Production and Circulation Lags and Capital Coefficient

Samir Dasgupta

THE capital coefficient, or what is sometimes called the capital-output* ratio, is generally used as a criterion for classifying the technological alternatives in manufacturing industry. In a so-called capital scarce economy, that particular technology would be chosen which, ceteris paribus, has the lowest capital coefficient. Our aim is to make it clear that the 'effective' numerator in the capital coefficient is very significantly dependent on the time lags in the processes of production and circulation, understood in the Marxian sense of these terms. The implication here is that during the entire time span within the producer's input and his realisation of the sale proceeds, different portions of the invested capital remain in the production process (i e, time of actual functioning) for different lengths of time. The part whose operation is interrupted for a longer time takes, therefore, a longer time to produce use-value; and the longer it takes to produce use-value the more delayed it is in entering the sphere of circulation from where its value is fully returned to the producer to enable him to advance it anew for the following round of production.

Now, though all capital is circulating capital in the sense that all capital-value is constantly in circulation, we still find it worthwhile to distinguish between the fixed and working parts of the capital advanced in the process of production. This distinction is useful because, in contrast to working capital, fixed capital usually takes a much longer time to be used up. Its value is productivity consumed, so to say, in inverse proportion to its durability. The longer the life span of the fixed part of capital, the smaller is the amount of its own value which it will transfer to the product.

The producer will, on the other hand, find it much more worthwhile to concentrate on realising back the full value of working capital as quickly as he can. He will, in other words, be happiest if the working capital does not re-

*Output here means the net value added per unit of time.

main locked up in the spheres of production and circulation at all.

The process of production also often necessitates the temporary locking up of productive capital (we mean the working part of productive capital only). But however inseparable these interruptions might be, there is no expansion of the value of productive capital so long as it remains 'fallow'. It is clear, therefore, that the more the production time (which is pre-determined by the production-planning at the beginning of each period and remains unaltered until the beginning of the next period) and the time of functioning cover each other, the greater is the productivity and self-expansion of a given productive capital in a given space of time.

But apart from this production lag there is also the circulation lag, and together they constitute the total lag in the turnover time of capital. Analytically, the time of production and the time of circulation mutually exclude each other, for in the latter period capital does not perform the functions of productive capital, i e, produces neither commodities nor surplus value. But it must not be lost sight of that the circulation time of capital in any given turnover period does limit its time of production, and hence its process of generating surplus value, in the succeeding period†. There is no

† "If we study the circuit in its simplest form, as when the entire capital-value passes in one bulk from one phase to another, it becomes palpably evident that the process of production and, therefore, also the self-expansion of the capital-value are interrupted so long as its time of circulation lasts, and that the renewal of the process of production will proceed at a faster or a slower pace depending on the length of the circulation time.... The expansion and contraction of the time of circulation operate therefore as negative limits to the contraction or expansion of the time of production or of the extent to which a capital of a given size functions as productive capital." K Marx—Capital, Vol II, p 124-5 (Moscow edition) 1957.

doubt that a certain amount of time must be spent in the process of circulation (viz, time of transportation), but this virtually involves an additional investment of capital which creates neither product nor value. It is from this angle that Quesnay's remarks that 'the cost of commerce, although necessary, must be regarded as an onerous outlay" may make some meaning.

The producer's attempt will thus be to make the turnover lag tend to zero 'so that the owners of the inputs can be paid out of their own product'. In the limiting case of a zero time lag the producer's 'effective' investment will be just the amount of fixed capital. Naturally then, capital coefficient will have only this fixed capital in the numerator. If, however, the lag is fairly long (the term 'fairly long' is a relative one and depends on the capital position of the producer in question) the capital advanced for meeting wages and other recurring costs (i e, working capital) also throws the same nature of problem to the producer as does the fixed capital. In between these two ends different amounts of working capital will function for different lengths of time in accordance with the varying magnitudes of the corresponding lags. Let T be the total time of turnover of capital, F the fixed capital, and W the working capital. Also, production lag = time of production minus time of actual functioning = l_p (say) and circulation lag = l_c (say). The 'effective' working capital will then be equal to $W \dfrac{l_p}{T} + W \dfrac{l_c}{T}$

$= \dfrac{1}{T}(l_p + l_c)$, W and, accordingly, the numerator in the producer's capital coefficient will be $F + \dfrac{1}{T}(l_p + l_c)$, W

This throws some light on the problem of technological choices in a capital-poor manufacturing sector. The producer should try to minimise the production lag as also the circulation lag so as to get back his advanced capital in the least possible time. Mr Frankel has rightly observed that the problem in such a sector is precisely one of investing capital and not

of spending it. (S H Frankel: 'Economic Impact on Underdeveloped Countries', p. 77). The production lag can be shortened by resorting to technologies which do not have a very fabricated production schedule. It is in this connection that technologies involving a 'short fruition lag' may be seriously considered. The minimisation of the circulation lag, on the other hand, may be effected through sales promotion devices which increase the tempo of consumption. Transportation time may also be shortened as far as possible. Again, the inertia of wholesalers and retailers in placing regular orders to producers is another factor that may be tackled.

In short, our discussion aims at making it clear that in a capital short economy the real problem before the producer is not so much the absolute amount of working capital as the time lag between the application of current inputs and the realisation of the value of resulting output. If the lag is short the realisation of the value becomes quicker and hence the 'effective' amount of investment in a given time also becomes smaller though, of course, the absolute (working) capital expenditure may remain the same. This suggests that by choosing an appropriate technology (with shorter production lag) along with the adoption of suitable policies (which help shorten the circulation lag) one may lower the capital coefficient even without being able to improve one's absolute capital position.