Growth Maximization, Egalitarianism and Wage Differentials in the Socialist Economy

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The original motivation of the present analysis was to provide a theoretical framework to explain the wide inequalities in the distribution of personal incomes which have characterized the Soviet economy, particularly since 1931. These inequalities seem to be in blatant contradiction with the egalitarian ideology which, to some extent, is a part of every brand of socialism, including Soviet marxism[1]. One likely explanation of this contradiction is that the Soviet (and especially Stalinist) obsession with growthmanship has overruled every preoccupation with egalitarianism, and that Stalin's famous rejection of egalitarianism in 1931 was due to the fact that the latter obstructed his primary aim of realizing the fastest pos-

[1] There are, however, some dramatic swings on the issue of equality in Soviet Marxist writings. For two extreme views, contrast Lenin's position in State and Revolution (1933, p. 71 ff.), according to which in both Marx's phases of communism equality is pursued; in the first in a formal way through equality of wages; in the second more substantially, through "distribution according to needs", with Stalin's contention in his 1931 interview to Emil Ludwig that "equalitarianism has nothing in common with Marxist Socialism" (Stalin, 1955, p. 121). See also the content of his speech of June 23, 1931 (ibidem, p. 57 ff.).

sible expansion of the Soviet economy (or, at least, of its industrial sector). But in which sense can it be said that egalitarianism can obstruct growth? While wage differentiation can, to a certain extent, lead to higher productivity because of incentive effects, the payment of higher wages to some groups of workers will, at the same time, give rise to a higher consumption fund, and this can prevent surplus maximization. Under these circumstances, will an optimal structure of wage differentials exist, as far as the maximization of investable surplus is concerned? And how will this optimal wage structure be characterized?

In the following analysis we shall see that, under rather general assumptions, such an optimum wage structure does exist and we shall derive an interesting characterization of the optimum point. However, no attempt will be made to answer the empirically relevant questions of how much inequality is in fact needed for growth maximization purposes and of whether the obsession with growthmanship could really account for the extent of inequality in the distribution of personal incomes in the Soviet Union, especially during the Stalinist era[2]. It seems to me that, in any case, it would be exceedingly difficult to give a conclusive answer to these questions, but I hope that the content of this paper will provide some analytical starting point for the study of these interesting problems. It will also be shown that, contrary to a widespread belief, even if in the model of a centrally planned socialist economy the State owns the means of production and fixes prices and the wage rates, the income tax has nevertheless a useful task to perform, both for financial as well as for redistributive purposes. Moreover, while my main concern has been with the economics of socialism, it seems to me that, to some extent, the present analysis could be relevant in any situation where the search for a wage structure which maximizes surplus is a relevant problem. If the main purpose of the present analysis is to identify a structure of wages which maximizes investable surplus and therefore growth, this is because we suppose that the surplus is invested. The reasoning does not change much if we are concerned solely with surplus maximization, whatever the uses to which the surplus is put. In the case of a socialist economy surplus could e. g. be used also for defence, foreign aid, social security or the performing arts. I have

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[2] There are also non-economic explanations. The explanation of some of Trotsky's followers, e. g. runs in terms of "new class" and of bureaucratic exploitation. An interesting account of the socio-political side of the problem is given in Lane, 1971.

chosen to suppose that the entire surplus is invested, because historically the dominant concern of Soviet planning has been the maximization of industrial growth (which supposedly allows the fastest march towards the realization of the full communist society). But if the reader so prefers he may remain within the framework of the present model by simply viewing surplus maximization as the main aim of the planner. Anyway, it is not unreasonable to assume that the aim of the socialist planner is to maximize that amount of resources over which society as a whole and not individuals *uti singuli* have command.

