THE CLASSICAL THEORY OF ECONOMIC GROWTH

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Abstract
Focused on the emerging conditions of industrial capitalism in Britain in their own time, the classical economists were able to provide an account of the broad forces that influence economic growth and of the mechanisms underlying the growth process. Accumulation and productive investment of a part of the social surplus in the form of profits were seen as the main driving force. Hence, changes in the rate of profit were a decisive reference point for analysis of the long-term evolution of the economy. As worked out most coherently by Ricardo, the analysis indicated that in a closed economy there is an inevitable tendency for the rate of profit to fall. In this article, the essential features of the classical analysis of the accumulation process are presented and formalized in terms of a simple model.

Classical Perspectives on Growth

Analysis of the process of economic growth was a central feature of the work of the English classical economists, as represented chiefly by Adam Smith, Thomas Malthus and David Ricardo. Despite the speculations of others before them, they must be regarded as the main precursors of modern growth theory. The ideas of this school reached their highest level of development in the works of Ricardo.

The interest of these economists in problems of economic growth was rooted in the concrete conditions of their time. Specifically, they were confronted with the facts of economic and social changes taking place in contemporary English society as well as in previous historical periods. Living in the 18th and 19th centuries, on the eve or in the full throes of the industrial revolution, they could hardly help but be impressed by such changes. They undertook their investigations against the background of the emergence of what was to be regarded as a new economic system – the system of industrial capitalism. Political economy represented a conscious effort on their part to develop a scientific explanation of the forces governing the operation of the economic system, of the actual processes involved in the observed changes that were going on, and of the long-run tendencies and outcomes to which they were leading.

The interest of the classical economists in economic growth derived also from a philosophical concern with the possibilities of 'progress' an essential condition of which was seen to be the development of the material basis of society. Accordingly, it was felt that the purpose of analysis was to identify the forces in society that promoted or hindered this development, and hence progress, and consequently to provide a basis for policy and action to influence those forces. Ricardo's campaign against the Corn Laws must obviously be seen in this light, as also Malthus's concern with the problem of population growth and Smith's attacks against the monopoly privileges associated with mercantilism.

Of course, for these economists, Smith especially, progress was seen from the point of view of the growth of national wealth. Hence, the principle of national advantage was regarded as an essential criterion of economic policy. Progress was conceived also within the framework of a need to preserve private property and hence the interests of the property-owning class. From this perspective, they endeavoured to show that the exercise of individual initiative under freely competitive conditions to promote individual ends would produce results beneficial to society as a whole. Conflicting economic interests of different groups could be reconciled by the operation of competitive market forces and by the limited activity of 'responsible' government.

As a result of their work in economic analysis the classical economists were able to provide an account of the broad forces that influence economic growth and of the mechanisms underlying the growth process. An important achievement was their recognition that the accumulation and productive investment of a part of the social product is the main driving force behind economic growth and that, under capitalism, this takes the form mainly of the reinvestment of profits. Armed with this recognition, their critique of feudal society was based on the observation among others, that a large part of the social product was not so invested but was consumed unproductively.

The explanation of the forces underlying the accumulation process was seen as the heart of the problem of economic growth. Associated with accumulation is technical change as expressed in the division of labour and changes in methods of production. Smith, in particular, placed heavy emphasis on the process of extension of division of labour, but there is, in general, no systematic treatment of the relation between capital accumulation and technical change in the work of the classical economists. It later becomes a pivotal theme in the work of Marx and is subjected there to detailed analysis (see, for instance, *Capital*, I, part 4). To these basic forces in economic growth they added the increase in the supply of labour available for production through growth of population. Their analysis of the operation of these forces led them to the common view, though they quite clearly differed about the particular causes, that the process of economic growth under the conditions they identified raises obstacles in its own path and is ultimately retarded, ending in a state of stagnation – the 'stationary state'.

The conception of the stationary state as the ultimate end of the process of economic growth is often interpreted as a 'prediction' of the actual course of economic development in 19th-century England. There is no doubt that it was for a time so regarded by some, if not all, of the economists and their contemporaries, though the weight that was assigned to this particular aspect of the conception by Ricardo himself is a matter of some dispute. What is more significant, however, is that this conception served to point to a particular social group, the landlord class, who benefited from the social product without contributing either to its formation or to 'progress' and who, by their support of the corn laws and associated restrictions on foreign trade, acted as an obstacle to the only effective escape from the path to a stationary state, that is, through foreign trade.

