# Marxian competition versus perfect competition: further comments on the so-called choice of technique

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In my notes on Dobb, I chose to focus on his discussion of Marx's theory of the falling rate of profit, for three reasons: first, because I believed that Dobb's representation of Marx is inadequate; second, because I wished to disentangle Dobb's version from Marx's, since the former has become quite influential and is often presented as being identical to the latter;† last, and most important, because I believed that Marx's own argument is both more interesting and more powerful than that of Dobb. I remain firmly unrepentant on all three points.‡

In my development of the argument as it actually appears in Marx, I tried to make two central points. The first of these was that mechanisation becomes the dominant form of technical change precisely because it is the production of surplus value, not use value, which is the dominant aspect of the labour process under capitalism. Thus for Marx the inherent tendency towards automation arises out of the social relations of production themselves, out of the relation of capital to labour in the production process, and not out of the relation of capital to capital in competition (Marx, 1973, pp. 776–777).

The second point I tried to make is that nonetheless competition *does* have a bearing on possible mechanisations: it tests these potential weapons in the fire of battle. And the principal characteristic which distinguishes them in this domain, in the war among capitals, is their ability to lower cost-prices and thus enable their users to damage and even destroy their less fortunate rivals. Since this ability to lower cost-price is itself generally purchased at a cost, in the form of a higher level of capitalisation (higher capital advanced per unit output), the cheapening of commodities through mechanisation is inevitably bound up with a tendency for the actual rate of profit to fall—even when real wages are held constant.

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† See Shaikh (1978), pp. 235–237, and the footnote to p. 237. Dobb's reduction of the problem of crisis theory to the question of a 'wage-squeeze' is of course enormously influential these days. See, for instance, Glyn and Sutcliffe (1972) and, among the commentators on my paper, see Bleaney (pp. 72–73) and Roemer (1979, p. 393).

‡ I do, however, wish to apologise for the arithmetical errors which crept into the numerical examples in Appendix I of my paper. The corrections are listed below. They do not alter any of the results. (i) On p. 247, following Table 1, the mechanised food and materials production processes should list 1380N, not 1390N. (ii) On p. 248, in Table 2, the listing under the heading "V" should read 690; that under "Total" should read 4069 (81/111); the cost-price should be 2152 (108/111); the potential profit 1597 (3/111); and at the end of the table, $k'$, $m'$ and $r'$ should read $0·574, 74·18%, and 39·25%, respectively.

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It should be evident from the above that Marx's analysis of the labour process (and therefore of the *generation* of potential methods of production) and of the competition of capitals (hence of the *adoption* of methods of production) is radically different from the conventional wisdom of modern economics. In orthodox economics the analysis of technical change is generally reduced to a discussion of all possible 'technical improvements'.† In this catalogue no one tendency stands out above the others, precisely because in orthodox economics the labour process is a technical, not a social, relation. Indeed, even within the sphere of circulation to which it generally confines itself, orthodox economics can say very little since its central notion of 'perfect competition' reduces all activity to the passive behaviour of impotent monads (consumers, firms, industries, nations and even regions) mechanically acting out their marginal roles. The dynamic and brutal war which Marx analyses appears here as a decorous ballet.

In recent years we have witnessed a tremendous revival of Marxian economics. It has gained adherents rapidly, and after long years of stagnation it has begun to incorporate into it many of the powerful new tools developed in the interim ‡ But these tools never come free of charge: without exception, they are developed in the framework of an orthodox system of concepts, and *unless consciously examined for their hidden premises*, these premises become smuggled in with the techniques themselves. This is all the more so since orthodox economics tends to present itself as merely a series of applications of a set of objective and neutral tools.