I. The Model

Given the fact that we are in a centrally planned socialist economy, we suppose that production is limited by capacity and not by demand. Wage rates are fixed centrally, but labour is allocated through a labour market. Income received by wage earners is consumed; what is left is invested by the State. There are n types of labour, which differ only as far as qualifications are concerned ("qualifications" can be measured, for instance, by years of schooling, but can also be acquired by performance on the job). Workers of a given "type" are in every respect identical to other ones of the same type. There are m tasks to which labour could be set. Let

$$Y = F\,(K;\; L_{11},\ldots, L_{1m},\ldots, L_{n1},\ldots, L_{nm}, w_1,\ldots, w_n) \qquad (1)$$

be the aggregate production funtion of our economy. L_{ij} is the number of workers of type i employed in task j, w_i is the wage rate of labour i, and K the capital stock. We assume (1) to be continuous and differentiable. The issue of interest to us is to determine the optimum structure of wages and the optimum distribution of labour at any given time ("year") with relation to maximization of investable surplus. At any given time K is given and Y can be taken as a function of the L_{ij}'s and w_i's alone.

A word of explanation should be given for the rather unusual assumption of putting wage rates as an argument of the production function. National income is related to the level of the different wage rates because productivity is. This can be seen if we take into consideration that increasing, for instance, an individual wage rate could have the following consequences on productivity: a) productivity could increase because workers whose wage rate has increased could better satisfy their needs, as far as nutrition, health

and necessities of life are concerned[3]. Moreover, they could substitute "work" and "effort" for "leisure" and "relaxation". They could also work harder because they would be more concerned about losing their job. Lower wage earners would have a greater inducement to improve their status by acquiring better "qualifications" as a result of "learning by doing". It should be noted, however, that at any given moment the structure of the labour force as far as "qualifications" are concerned is given. We suppose that the acquiring of "qualifications" depends on "effort" expended on the job, and, in this way on the structure of wage rates[4]. The effect upon productivity could also be negative, because, for instance, substitution between "work" and "leisure" could take place the other way round (because of the income effect) and also because workers whose wage has increased will have a lesser inducement to climb the ladder. We shall, then, make no assumption as far as the sign of derivatives $\partial Y / \partial w_i$ is concerned; on the other hand we shall see that they are non-negative at the optimal point. Moreover, we shall assume that the $\partial Y / \partial L_{ij}$'s are positive and decreasing in the relevant range.

Perhaps some readers will not be very satisfied with such a selfish analysis of the motivation of the socialist worker. Of course, if he be totally unselfish and motivated only by thought for the good of society our $\partial Y / w_i$'s will all be zero at a sufficiently high level of the real wage (at which the basic necessities of life will be satisfied), and there will be, in principle, no need for wage differentiation, at least as far as incentives are concerned. On the other hand, they will certainly be positive at a sufficiently low level of w.

Anyhow, it is quite understandable that other circumstances will be relevant here; for instance, the presence of moral incentives will

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[3] As H. Leibenstein observed twenty years ago: "the extent to which labor is maintained will determine to some degree the amount of effort (or units of work) that will be forthcoming" (Leibenstein, 1957, p. 67).

[4] Note that in this way the *future* structure of skills of the labour force is related to the *present* structure of wage rates, as well as to the educational policy of the State. However, we will not go further into this interesting point, because it is beyond the scope of our model. Let us only remind ourselves that wage differentials cannot be treated in a socialist economy as a reward for accumulation in human capital, because in a socialist society this kind of accumulation (as all others) is, as a matter of principle, financed by the state. See on this last point, Engels, 1954, p. 228—229.

act in the sense of lowering the values of our $\partial Y/\partial w_i$'s for every value of w_i above the bare subsistence level, in this way lessening the need for income differentiation. But in this case, too, our analysis will continue to be relevant.

Given our assumption that workers consume all their income, total consumption C will be given by:

$$C = wL \tag{2}$$

where $w = (w_1, \ldots, w_n)$ is the vector of wage rates, and $L = (L_1, \ldots, L_n)$, $L_i = \sum_j L_{ij}$, $i = 1, \ldots, n$, $j = 1, \ldots, m$. Investment I will be

$$I = Y - wL. \tag{3}$$

We suppose that at any moment the labour force is given and limited, namely:

$$L_i \leqq L_i{}^s \qquad i = 1, \ldots, n \tag{4}$$

Up to the full employment level $L_i{}^s$ the amount of employment of labour i depends only on demand for labour exerted by State enterprises, whatever the level of the non-negative wage rate. Moreover

$$L_{ij} \geqq 0; \quad w_i \geqq 0 \qquad i = 1, \ldots, n; \quad j = 1, \ldots, m \tag{5}$$

At any given time, I is a function of w_i's and L_{ij}'s only.