In examining the work of the classical economists we find also that problems of economic growth were analysed through the application of general economic principles, viewing the economic system as a whole, rather than in terms of a separate theory of economic growth as such. These principles were such as to recognize basic patterns of interdependence in the economic system and interrelatedness of the phenomena of production, exchange, distribution, and accumulation. In sum, what we find in classical economic analysis is a necessary interconnection between the analysis of value, distribution, and growth. Because of these interconnections it was by no means possible to draw a sharp dividing line between the inquiry into economic growth and that into other areas of political economy. As Meek (1967, p. 187) notes:

> To Smith and Ricardo, the macroeconomic problem of the 'laws of motion' of capitalism appeared as the primary problem on the agenda, and it seemed necessary that the whole of economic analysis – including the basic theories of value and distribution – should be deliberately oriented towards its solution.

Distribution of the social product was seen to be connected in a definite way with the performance of labour in production and with the pattern of ownership of the means of production. In this regard, Labour, Land, and Capital were distinguished as social categories corresponding to the prevailing class relationships among individuals in contemporary society: the class of labourers consisted of those who performed labour services, landlords were those who owned titles or property in land, and capitalists were those who owned property in capital consisting of the sum of exchangeable value tied up in means of production and in the 'advances' which go to maintain the labourers during the production period. Each class received income or a share in the product according to specified rules: for the owners, the rule was based on the total amount of property which they owned – so much rent per unit of land, so much profit per unit of capital (and, for the class of finance capitalists or 'rentiers' who lent money at interest, so much interest per unit of money lent). For labourers it was based on the quantity of labour services performed: so much wages per hour.

Accumulation and distribution were seen to be interconnected through the use that was made by different social classes of their share in the product. Basic to this view was a conception, taken over from the Physiocrats, of the social surplus as that part of the social product which remained after deducting the 'necessary costs' of production consisting of the means of production used up and the wage goods required to sustain the labourers employed in producing the social product. This surplus was distributed as profits, interest, and rent to the corresponding classes of property owners. For the classical economists, the possibility of accumulation was governed by the size and mode of utilization of this surplus. Accordingly, their analysis placed emphasis upon those aspects of distribution and of the associated class behaviour which had a direct connection with the disposal of the surplus and therefore with growth. In particular, it was assumed that, typically, workers consumed their wages for subsistence, capitalists reinvested their profits and landlords spent their rents on 'riotous living'. On the other side, accumulation would also influence the distribution of income as the economy expanded over time.

It was this absolutely strategic role of the size and use of the surplus, viewed from the perspective of the economy as a whole and of its process of expansion, which dictated the significance of the distribution of income for classical economic analysis. Thus, for Ricardo especially, investigation of the laws governing distribution became the focus of analysis. In a letter to Malthus, Ricardo wrote (*Works*, VIII, pp. 278–9): 'Political Economy you think is an inquiry into the nature and causes of wealth; I think it should rather be called an inquiry into the laws which determine the division of the produce of industry among the classes which occur in its formation.' What was of crucial significance in this connection was the rate of profits because of its connection with accumulation, both as the source of investment funds and as the stimulus to further investment.

Having 'got rid of rent' as the difference between the product on marginal land and that on intra-marginal units, the Ricardian analysis focused on profits as the residual component of the surplus. Under the simplifying conditions on which the analysis was constructed, there emerged a very clear and simple relationship between the wage rate and the overall rate of profits, determined within a single sector of the economy – the corn-producing sector. The special feature of corn as a commodity was that it could serve both as capital good (seed corn) in its own production and as wage good to be advanced to the workers. With the wage rate fixed in terms of corn, the rate of profit in corn production is uniquely determined as the ratio of net output of corn per man minus the wage to the sum of capital per man consisting of seed corn and the fund of corn as wage good. Competition ensures that the same rate of profit enters into the price of all other commodities that are produced with indirect labour. The overall rate of profits, determined in this way, varies inversely with the corn wage. But, as soon as it is recognized that the wage and/or the capital goods employed in corn production consist of other commodities besides corn, the rate of profits can no longer be determined in this way. For the magnitude of the wage and of the total capital then depends on the prices of those commodities, and these prices incorporate the rate of profit. Attention then has to be directed to explaining the rate of profit by taking account of the whole system of prices. For this purpose the theory of value is called upon to provide a solution and Ricardo struggled with this problem until the end of his life. An elegant solution has now been worked out by Sraffa (1960) which shows that, in a system of many produced commodities, with the real wage rate given at a specified level, the rate of profit is determined by the given wage and the conditions of production of the commodities that are 'basics'. It so happens that Ricardo's case of corn is just such a 'basic' commodity in the strict sense that it enters directly and indirectly into the production of every commodity including itself.