Nowhere is this more true than in mathematical economics. Above all, this field has its roots in the algebraic formalisations of orthodox economic questions, questions which in turn necessarily contain as their premises a series of concepts which generate them (concepts such as equilibrium, perfect competition, the theoretical reduction of profit to mere interest, etc.). In this domain the precision of algebra is thoroughly mixed with the vapidity of orthodox economics, and the resultant melange can never be any more rigorous than the weaker of the two elements. A trivial question precisely posed remains, after all, precisely trivial.

Among other things, in my article I sought to expose the conceptions of competition implicit in the 'choice of technique' algebra and literature. Evidently I touched a nerve there, for many Marxists have rushed forth to defend what they call 'the generally accepted analysis of the choice of production methods' (Steedman, p. 61), which they rightly note 'has normally been conducted on the implicit assumption of something like perfect competition' (Armstrong and Glyn, p. 69). We need therefore to see how they proceed to conduct their defence of these orthodox conceptions.

In my paper I began by noting that once fixed and circulating capital are distinguished, the profit margin differs from the profit rate.§ For reasons mentioned earlier, I argue that competition *forces* capitalists, upon penalty of extinction, to adopt the

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† See Samuelson (1957), p. 894: 'For technical change is itself subject to *some* laws. A technical improvement must be an improvement or it will not be introduced in a perfect-competition market economy'. Samuelson goes on to define an improvement as one which raises the general rate of profit at a given wage (or vice versa).

‡ These tools come not only from orthodox economics, but also from developments in the Soviet Union, etc. Input–output economics and its associated mathematical developments have received a particular impetus from the latter.

§ Profit margin is profit over cost-price, a ratio of flow to flow. Profit rate is profit over capital advanced, a ratio of flow to stock.

method of production with the lower cost-price. But, at given prices, a lower cost-price is equivalent to a higher profit margin. Thus competition forces each individual capitalist to adopt methods of production with the higher *transitional* profit margin, even if it lowers their transitional profit rate. And if the transitional rate of profit is lower, I note, then once the new method of production is dominant the new general rate of profit will be lower too.

In order to present my arguments in terms familiar to those comfortable with the 'generally accepted analysis', I then went one step further. Since the transitional profit margin is raised, it was my claim that after the switch the 'average' profit margin would be raised also, so that one convenient way to identify the superior set of methods of production would be by the highest profit margin at a given real wage. But as I note in my paper (Table 4, footnote *a*, p. 249), if profit rates are equal across industries then profit margins will not be, and therefore the average profit margin will depend to some extent on output proportions.

In his comment Steedman correctly points out that unless I prove that even after the switch all profit margins are the same or higher, or at least define some average of them which is necessarily higher, I cannot claim (as I did) that we can *identify* the superior structure of production by the fact that it has the higher 'average' profit margin at a given real wage (Steedman, p. 62, (i) and (ii)). I have, in other words, not proven that the process I describe can *always* be as neatly summarised as I claimed.

It should be noted that my summary criterion is not necessarily wrong. Indeed, Steedman nowhere proves that it is in fact wrong, although in a burst of rhetoric he does proclaim it to be a 'false general "criterion" '. More importantly, even if it does turn out to be not generally appropriate, this would in no way affect the argument concerning the falling rate of profit. It would simply mean that one could not necessarily summarise the conflicting roles of the competitive and optimality criteria for individual capital as an opposition between the average rate of profit and some 'average' profit margin on social capital.

In his next line of attack, Steedman notes that if, instead of the straight-line depreciation formula which I use, we were instead to use the conventional 'annuity formula for the annual capital charge', then since this depreciation charge increases with age the profit margin will decrease with age. From this he deduces that I would therefore have to argue that '*the machine will only be used when brand new*' (p. 62, (iii) and p. 63, (i)).

This is a most novel deduction. In his haste Steedman seems not to have noticed a simple and obvious point known to every capitalist: that the *average* cost-price of the product over the useful life of fixed capital is constant, whatever the depreciation formula, because over this useful life the total depreciation equals the cost of the fixed capital. It is this average cost-price which is of relevance to capitalist competition, and no formula for depreciation can alter that.