If we assume that wage rates cannot be higher than a certain very great value, which will be of no practical relevance to our problem (for instance, a million dollars a day), the domain of function I will be a closed, bounded set. Function I, on the other hand, will be continuous, because wL is clearly continuous, Y has been assumed to be continuous and the difference of two continuous functions is continuous. Weierstrass' theorem will then ensure the existence of a maximum to function I with relation to w_i's and L_{ij}'s.

II. The Optimum Structure of Wages

In order to characterize the maximum let us consider the following Lagrangean function:

$$\mathfrak{L} = (Y - wL) - \sum_i \lambda_i (L_i - L_i{}^s) \tag{6}$$

Kuhn-Tucker conditions (which are necessary for a maximum) imply:

$$\mathfrak{L}_{L_{ij}} = Y_{L_{ij}} - w_i - \lambda_i \leqq 0, \quad \mathfrak{L}_{L_{ij}} L_{ij} = 0, \quad i = 1, \ldots, n; \quad j = 1, \ldots, m \tag{7}$$

$$\mathfrak{L}_{w_i} = Y_{w_i} - L_i \leqq 0, \quad \mathfrak{L}_{w_i} w_i = 0, \quad i = 1, \ldots, n \tag{8}$$

$$\mathfrak{L}_{\lambda_i} = L_i{}^s - L_i \geqq 0, \quad \lambda_i (L_i - L_i{}^s) = 0, \quad \lambda_i \geqq 0, \qquad i = 1, \ldots, n \tag{9}$$

Let us now consider in detail the meaning of the conditions we have found. We start with (7). Where labour of type i is employed in task j, its marginal productivity should be equal to $w_i + \lambda_i$. On the other hand, from (9) it results that λ_i will be non-negative, and may be positive only if all available labour of type i is employed in production. If there is no full employment of labour of type i, λ_i will be 0. In this case it turns out that labour of type i will not be employed for those tasks in which its marginal productivity is lower than the wage rate. In every other occupation, labour i will have a marginal productivity equal to the wage rate. In cases in which the constraint relating to the limitation of the labour supply is ineffective, increasing the utilization of labour i will increase investable surplus as long as its marginal productivity is higher than the wage rate. If there were to be a surplus of every type of labour every λ_i would be zero and we would obtain in this case a result which could be viewed as an extension of a familiar result obtained in the framework of the so-called D o b b - S e n model of the overpopulated economy; employment will be such as to equate the marginal productivity of any type of labour to its wage rate.

What then if all available manpower of type i is employed? There could be two possibilities. One would still be to have $\lambda_i = 0$. Marginal productivity of labour at full employment would then be just equal to the wage rate. In this case, too, the corresponding functional constraint will be ineffective. In the remaining case the constraint on the labour supply will be effective and λ_i will be positive, and equal to the difference between the marginal productivity of labour i in all its employments and the wage rate. As usual the λ_i's can be interpreted as shadow prices. It can easily be seen that if, after reaching a maximum value of investment I^*, with wage rates w_i^* and marginal productivities $Y_{L_i}^*$, the ith constraint relating to the labour supply is lessened, the marginal increase in the value of I will be just equal to λ_i^* [5]. The λ_i's can, therefore, be interpreted as the opportunity cost of using labour i in terms of surplus maximization. If we suppose that productive units are instructed to maximize profit, a charge of λ_i^* set by the State on the utilization of labour i, over and above the payment of wage rate w_i^* to workers, would ensure an optimum distribution of the labour supply among the different tasks. Moreover the rule of profit maximization will ensure that the marginal productivity of a given type of labour will be the same in every task for which it is employed; which is also implied by conditions (7). As

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[5] See, e. g., L a n c a s t e r, 1968, pp. 69—71.

we will see below the most plausible way to approach such a solution would be by a progressive income tax.