The core idea that competition among firms under capitalist conditions tends to produce uniformity of profit rates across all markets remains problematical, especially in the dynamic real-world context of changing technology with various forms of factor immobility and barriers to entry (Harris, 1988).

Given the perceived centrality of the rate of profit in a capitalist economy, for classical political economy it becomes a crucial problem in the theory of economic growth to account for movements in the rate of profit associated with the process of capital accumulation and development of the economy. Such movements are a decisive reference point for understanding the long-term evolution of the economy. The classical answer to this problem, as worked out most coherently by Ricardo, is that in a closed economy there is an inevitable tendency for the rate of profit to fall in the course of the accumulation process and, hence, that the accumulation process itself is brought to a halt by its own logic.

Marx was later to propose this falling tendency of the rate of profit (FTRP) as a *law*. He considered it to be 'the most important law of modern political economy' (*Grundrisse*, p. 748; *Capital*, III, part 3). He was, of course, following in the tradition of the classical economists in which the same idea had been firmly entrenched, though supported on different grounds. But, interestingly enough, it is also the case that there exists a distinct conception of a FTRP within neoclassical theory (Harris, 1978, ch. 9; 1981). In Keynes, as well, the idea is embodied in his projection of the long-term prospects for capitalism resulting in the 'euthanasia of the rentier' (1936, pp. 375–6). In Schumpeter (1934), it occurs in the form of the idea that the profitability of innovations tends inevitably to be eroded so that the economy settles back to the conditions of the 'circular flow' in the absence of new innovations. Though it is based in each case on quite different foundations, this conception is one of the most striking and persistent uniformities across different schools of economic thought. (For a discussion of the long history of the idea of a falling rate of profit, see Tucker, 1960).

A Model of Accumulation

The essential features of the classical argument regarding the accumulation process can be exhibited with a simple model adapted from Kaldor (1956) and Pasinetti (1960). This model formalizes the Ricardian conception of an agricultural economy producing a single product, 'corn', under capitalist conditions. Land is of differing fertility and labour is applied in fixed proportion to less and less fertile land. Accordingly, the average and marginal product of labour falls as the margin of cultivation is extended through capital accumulation and increase of employment on the land. The system may indifferently be assumed to expand on the extensive or intensive margins of available land. Also, it does not matter for this analysis that there exists any production outside agriculture. It would turn out, in any case, that the overall average rate of profit for the economy as a whole is determined by the agricultural rate of profit or, in the general case, by the conditions of production of 'basics' (cf. Sraffa, 1960; Pasinetti, 1977). Of course, in a system with many produced commodities, it is not possible to define 'less fertile land' independently of the rate of profit (Sraffa, 1960). However, this problem does not arise in this simplified model of a corn-producing economy. We deliberately abstract from complications associated with the Malthusian population dynamics. This is perhaps the most problematic feature of the classical conception and we return to it below. Meanwhile, it is simply assumed, as in Lewis (1954), that a labour force is in perfectly elastic supply at some conventionally fixed real wage rate equal to 'subsistence'.

Let the production function relating output Y to labour input L be

$$Y = F(L) \qquad \begin{array}{l} F(0) \geq 0 \\ F' > w^* > 0 \\ F'' < 0 \end{array} \qquad (1)$$

which satisfies the law of diminishing returns and allows for the existence of a surplus product above the 'subsistence' wage-rate w^*. Total capital K consists entirely of wages W (the 'wage fund') advanced at the beginning of the production period to hire labour. Thus

$$K = W = wL \qquad (2)$$

We are here, for simplicity, neglecting capital as seed-corn and inputs of fixed capital are ignored. Total output is distributed between payment of rent R to landlords, profits P to capitalists, and replacement of the wage fund:

$$Y = R + P + W \qquad (3)$$

Given the margin of cultivation reached at any time, the level of land rent is determined as the difference between the average and marginal product of labour at the prevailing level of employment:

$$R = \left(\frac{F(L)}{L} - F' \right) L \qquad (4)$$

Profit emerges as the residual

$$P = \left(F' - w^* \right) L \qquad (5)$$

It follows that the rate of profit r is determined from

$$r = \frac{P}{W} = \frac{F'}{w^*} - 1 \qquad (6)$$

It is the dynamics of the wage fund which represents the process of accumulation in this model. Accumulation of capital consists of the growth of the wage fund with a corresponding increase of employment. Additions to the wage fund come entirely from investment of capitalists' profits since the spend-thrift landlords consume their share of the surplus. If the capitalists invest a proportion of profits equal to α, then

$$\Delta W = \alpha P \qquad 0 < \alpha < 1 \qquad (7)$$

The proportion α need not be a constant. It could vary in a manner dependent on the rate of profit as suggested by Ricardo's idea that