Next, Steedman appears to argue that in my example, once the mechanised methods have been established, handicrafts may come back because at the new prices the handicraft method still has the higher rate of profit (p. 63, (ii)). This is incorrect. The handicraft method was originally superseded because at the old ruling prices its *cost-price* was higher; at the new prices its cost-price is *still* higher, and therefore it still remains uncompetitive. Steedman merely smuggles in the old optimality criterion he wishes to defend, and on finding it inconsistent with the competitive criterion, somehow thinks he has uncovered a flaw in my argument. All he has in fact discovered is what I argued in the first place: that the two criteria give different results.

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Lastly, I would like to comment on Steedman's claim that my labelling of the two criteria as competitive and optimal, respectively, is merely rhetorical. He argues that the traditional 'argument is—and always has been— . . . the use of the cost-minimising production method . . .' (p. 61). But this is simply false. I show in my paper that when fixed capital is ignored, then the two criteria are identical and that therefore the traditional argument can be interpreted either way. But once fixed capital is taken into account, then the two diverge, the 'cost-minimising' method need not be the 'profit rate maximising' one, and the traditionalists clearly opt for the latter over the former. Then there can be no further pretence about what the traditional criterion really is.† What is more, it was (and still is) my contention that the latter criterion has its roots exactly in the notion of perfect competition and all the optimality baggage that goes along with it. Hence the name I assigned it. This point is discussed further below.

I noted earlier that part of the conceptual baggage smuggled in with the conventional techniques of mathematical economics was the theoretical reduction of profit to mere interest—in other words *the notion that profit itself is merely the 'cost' of capital*. For Marx, no such reduction is possible. As the money-form of surplus value, profit in general is the source of rent, interest and profit-of-enterprise. In the midst of competitive battle, there is no guarantee to any given capital that it can or will earn *any profit at all*, let alone a 'normal' profit implied by the average rate of profit. Indeed, this average rate is itself the average of the outcomes of hundreds of thousands of battles lost and won; consequently the average rate is not 'given' for any individual capital, and does not (in fact cannot) enter into their calculations as a predetermined magnitude.

What *is* given for individual capital, however, is the interest rate, for the simple reason that this magnitude *is* guaranteed in advance. As such, it can and does appear as a factor in the calculations of capitalists.

The average rate of profit does not obtain as a directly established fact, but rather is to be determined as an end result of the equalisation of opposite fluctuations. Not so with the rate of interest. It is a thing fixed daily in its general, at least local validity—a thing which serves industrial and mercantile capitals even as a prerequisite and a factor in the calculation of their operation (Marx, 1967, Vol. III, p. 366).

For any capital about to risk itself in the wars, the rate of interest therefore forms the lower limit to the hoped-for (transitional) rate of profit.‡ The amount of profit above the interest equivalent is what Marx calls profit-of-enterprise, 'the fruit of . . . the active role played by the employers of capital in the reproduction process'.§ Without

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† See Shaikh (1978), p. 244, second footnote. Steedman cites Garegnani (1970) and Pasinetti (1977) as proof that the traditional criterion has always been 'cost-minimising'. But in fact Garegnani explicitly treats only circulating capital (1970, p. 408, footnote 1); moreover, he treats profit as an equivalent to interest, and therefore as a cost of production (1970, p. 410). Thus he redefines cost to be the same thing as price of production: 'the price (cost) . . . of A' (1970, p. 411, footnote 1). Similarly, Pasinetti regards minimisation of 'price' and 'cost' as synonymous (1977, pp. 151–167).

‡ It should be remarked at this point that the rate of interest therefore serves as the *lower limit* to the transitional rate of profit, in the question of the adoption of new methods of production. This, I believe, is in effect what Keynes recognised when he counterposed the marginal efficiency of investment to the rate of interest. Of course, he does so in marginalist terms. But as Joan Robinson and others have pointed out, he was never entirely able to break free of the problematic of marginalist theory.