On the other hand, in case the maximand of enterprise activity were gross output (as is, to a great extent, the case in the Soviet economy) the surplus maximizing structure of employment could be brought about if every economic unit would be instructed to maximize output, under the constraint that planned profits should be realized at a level not lower than the maximum arising from our solution, and if a charge of λ_i^* would be paid to the State on the utilization of labour i.

Let us now take into consideration conditions (8). These can be rewritten as follows:

either a) $\qquad d_{w_i} Y = L_i \, dw_i$ and $w_i \geqq 0$,

or b) $\qquad d_{w_i} Y < L_i \, dw_i$ and $w_i = 0$ $\qquad$ (8')

where $d_{w_i} Y$ is the partial differential of Y with respect to w_i[6].

In case a) a marginal increase of income which is brought about by a marginal increase in the ith wage rate would just be offset, so far as its effect on I is concerned, by the ensuing increase in consumption. In this case Y_{w_i} would be non-negative. In case b) on the other hand, a further decrease in the wage rate would be inhibited by the non-negativity constraint. This could be explained as the case of the apprentice, who would be ready to work for nothing, and even to pay, in order to learn the craft by doing the work, without changing his attitude to the job so much as to

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[6] If we had considered (more realistically) the L_i^s's to be a function of the corresponding w_i's, (8) and (8') would have been a little more complicated, but their interpretation could have been just the same. In this case (8) looks as follows:

$$\mathfrak{L}_{w_i} = Y_{w_i} - L_i + \lambda_i L_{i_{w_i}}^s \leqq 0, \qquad \mathfrak{L}_{w_i} w_i = 0, \qquad i = 1 \dots n \qquad (8\,a)$$

If $\lambda_i = 0$, everything is as before. Otherwise (8') becomes (by utilizing (7) and supposing $L_i, w_i > 0$):

$$d_{w_i} Y = Y_{w_i} dw_i + Y_{L_i} L_{i_{w_i}} dw_i = w_i \, dw_i L_i + dw_i L_i.$$

As w_i is marginally changed the resulting change in national income should, at the optimum point, be equal to the resulting change in the wage bill of the existing labour force, plus the change in the wage bill deriving from the resulting change in employment of labour i.

make it profitable to the unit which employs him to pay him a positive wage. This, however, seems to be a rather marginal case. It is worth noting that in the case where the ith constraint of the labour supply is ineffective and $\lambda_i = 0$, a positive wage for labour i could maximize investable surplus even if part of the labour force of type i were to stay unemployed[7]. Furthermore, if we suppose that the existence of a surplus of skilled manpower does affect incentives in a way such as to diminish the wage differentials needed to stimulate a given "effort", then the existence of a reserve army of skilled unemployed labour may not be wasteful from the viewpoint of surplus maximization. On the other hand the latter remark could be more relevant to the experience of some under-developed country (like India) where intellectual unemployment prevails, than to that of the centrally planned socialist countries of eastern Europe, where skilled manpower has usually been in scarce supply[8].

Once the planner has fixed the optimum structure of wages, the optimum level of consumption, given by $\sum\limits_{i}\sum\limits_{j} w_i \, L_{ij}$ and the optimum average wage, $\bar{w} = \sum\limits_{i}\sum\limits_{j} w_i \, L_{ij} / \sum\limits_{i} L_i$, are also determined. It is interesting to note that had we considered instead of a socialist

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[7] A related argument can be used for explaining the level of the wage rate in the usual dualistic model of the overpopulated economy. Namely, it could be worthwhile in the latter case, either for an accumulation maximizing planner, or for profit maximizing enterprises, to pay a wage well above what could be deemed the minimum physiological level of subsistence, because if the wage were lower the negative effect of the ensuing lower level of productivity (people on the verge of starvation are not very productive) would exceed the possible favourable effect on the surplus of a lower wage rate. In this way the level of the wage rate in the industrial sector would be endogeneously determined, without any reference to the level of productivity in the backward sector, which in the original formulation of Lewis model was supposed to regulate the level of the industrial wage rate, being necessary. This argument lies at the heart of the theory of determination of the wage rate in the under-developed economy by the proponents of the so-called "efficiency wage hypothesis". See in particular, Stiglitz, 1973.

