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『現代の企業』

Masahiko Aoki, *The Co-operative Game Theory of the Firm*, Oxford, Oxford University Press, 1984, 213 pp.

This book is difficult to review because it is so rich. I believe it is the best book on the theory of the firm that has been written ever. I say this although knowing that later below I shall be making some quite serious criticisms of it.

Most of the failures of neo-classical economics to explain the behaviour of the mixed economy stem from the tendency of neo-classicists to assume naive models of the firm. Aoki's book is one of a small number in recent times (H. Odagiri's *Theory of Growth in the Corporate Economy*, Cambridge, 1981, is another) to combine neo-classical rigour with common sense. It is also represents a most fruitful application of game theory——more specifically non-constant sum, arbitration/bargaining theory, to economic problems. Without being rather steeped in that literature (Robert Aumann, Richard Braithewaite, John Harsanyi, John Nash, Frederick Zeuthen et al.), although one may follow Aoki, one

maynot, at a deeper level, fully understand him. It is to be hoped therefore that the author will in due course, perhaps with an assistant, produce a text book version of his ideas which includes a general introduction to bargaining theory. If such a book appeared, I would hope that it would become required reading for all intermediate courses of general economics, throughout the world, and especially among people teaching about non-capitalist economic systems. For reasons which will become apparent, however, such a book would also require that Aoki or his successors considerably tighten up the macro and general-equilibrium aspects of their work.

Aoki's fundamental proposition is that the firm is an organisation of human and material resources, functioning by teamwork, and that those resources, particularly the human ones, are considerably team-specific. There is therefore a degree of non-transferable synergy. In consequence, every firm in the economy is a player in a game of monopolistic competition with every other firm in the economy. As far as I can see, there is no way an Aoki world could have perfect competition.

This characterization of the firm is clearly correct, and must surely be true of organisations in general, through place, time and country. It follows inevitably that in a market economy, every business organisation will earn some rent and in a socialist economy every bureaucracy will have some power. Aoki, being concerned only with mixed market economies, ascribes a monetary value to this residual and calls it *the organisational rent*: it is total value-added less "competitive" earnings of employees and shareholders (what they would receive if the organization broke up).

The macro and normative implications of the permanent existence of positive organisational rent in the economy at large are similar to those of positive profit. The rent must ultimately be distributed either to employees or to shareholders, and the latter being householders who will typically also be workers in the economy at large. Without specific assumptions concerning property distribution, therefore, the distributive-welfare implications of Aoki's theory are uncertain. It is certain however that as in the case of conventional profit-maximising imperfectly competitive general equilibrium, so in the

(ii) A firm operating below capacity which then experiences an increase in demand, may initially respond by increasing price, rather than output (the reason being that the recruitment required to support higher output could dilute the existing employees' share in organisational rent and thus disturb the bargain between existing employees and existing shareholders);

(iii) Because the strength of (ii) increases with worker bargaining power, in a CM society, increased worker bargaining power increases the likelihood of stagflation;

(iv) Higher worker bargaining power will also slow up firm growth, and thus, Aoki hints, macro growth;

(v) In the SSCB society, the relation between nominal price and nominal wage is at given by the Abba Lerner condition, namely $p=w/z$ where $z=1-1/e$ where e represents elasticity of demand negatively defined, and w is the total wage including the premium absorbed by collective bargaining from the CM model (output per worker assumed 1.0);

(vi) High worker bargaining power increases the danger of classical unemployment in the sense of Malinvaud (*The Theory of Unemployment Reconsidered*, 1977);

On the above, these are the present writer's comments and criticisms;

1) Conclusion (i) above is correct, but Aoki fails to emphasise that it is a general feature of imperfect competition, not a particular result of his own theory;

2) Conclusion (ii) is formally correct but raises the awkward question of where the existing number of workers came from. Is it not possible that the management-arbitrator would include in the valid constituency workers who had been earlier laid off?