Lastly, it should be noted that the role of the rate of interest as lower limit does not in any way supplant the competitive criterion. It merely helps define the operational range of this criterion.

§ Marx (1967), Vol. III, p. 374. Marx also calls interest 'the fruit of capital as such, of the ownership of capital irrespective of the production process' (1967, Vol. III, p. 374).

this fruit there would be no industrial or commercial capital, and therefore no (capitalistic) source for the payment of interest in the first place. Thus the average rate of profit must in general be greater than the rate of interest. *To reduce the former to the latter is to signify the non-existence of capitalist production itself.*

Naturally, this reduction is exactly what orthodox economics seeks to accomplish. In the calm of a perfectly competitive equilibrium, each impotent little capital can count on directly obtaining exactly the same rate of profit as all others, so that this rate of profit is a fixed magnitude which enters directly into individual calculations. Moreover, since this rate of profit is also taken to be identical to the rate of interest, the cost of production becomes identical to the price of production. Profit is now merely the 'cost of capital'.

Of course, it is easy to show that the optimality criterion of maximising the transitional rate of profit is exactly the same as minimising the transitional price of production.† If in accordance with neoclassical theory we now define the latter to be also the *cost* of production, then of course the optimality criterion becomes the same thing as minimising this (appropriately redefined) cost. We have then spirited the problem away.

The same thing can be accomplished by an even more traditional device. If in addition to the above reductions we also reduce capitalist investment to 'a present sacrifice for future benefit', to 'a means of achieving an optimal pattern of consumption over time', and if we reduce the rate of profit (through the rate of interest) to a time rate of discount which reflects the so called social preference for current over future consumption, and finally if we view the surplus value to be extracted from workers in the future as 'a stream of potential consumption (income)', then under certain additional conditions we might argue that capitalists-cum-consumers will choose to make a new investment if the present equivalent of their potential consumption stream is greater than their present sacrifice.‡ In other words, the present discounted value of future profits (the rate of discount being the ruling average rate of profit) is greater than the cost of this investment. But now we have not merely spirited the problem away, we have spirited away capitalist relations themselves.

This is the path advocated by Roemer, who on the authority of traditional practice simply asserts that the 'rationalist capitalist' must adopt exactly the above rule as the valid 'innovation criterion' (1979, p. 386). He refrains, however, from elaborating the conceptions which are traditionally used to justify so-called rationality.

Roemer makes two other comments on my paper. First, he argues that, since I define the profit margin as the 'ratio of profits to circulating capital', I 'ignore fixed capital' and thereby seek to burden capitalists with a criterion which is 'completely irrational and *ad hoc*' (1979, p. 387). This is trivially false. I define the profit margin as the ratio of profits to *cost-price* (not circulating capital), and both in Marx and in my usage the term cost-price explicitly includes a depreciation allowance.§

† As I show in the footnote on p. 245 of my article, if at ruling prices a given method has a transitional rate of profit higher than the average rate, it follows that the price which would yield the average rate of profit must be lower than the ruling price. That is, its transitional price of production must be lower than the ruling price. Then selecting the method with the higher transitional rate of profit is equivalent to selecting the one with the lower transitional price of production.

‡ The three quotations are from Herschleifer (1968, pp. 196, 195 and 199, respectively). The additional conditions mentioned are those which justify maximising the internal rate of return, as opposed to the present discounted value at some fixed rate of discount. The two do not always give the same results (Herschleifer, 1968, p. 197).