[8] The relationship existing between wage rates, productivity and income could, (besides many other circumstances) perhaps have something to do with the economic miracle of Gierek's Poland. If we suppose that under Gomulka wages had been set below the level which maximizes investment, Gierek's increases in real wages and in wage differentiation could have brought both higher consumption and faster growth.

economy a competitive enterprise facing a set of prevailing market wage rates, we could have come readily to the conclusion that for incentive reasons it could be profitable for the enterprise to pay higher wage rates than the market requires.

We would just have had to interpret Y as the value of the product of the firm, and I as its profits, adding the following constraint on wages: $\bar{w} - w \leqq 0$, where $\bar{w}$ is the vector of prevailing market wages. This line of thought could bring us also to an explanation of the different wage rates for labour of the same level of qualification prevailing in different kinds of enterprises. Owing to different conditions of production and of labour organization, our Y_{w_i}'s are bound to be different in the different branches of production and this could result in different wage rates. However, this could not possibly happen in the case of the socialist economy hypothesized in § I, because wage rates were supposed to be fixed centrally. However, it would be a stimulus to wage drift. In order to eliminate this possibility, wage rates for any type of labour should be allowed to be different in the different tasks to which labour could be set. In this case the vector of wage rates would become: $w = (w_{11}, \ldots, w_{1m}, \ldots, w_{n1}, \ldots, w_{nm})$ where w_{ij} is the wage rate corresponding to L_{ij}. As the reader may easily check by deriving the new optimality conditions now the marginal productivity of any given type of labour is not the same everywhere, labour of any given type could command different wage rates in the different tasks to which it could be set. However, gross wages would continue as a rule to be set at a different level from net wages and their difference (our λ_i's) would continue to be the same for any given kind of manpower, irrespective of the tasks to which it is set. This kind of wage structure would be reached in our model if enterprises were free to set the wages as well as the levels of employment offered, while the State would charge them a payment of λ_i for every unit of labour i employed. In this case, the surplus would be in general higher than in the previous case because now the constraint that the same wage rate should prevail for any particular type of labour everywhere is removed. Thus the difference in wage rates, and consequently in marginal productivities which labour of a given type would now show in different employments, would be, interestingly enough, an indication of greater efficiency compared to the previous situation where equality did prevail. Central fixing of the basic wage structure has been, however, the common practice in socialist countries; it is not without interest to note that this has always been accompanied by considerable wage drift.

III. The Investment — Income Equality Frontier

Let us now suppose that in our socialist economy the Stalinist era is over and that the concern of the planner with growth maximization is not completely overwhelming anymore, so that the planner will be ready to sacrifice some growth potential for realizing a more egalitarian society[9]. Taking a very rough, but simple index of income inequality, let us measure equality in income distribution by the quotient of the lowest to the highest wage rate ε, where $0 < \varepsilon \leqq 1$. If we put $1/\varepsilon - 1$ as the maximum level of inequality the planner would be ready to accept, we can determine, for every level of ε, the maximum amount of accumulation that would be compatible with

$$\frac{\min_{i} w_i}{\max_{i} w_i} \geqq \varepsilon. \tag{11}$$

Condition (11) is equivalent to the following n^2 linear constraints:

$$\varepsilon w_i - w_j \leqq 0, \qquad i, j = 1, \ldots, n \tag{12}$$

(12) reduces the domain of I, which is still closed and bounded. A maximum I for every value of ε does therefore exist. We can therefore think of I as a function of ε:

$$I = I(\varepsilon). \tag{13}$$

(13) can be represented by what can be dubbed as the "investment-income equality frontier". If, as we can assume, the planner will be ready to trade off some amount of investment for some less inequality, his final choice will be given by the condition that the marginal rate of substitution between investment and "equality" (ε) should be equal to the marginal rate of evaluation of "equality" in terms of investment (Fig. 1).