3) Conclusion (iii) seems to me just plainly wrong. "Stagflation" surely means persistently rising prices with persistent underutilization of productive resources. In Aoki's case, the demand expansion will raise prices and organisational rent, thus consumer purchasing power, thus leading to further expansion *via* the Keynesian multiplier. In due course the "existing employees" constraint will cease to be binding, and further expansion will be able to progress smoothly without further price rises. In short, economic recovery may require some once-and-for all rise in nominal prices, but nothing more.

4) The implications concerning growth are mainly interesting if they are macro (the proposition that firms with stronger-bargaining workers will grow more slowly than other firms is not *un*interesting, but less dramatic). But in the absence of general-equilibrium analysis all Aoki's hinted macro surmises are unsure. The only general-equilibrium system appropriate to the problem is Odagiri's (see above). But Odagiri, like this writer, is a managerialist. And here is the appropriate moment to mention a managerialist's obvious retort to Aoki : that is that his "referee," unlike the traditional referee is an interested party ! There are many reasons, today as much as in 1964 for arguing that high management will have a stronger vested interest in growth than workers or middle management. If this should happen to bias their refereeing, then, according to the Odagiri theory, the *economy* will grow fast. Given a degree of managerial growth preference, it is then not at all sure than in general equilibrium a worker profit sharing scheme, as in Aoki's CM model, will necessarily slow up the economy.

5) Conclusion (v) is correct, but Aoki, again, does not draw out the macro implications. If the nominal wage is gathered to the left hand side of the Lerner equation, and both sides of the resulting new equation divided by the nominal price level, the latter disappears, the LHS becomes the real wage and the RHS becomes $1/z$ i. e. completely governed by elasticity of demand. In comparative static analysis this means that the real wage cannot be influenced by worker bargaining power at all. In a dynamic analysis, if workers always succeed in demanding a nominal wage that is indexed to a target real wage different from the equilibrium real wage determined by z, no dynamic equilibrium exists. The system will cycle through waves of accelerating or decelerating cost-push inflation.

This type of analysis can also be applied to the CM model. The real wage (inclusive of premium) in that model will be $1/z+s(z-1)$ where s signifies workers's share in organizational rent as determined by the bargaining theory. (The result stems from the fact that in the CM model one maximises organisational rent on the basis of the competitive wage, in the SSCB model, the total wage). Thus the CM model, unlike the SSCB model, does appear to give workers' bargaining strength a role in wage determination, but the theoretical signifi-

cance of the result is unclear. Could one obtain identical effects by distributing worker shares? Given the complications of the "existing worker" constraint, can one predict with confidence, or can one not, that in the CM society "full employment" will come closer to "optimum employment" than in the SSCB society?

6) Classical unemployment is caused by the form and size of the capital stock being insufficient to employ the existing supply of workers. Under perfect competition, as assumed by Malinvaud, with a malleable capital stock, one can imagine that a stock of given size could employ more people if the real wage was lower. Hence one can speak as Malinvaud (see above) does, as if the cause of classical unemployment was an excessive real wage. But there are very grave problems in carrying this approach into the Aoki world, namely,

(i) Aoki, unlike Malinvaud, has imperfect competition; the theory of classical unemployment under imperfect competition has yet to be worked out (the real wage is controlled by the elasticity of demand, does the latter, in turn, therefore control the factor ratio?)

(ii) Whatever theory eventually decides the relation between real wage and factor ratios under imperfect competition, in the CM it would surely by the *competitive* (in Aoki's sense) real wage, rather than the premium real wage, which would govern managers' choice of factor ratios? In the SSCB model it could be the premium wage, but in the SSCB model, this writer argues (see above) the real wage cannot be influenced by workers' bargaining power anyway!

(iii) Classical unemployment can be alleviated by faster economic growth. Therefore the interactions between the unworked-out macro implications of Aoki's wage theory and the unworked-out macro implications of his growth theory are crucial in this context. A marriage between the two most original current workers in this field (both Japanese), namely Odagiri (1981) and Aoki (1984) is therefore now well overdue!

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