§ Shaikh (1978, p. 242). For Marx cost-price is the sum of constant and variable capital, and constant

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Second, he claims that if one rejects the whole neoclassical rigmarole which culminates in the concept of the internal rate of return then one also rejects the algebraic formulation of price of production as being equal to cost-price plus a normal profit on capital advanced. This too is trivially false. Roemer himself shows that his equation (3.1) is *algebraically identical* to equation (3.2). He of course begins with the former, which he interprets as *resulting* from a process of present value discounting, and moves to the latter. Yet he does not seem to notice that since they are in fact algebraically equivalent, one could just as well begin (as I do) from the latter, viewed as resulting from the formation of a general rate of profit brought about by the inter-industrial mobility of capital, and move to the former as a different expression of the latter. Indeed, even in the case where there is no fixed capital at all, one can express prices of production in both ways—which only goes to prove that Roemer's two equations have nothing to do with fixed capital as such, and hence nothing to do with any discounting involving the fixity of capital. As in the case of any identity, causality can run either direction.†

Lastly, it is easy to show that Roemer's criterion is algebraically equivalent to minimising the 'cost' of production if this cost is redefined so that profit is treated as the cost of capital.‡ It is also conceptually equivalent to the latter, since the reduction

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(*continued from page 79*)

capital used up always includes the value transferred to the product by fixed capital (see for instance Marx, 1967, Vol. I, Chapter VIII, and Vol. III, Chapter IX, pp. 155–156).

In my numerical example I explicitly define cost-price to include depreciation (see Shaikh, 1978, Table 2, p. 248, directly under the heading 'Cost-price'), and my calculations reflect this definition.

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† In the case where capital advanced consists of circulating capital alone, the price of production of an individual commodity can always be written as:

$$p = k(1+r) = k+rk$$

where $k$ = its cost-price, and $r$ = the general rate of profit. Noting that it is an algebraic identity that

$$\frac{1}{r} = \sum_{t=1}^{\infty} \frac{1}{(1+r)^t},$$

we can write:

$$k = \frac{p-k}{r} = \sum \frac{(p-k)}{(1+r)^t}.$$

The left-hand side is the original investment, the capital advanced. The right-hand side is now expressed as the discounted present value of an infinite stream of profits—even though capital turns over only once a year. Of course one might argue that since capitalists get back their initial investment at the end of each turnover, they can re-invest it continually and thus generate an infinite stream of profits. From this point of view an individual *capital* has a potentially infinite time horizon, even though an individual *project* has to be renewed every year.

The same result can be derived for fixed capital when the cost-price is now the average over the lifetime of the project and therefore includes the average depreciation, and capital advanced now includes fixed capital. Thus Marx's treatment of fixed capital can always be viewed as being based on individual capital, not the individual project.

However, none of this implies that average capital actually *behaves* in the manner suggested by the discounted form of the price of production equations. Indeed, since the average rate of profit is *not* given to any individual capitalist, it cannot serve as the basis of any individual calculations. See page 78 above.

‡ To see this, one need only note that in Roemer's inequality (3.4) (p. 386), the left-hand side is the ruling price of production, while the right-hand side is simply the transitional price of production of the new technique—its cost-price at ruling prices plus a normal profit (at the ruling rate of profit) on its fixed and circulating capital advanced.

Thus (3.4) simply says that the transitional price of production must be less than the ruling price of production, which in turn is also the cost of production since the profit rate is taken equal to the interest rate.

Lastly, the above is also equivalent to maximising the transitional rate of profit (see footnote† on page 79, above), and it is well-known that this implies that the new general rate of profit will be raised (see Okishio, 1963, cited in the comment by Nakatani). Thus Roemer's theorem 3.1 does not provide a new result.

of profit to a cost of capital is a prerequisite of the traditional discounting criterion Roemer advocates. He says as much when he argues that 'maximising the internal rate of return is the relevant notion of *cutting costs* in the fixed capital model' (1979, p. 387).

