THE CAMBRIDGE CONTROVERSY IN CAPITAL THEORY: A REPLY

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Peacock’s comment on my paper [4] leaves me with an uneasy feeling, namely, whether I had successfully expressed myself in that paper or was I hampered by my poor English. Perhaps my uneasiness is unjustified; Solow remarked some time ago that he had long since abandoned the illusion that participants in both sides of the Cambridge controversy actually communicate with each other [8, p. 207].

I completely disagree that I was basing my arguments on “the implicit assumptions which are tantamount to working within the one-commodity model” [6]. For the proposition that factor price equals marginal productivity under competitive equilibrium, one does not have to assume a one-commodity model or to aggregate heterogeneous capital goods. The profit-maximizing behaviour of firms will lead to such an equality. It is true that we (and the firms) cannot know the marginal productivity of a factor without knowing the vector of relative prices, \( p \). But it is not true that \( p \) is indeterminate in the neoclassical world “until either the wage rate or profit rate is fixed exogenously” [6]. Such an indeterminacy does in fact hold in the neo-Marxist-Keynesian world of fixed factor proportions (where the marginal product does not even exist) and absence of the influence of individual preferences [5, pp. 123–4]. Peacock fails to realise that the neoclassical system is closed and one does not have to fix the wage rate or profit rate exogenously to close the system. All prices, including wage rates for different labour services, are determined in a general equilibrium framework with a supply and demand for each commodity (and factor) as functions, in general, of the prices of all goods. Given the set of prices as solution to this general equilibrium system, the rate of profit emerges as the uniform rate of return in all lines of production which equals the marginal productivity of capital. No circularity and no indeterminacy is involved.

It is true that a general equilibrium model is usually presented in a static or timeless fashion while capital theory necessarily involves time. But we can generalize it to an intertemporal economy on at least three different levels of “realism”. First, if we ignore uncertainty, we can regard a commodity in a future date as just another commodity and the generalisation to an intertemporal economy becomes obvious. Secondly, we may recognise uncertainty but introduce markets for “contingent commodities” a la Arrow [1] and Debreu [2] and achieve the generalisation accordingly. Thirdly, we may use the analysis of temporary equilibrium with uncertainty; see e.g. Stigum [10]. It is true that the actual rates of return would then not just be influenced by the “true” marginal productivities but also by uncertainty and people’s changing expectation. I would hardly
deny the influence of such factors in the real world. But the attempt to abstract them away in a simplified analysis is no more sinister than Marx's usage of a uniform rate of profit.

The theoretical possibility of reswitching highlights some "perverse" relationships. For example, we do not have the logical necessity of an inverse relationship between the rate of interest and the value of capital per head. However, reswitching has implications for steady-state comparisons but does not invalidate neoclassical marginal productivity theory. Moreover, the practical relevance of reswitching is questionable since it cannot occur if there exists some degree of substitutability between labour and other inputs in one or more industries in the economy [9].

With respect to the aggregation of capital I do not think, immodest as I may be on some occasions, that I have pushed a big step forward in capital theory. What I really try to do is to stop people from pushing capital theory many steps backward. It is true that, for the case of apples, we have a natural unit, an apple, whether it is big or small, red or green, good or bad. If the total number of apples increases by 50 per cent whilst its composition has not changed substantially, one can be quite confident of an increase in the total amount of apples. With respect to heterogeneous capital goods, we can aggregate them by valuing them at their market prices. If the value (after, of course, deduction for inflation) of capital increases by 50 per cent one can be quite confident of an increase in the amount of capital unless there is a really drastic change in relative prices. Even then, one could value the two collection of heterogeneous capital goods by both vectors of prices. If both measures indicate an increase, one can again agree that there has been an increase in the amount of capital (cf. Sen. [7, pp. 333–41]).

It is not true that we will run into the problem of interdependence by using the price vector to value capital, as Peacock alleges. It is true that the value of capital changes as wages, and interest rates change. But it is not true that wages and interest rates are explained by reference to the value of capital, not in the general equilibrium model anyway. Neo-Marxist-Keynesians seem to be quite persistent in their refusal to see the difference between the microeconomic theory of value and distribution which does not need the concept of aggregate capital and the macroeconomic theory of growth which does usually employ the concepts of aggregate capital and an aggregate production function. It is true that the existence of an aggregate production function does require, strictly speaking, rather restrictive assumptions [3], but it can be justified as a good approximation.

Professor Keith Frearson has repeatedly accused his colleagues at Monash University of being "flat-Earth theorists" who tell students, "We know that the Earth is round, but let us assume that it is flat...". My answer is that, for certain problems, such as building a house or making a short journey, we will be much better off working on the assumption that the Earth is flat. And I think the same applies to the assumption of the existence of aggregate production functions for analysis of such problems as long-run economic growth.
REFERENCES