By transforming the Lagrangean function (6) into

$$\mathcal{Q}' = (Y - wL) - \sum_{i} \lambda_i (L_i - L_i{}^s) - \sum_{i} \sum_{j} \gamma_{ij} (\varepsilon w_i - w_j), \qquad i, j = 1, \ldots, n \tag{14}$$

and deriving the Kuhn-Tucker conditions we can see that conditions (7) and (9) stay unchanged, as well as their interpretation.

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[9] The available evidence in fact shows that the Soviet post-Stalin leadership, while continuing to be committed to growth and accumulation, has continually reduced the extent of economic inequality (see Kirsch, 1972, p. 100 ff; Wiles, 1974, p. 25).

We can therefore conclude that in this case, too, the cost of labour to enterprises should differ from the wage rate paid to workers by an amount which should vary with the degree of qualification of labour. In this way the planner could bring about the
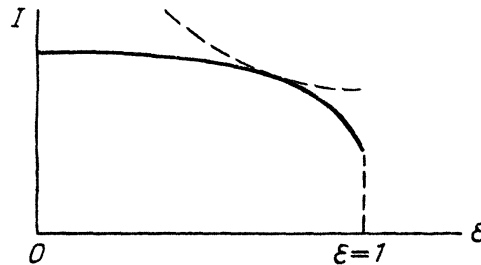

Fig. 1

maximum investment compatible with a given degree of equality (or the maximum degree of equality compatible with a given level of investment).

IV. The Income Tax and the Socialist Economy

How could this condition be put into effect in reality? Would not an attempt to do so encounter the difficulties identified by Bergson in the following passage:

> "Once having determined accounting wages it is not unlikely that both administrative convenience and political pressure would impel the socialist administrators to keep one set of books rather than two, and to distribute to consumers claims against goods corresponding to their accounting wages"?[10]

The answer to this question is, in the framework of our model, obvious: The planner should set wage rates at the optimum level $w_i^* + \lambda_i^*$ and then levy an income tax payable at the source in

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[10] Bergson, 1944, p. 11. For a defence of the idea of setting "gross wages used to allocate labour" different from "net wages appropriated by workers", see Horvat, 1964, p. 120 ff. The idea of wage differentials having a dual function, as a rationing device to the employment of skilled labour and as incentives to workers, as well as the possibility of taxing wages in the name of equality, while letting gross wages be determined by marginal productivities in the name of efficiency, can be found in Fusfeld, 1976, p. 680.

order to have net wages set at the level w_i^{*11}. This would not involve problems of "administrative convenience and political pressure" any more, and probably less, than the income tax does in capitalist countries. There is also a good chance that the tax would be progressive. As the level of income increases, in general people start to be less sensitive to economic rewards, being more concerned about other non-monetary aspects of their work, such as prestige, power and interest in the job. It can well be that after a certain point at least, our Y_{w_i}'s start decreasing and even become negative, if the income effect produces a substitution of "leisure" for "work". In this way the relation that the λ_i^*'s will bear to the corresponding w_i^*'s will be higher at higher levels of salaries and wages and the income tax will be correspondingly progressive. The degree of progression of the tax will, of course, be higher if the trade-off between growth and equality results in the choice of a higher level of ε.

If we leave now the world of abstract models and observe the reality of socialist economies, we can see that the role performed by the income tax has been very modest indeed, as far at least as the State sector is concerned. Other methods have been adopted for limiting the extent of inequality that productivity and growth maximizing considerations bring about. In particular these methods have been:

1) Allowing excess demand to develop in the market for qualified labour. This seems to be a less desirable method than levying an income tax on "optimum gross wages" because it results in misallocation of scarce aptitudes and qualifications.