Nakatani begins his comment by noting that in a 1963 article available only in Japanese, Okishio extends his 1961 theorem to the case of fixed capital, and in the process explicitly abandons the competitive criterion for the optimality criterion (Nakatani, p. 65). This, says Nakatani firmly, is the criterion 'we should rely on' (p. 65). And so he does: he simply *assumes* that capitalists use this criterion, and then proceeds to construct various scenarios under which even the optimality criterion might lead to a fall in the rate of profit. Thus, if for example capitalists 'expect' prices to change, they might select a method of production which has the higher than average rate of profit at these *expected* prices but a lower one at ruling prices (Nakatani, pp. 66 and 67). Then Nakatani finds that one can get different results depending on the different expectations of the capitalists, even when the criterion they use is the optimality one. But while this is a useful antidote to the traditional claim that the optimality criterion completely excludes a fall in the rate of profit, it is irrelevant to my own argument. I do not assume that prices somehow are merely given. Nor do capitalists with the lowest costs simply wait passively for these prices to fall: they can always lower their own prices and *drive* the others out. That is why competition, or even the threat of it, will force the adoption of the cheapest method. It has nothing to do with passive expectations.

In his own examples, Nakatani concedes that if prices are driven down far enough, then the cheapest method ($\gamma$) will be adopted. But he then claims that this is not because the capitalists 'employ the cost criterion . . . but because the competition causes the real wage cost and material cost to rise in terms of their product' (p. 66). It seems to me that here he simply has cause and effect reversed. Competition forces the adoption of the cheapest technique, and of the lowering of the commodity's price. Of course, this means that the prices of all other commodities thereby rise relative to this one, other things being equal. This is merely the consequence of any local fall in price and has nothing to do with the cause of this fall.†

Lastly Nakatani makes the point that if with a given real wage the average rate of profit does fall due to a change in technology, then even though all prices and the money wage may fall in absolute terms, the price of the switching sector's commodity will not fall by the *greatest* amount. This, as he notes (p. 67), is 'contrary to the popular notion of price competition' (based, of course, on the traditional use of the optimality criterion) in which the greatest eventual fall should be in the price of the commodity directly affected. This is an interesting point, but it hardly invalidates my argument. As the recent capital controversies have so clearly shown, 'popular notions' are not necessarily reliable.

† Nakatani makes two other points, both of which I believe are false. On p. 67 he says that if the money wage and *all* prices go down together, nothing changes in relative terms (quite true) and *therefore* 'no capitalist is compelled to switch to another technique' (p. 67). This last phrase does not follow, since even if the general price level were falling, capitalists with a cheaper method could force prices down relative to this autonomous trend, and thereby have just as much incentive to switch as in the case of a stable price level. At the end of p. 67 he, in addition, argues that once the new method has been established, it will be abandoned because even at new prices the old method will have the higher profit *rate*. But here he forgets (as did Steedman earlier, see p. 63) that the cost-price of the new method will still be lower, and that therefore it will still have the same competitive edge as before, and be *still* able to drive out the old-fashioned method.

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Armstrong and Glyn begin their comment by affirming that 'something like perfect competition' underlies the traditional discussion of the so-called choice of technique. And under these circumstances, they reiterate their support for the traditional results and for the defence of these results by the other contributors to this debate (Armstrong and Glyn, p. 69). In fact, in the rest of their comment they utilise the standard investment criteria '[of] . . . maximising the present value of profits or the internal rate of return on *total* capital' (p. 69). My response to their position is therefore already contained in the above discussion of Roemer's article.

The rest of their analysis consists of exploring *imperfect* competition (oligopoly) for possible scenarios in which a falling rate of profit might be generated. Naturally, they find that no clear tendency can be derived from their foray into imperfect competition. On this, I have only one brief comment, whose elaboration is unfortunately not possible within the confines of this paper. It is this: the very concept of 'imperfect' competition is itself the dark side of the concept of 'perfect' competition. In perfect competition all of the tactics and strategy of real competitive battles are spirited away. Then, when faced with the unavoidable discrepancy between the fantasy world of perfect competition and the elementary facts of real competition, instead of overthrowing perfect competition orthodox theory seeks to reform it. Hence *imperfect* competition. Yet the real imperfection lies not in actual competition, but rather in the concept of perfect competition itself and its false and one-sided abstraction of the real relations. I believe that the conception of competition contained in Marx is vastly richer than perfect competition and its counterpart, imperfect competition. Marx's conception contains elements of both of these orthodox polarities—not as exclusive poles, but rather as aspects of the same organic process.

