

To this criticism of Fleming that the benefits of socialization could be obtained by fiscal measures of the State without socialization, J. E. Meade answered that without socialization the subsidy from the State may improve the distribution of incme —but only passively, but full improvement in this respect could only be realized by socialization[27].

2) The socond objecion is raised by R. H. Coase. He argues that

22) J. E. Meade I, p. 241.
23) R. H. Coase II, loc. cit., p. 179.
24) J. E. Meade II, loc. cit., p. 333.
25) R. H. Coase II, loc. cit., p. 179.
26) J. E. Meade II, loc. cit., pp. 333-334.
27) J. E. Meade II, loc. cir., pp. 338-339.

the marginal price policy would lead to a maldistribution of the factors of production between different uses[28]. This objection comes from the following thinking:

> It has been a common place for economists to argue that a consumer should pay the cost of any product which he buys. The reason, as I understand it, is that the cost represents the value of the resources used to produce the product to some other consumers, or possibly even to the same consumer in another use. If the consumer pays either more or less than this amount, his money is not being allowed to command the same resources as it could in some other use or in the hands of some other consumer[29].

If the consumer need only pay the marginal cost, it means that he can use some factor free which should be paid for in another use. It would result in favouring only the consumer of the particular product and there would be discrimination.

3) The third objection concerns the difficulties which arises in the estimation of marginal product. This objection is raised by E. Durbin, H. Norris, and A. M. Henderson[30]. They show different attitudes to the problem of whether the marginal price policy is theoretically correct. What is, however, common among them is the argument about the impracticability of the marginal price policy. Durbin favours the marginal price ploicy and maintains that this policy is indispensable to make the best use of resources. But he points out that the estimation of marginal product is very difficult because "the movements of resources would have to be based upon *estimated*, and not upon realized marginal product. —To discover them (the marginal products) the physical result of a radical reorganization of the production unit must first be estimated. The demand curve for the product must then be calculated. The margin of error in both calculations is likely to be great and the resulting value product doubly so"[31]. Thus Durbin prefers the average cost principle on account of "the great advantage of

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28) Coase III, loc. cit., p. 174.
29) Coase I, loc. cit., p. 112.
30) E. Durbin: op. cit., pp. 143-144, Norris, loc. cit., pp. 54-57, Henderson II, loc. cit., p. 17.
31) Durbin, op. cit., pp. 143-144.

simplicity" over the marginal price policy[32]. The same objeccion is raised by H. Norris, an accountant. After pointing out the divergence of the abstract economic model of Meade and Lerner from the real economic world, Norris attacks the marginal price policy. The first difficulty which Norris raises is that the marginal price policy would reqire too frequent price changes, because "the impact of indivisibilities varies at the margin of the lump of factor— the marginal cost of an extra unit beyond one plateau of capacity may be very great"[33]. The second is that the equilibilium between supply and demand could not be attained in a short time, if the price would be changed frequently and such disequilibilium would disturb the system of distribution[34]. Thus Norris concludes:

> The golden rule of adminstration under public enterprise is to fix prices so to equate demand with current output and to expand or contract according as there is a profit or loss until price equals average cost[35].

4) The fourth objection is that the marginal price policy would bring over-investment. A. M. Henderson, R. H. Coase, and J. M. Fleming made this objection. Fleming argues that as "In most branches of production, output is not carried to the point beyond which the value of additional factors would exceed the value of additional output and, therefore, the prices of employed facors will in private sector fail to reflect the full value of marginal productivity[36], there will be "excessive diversion of resources" in socialized sector if the production will be increased in the sector until the value of additional output becomes equal to the value of the corresponding additional factor cost. Henderson finds this over-investment more harmful than the under-expansion due to the average cost pricing[37].

These four are the main points of the controversies in relation to the distribution of resources. Though the controversies contain discussions about the advantages and disadvantageso f other two methods,

32) Durbin, op. cit., p. 151.
33) H. Norris, loc. cit., p. 56.
34) H. Norris, loc. cit., p. 56.
35) H. Norris, loc. cit., p. 61.
36) M. Fleming, loc. cit., p. 4.
37) A. M. Henderson I, loc. cit., p. 18.

the discussion must be omitted because of limitation of space.

Concerning the first objection, the methods of financing the deficit must be different according to the conditions under which the method will be applied. Such suggestion has been already made by A. M. Henderson[38]. The second objection is wrong, because the industries which should be socialized are monopolistic and the reward for the factor of production is lower than the value of its marginal product. The harm owing to the reward being lower than the value of marginal product in monopoistic enterprise is greater than the harm of preventing the consumer from making rational choice. The third difficulty of the impracticability is the most serious, but may be solved by the development of technics of cost-accounting. The fourth objection is not serious, because, as Beckwith says[39], in the most industies which should be socialized, the greatest difference between average and marginal costs exists and the average-cost pricing tends to results of underexpansion and idle capacity.

4. Conclusion

Through the controversies disadvantages of this marginal price policy and difficulties in the application of this policy were pointed out. But the opponents also admit the merits of this policy and the argument of Lerner and Meade that the price should be made equal to the marginal cost in the socialized industry has not been denied in theory. Two problems which are important for the investigation of future should be pointed out. One is the problem of the practical application of this policy. None of economists has attempted it. There must appear the discussions of the practical application in future. The second concerns the investigation of the conditions in which the socialized industry works. The pricing policy must be different according to the condition. Though this problem was solved through the controversies to some extent, the complete solution belongs to the future.

38) A. M. Henderson II, loc. cit., p. 241.

39) B. P. Beckwith, "Marginal-Cost Pirce-Output Controll", New York, Columbia University Press. 1955. p. 145.