2) Decreasing the value in real terms of money wage differentials in the following two ways:

(a) Allocating public consumption expenditure according to "needs" or in some other egalitarian way. This kind of policy can respond also to considerations and objectives other than equalizing the distribution of income (correcting the myopic choices of individuals, spending on public goods, etc.).

(b) Pricing "necessities" much less and "luxuries" much more than the respective cost structure would suggest. However, if the divergence between the structure of costs and the structure of

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[11] We make the assumption here that workers' motivation will be dependent only on the structure of their *net* wages and will therefore not be affected by the income tax. This does not seem to me totally unreasonable, especially if the income tax is payable at the source.

prices does not depend on other reasons (taking into account the external effects of consumption, returns to scale, etc.) this method involves obvious misallocation of resources. Moreover it works on distribution in a much more imprecise way than the income tax. While the latter can be assessed with great precision in relation to income, consumer preferences vary with many circumstances which are independent of income. The final incidence of the price method on the different income classes can be guessed only very roughly. The income tax, on the other hand, can be assessed taking into account a number of circumstances, like family composition, double employment, imputed rents from house ownership, etc., which are just as relevant for estimating the real income of the family unit in a socialist economy as in a capitalist one. It is clear, however, that the relative merits of an income tax as a tool of income equalization have always to be balanced against its administrative costs[12].

V. A Summing-up

As a conclusion let us summarize our main argument and results.

Having assumed that:

(a) The main objective of the socialist planner is to maximise the investable surplus; (b) The propensity to save out of wage income is zero; (c) National income is at any given moment a continuous and differentiable function of the amounts of labour of the different kinds employed in production and of the structure of wage rates (which are fixed centrally), the following conclusions are reached:

(1) An optimum structure of wage rates and of employment does exist. At the optimum point two sets of wage rates must as a rule exist, one for accounting purposes, the other as income to workers. Marginal productivities of any given type of manpower should be equal everywhere to the respective accounting wage rates.

(2) At the optimum point, wages paid to workers are not higher than accounting wages and are set at such a level as to ensure

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[12] It is worth noting that the prevailing belief in socialist countries is that the income tax has no proper role to play in a socialist economy. For a survey of the relevant literature, see Weralski, 1965, p. 45 ff. For a similar view, see also Bergson, 1964, p. 123—124; Wiles, 1974, p. 92. It is interesting to note that recently the income tax in the State sector has been completely suppressed in Poland.

that the product of a marginal increase in "effort" by workers is just equal to the difference in wage income needed to induce it.

(3) The most likely institutional arrangement to implement, or to approach, such a solution is simply profit maximization and a progressive income tax. The latter can also be a suitable means for ensuring an efficient trade-off between surplus maximization and equality.

References

A. Bergson: The Economics of Soviet Planning, New Haven (Conn.) 1964.

A. Bergson: The Structure of Soviet Wages, Cambridge (Mass.) 1944.

F. Engels: Anti-Dühring, Moscow 1954.

D. Fusfeld: Economics, sec. ed., Lexington 1976.

B. Horvat: Towards a Theory of Planned Economy, Beograd 1964.

L. J. Kirsch: Soviet Wages: Changes in Structure and Administration since 1956, Cambridge (Mass.) 1972.

K. Lancaster: Mathematical Economics, London 1968.

D. Lane: The End of Inequality? Stratification under State Socialism, Harmondsworth 1971.

H. Leibenstein: Economic Backwardness and Economic Growth, New York 1957.

V. I. Lenin: State and Revolution, London 1933.

J. V. Stalin: Works, Vol. 13, Moscow 1955.

J. E. Stiglitz: Alternative Theories of Wage Determination and Unemployment in L. D. C.'s: II The Efficiency Wage Model, Cowles Foundation Discussion Paper No. 357, 1973.

M. Weralski: Zagadnienie systemu podatkowego w panstwach socjalistycznych, Warsaw 1965.

P. Wiles: Distribution of Income: East and West, Amsterdam 1974.

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