The central argument in Bleaney's comment has to do with his contention that my argument 'seems unsound, [because it] would hold water only if market prices were *permanently* below production prices . . .' (Bleaney, p. 72, emphasis added). To explain what he means by this statement, he constructs a scenario in which individual capitalists *passively* await the dictates of the market price, and in which they use the optimality criterion for their passive 'choice' of technique. The sole difference is that in Bleaney's case it is short-run fluctuations in demand which give market price its *external* impetus, and since these fluctuations can go either way, the actual or expected price movements can also go either way (Bleaney, p. 72). The essence of Bleaney's argument is therefore the same as Nakatani's on this point, and is therefore already covered in my response to the latter.†

† Bleaney also throws in for good measure two other arguments against earlier parts of my discussion. In (1) on p. 71, he claims that capitalist development is not characterised by 'a constant ratio of unit values in the two departments'. But I never claim otherwise. What I do claim is that 'technical progress is *more or less* general across departments' (Shaikh, 1978, p. 251), precisely because the struggle for relative surplus value and of the competition of capital *forces* capitalists everywhere to appropriate the general developments of science and engineering. That is why the *diffusion* of technical change is so general, and why it cannot be confined to any one sector. Can one imagine, for instance, a capitalism in which machines are made by computer-controlled technology, but clothes, food, shelter, etc. are still made everywhere by hand? In (2) on p. 71, Bleaney says that more mechanised methods make capitalists also more vulnerable, since for a 'given rate of absenteeism they may suffer a *greater* proportionate loss of output'. So what? If the rate of absenteeism is indeed given, then of course the effective work force is lower than the nominal by a factor known to capitalists, a factor which therefore appears as such in their calculations of effective cost-prices (just as average capacity utilisation, etc., does). If Bleaney means that the *possibility* of unexpected events (greater absenteeism, strikes) might in general prevent mechanisation, then I remind him that the *certainty* that the capitalists who mechanise first can drive out their competitors is a very powerful antidote to any timidity about absenteeism.

The central issue raised by my paper, which has not been faced directly by my critics, is the conception of capitalist competition. The focus of their comments has been on the criterion for choice of technique. But what really lies behind this discussion is the difference between Marx's conception of competition and the conventionally accepted notion of perfect competition. It is ironic that the traditional construction—whose anti-Marxist ideological roots are well-known—should find so many Marxists rushing to its defence.

## Bibliography

Garegnani, P. 1970. Heterogeneous capital, the production function and the theory of distribution, *Review of Economic Studies*

Glyn, A. and Sutcliffe, R. 1972. *British Capitalism, Workers and the Profit Squeeze*, Middlesex, Penguin Books

Herschleifer, J. 1968. The investment decision, in D. Sills (ed.), *International Encyclopedia of the Social Sciences*, New York and Detroit, Macmillan and The Free Press

Marx, K. 1967. *Capital*, Vols. I–III, New York, International Publishers

Marx, K. 1973. *Grundrisse*, London, Penguin

Pasinetti, L. L. 1977. *Lectures On the Theory of Production*, London, Macmillan, and New York, Columbia University Press

Roemer, John E. 1979. Continuing controversy on the falling rate of profit: fixed capital and other issues, *Cambridge Journal of Economics*, December

Samuelson, P. 1957. Marxian economic models, *American Economic Review*

Shaikh, A. 1978. Political economy and capitalism: notes on Dobb's theory of crisis, *Cambridge Journal of Economics*, June