> [the capitalists'] motive for accumulation will diminish with every diminution of profit, and will cease altogether when their profits are so low as not to afford them an adequate compensation for their trouble and the risk which they must necessarily encounter in employing their capital productively (*Works*, I, p. 122).

In that case we have

$$\alpha = \alpha(r) \qquad \alpha' > 0$$
$$\alpha\left(r^*\right) = 0 \qquad (8)$$

where r^* is the capitalists' minimum acceptable rate of profit. By definition the rate of capital accumulation is $g = \Delta W/W$, and from (6), (7), and (8) it follows that

$$g = \alpha(r) \cdot r \qquad (9)$$

Thus, the rate of accumulation is uniquely dependent on the profit rate.

The movement in the profit rate as accumulation proceeds can be derived from (6). Evidently, as employment increases the marginal product of labour falls. The rate of profit must therefore fall. It continues to fall as long as there is any increment to the wage fund so as to employ extra labour on the available land. The process comes to a halt when the profit rate is so low that accumulation ceases. The economy is then at the stationary state.

In this model, the capitalists are caught between, on the one hand, the diminishing productivity of labour as the margin of cultivation is extended and, on the other, the need to pay the ongoing wage rate in order to secure labour for employment. As the productivity of labour falls on the marginal land the pressure of land rent increases for the existing intra-marginal units. The capitalists must therefore pay out an increasing share of the surplus to the landlords. In this way they gradually lose command over the investible surplus of the economy to the landlord class. This distributional conflict between the landlord class and the capitalists constitutes a central feature of the process that drives the economy towards its ultimate stationarity. The impenetrable barrier in the process is the diminishing fertility of the soil. More generally, it is the limitation of natural resources, in this case land, which brings the process to a halt. In this respect the classical model is a particular case of resource-limited growth. Any other limited resource would have the same effect, through increasing 'rents' for that resource. At the same time, this consequence is also the product of the capitalists' own actions in relentlessly seeking to expand the size of their capital.

The underlying dynamic process which expresses this conflictive evolution of capitalist accumulation has usually been assumed in the literature to converge towards the stationary state (cf. Pasinetti, 1960; Samuelson, 1978). Some reservation on this question of convergence was originally expressed by Hicks and Hollander (1977) and followed up by Gordon (1983). Subsequent discussion by Casarosa (1978), Caravale and Tosato (1980) and Caravale (1985) further emphasized the problematic nature of the convergence process. Much of the complexity of this process arises from the intertwined dynamics of distributional change and population growth typical of the Ricardian system. Day (1983) has shown that characterization of the population dynamics by itself may be sufficient to generate extremely erratic or 'chaotic' motions. Bhaduri and Harris (1986) analyse the essential dynamics of the Ricardian system as it is governed solely by the interplay of distribution and accumulation in a model similar to the present one. They find that the model can generate very complex 'chaotic' movements instead of any smooth and gradual convergence to the stationary state. The possibility of such behaviour is shown to depend uniquely on the initial configuration of parameters. This result should lead one to question the presumption that the Ricardian system necessarily converges to a stationary state.

The Malthusian Population Dynamics

A crucial role is played in the classical analysis by the population dynamics deriving from the Malthusian Law of Population Growth. In particular this law requires that population grows in response to a rise of wages above subsistence. This response mechanism is supposed to provide the labour requirements for expansion and thereby hold wages in check. But this is evidently a highly implausible principle on which to base an account of the process of capitalist expansion. If capitalism had to depend for its labour supply entirely upon such a demographic-biological response, it seems doubtful that sustained high rates of accumulation could continue for long or even that accumulation could ever get started. This is because, first, there must exist a biological upper limit to population expansion. Accumulation at rates above this limit would drive up the wage to such a level as to reduce or perhaps choke off the possibility of continued accumulation. For the classical labour supply principle to work it must be presumed arbitrarily that this limit is sufficiently far out or, equivalently, that the supply curve is sufficiently elastic over a wide range.

Even if it is granted that population growth is significantly responsive to the level of wages, it is still the case that the adjustment of population is inherently a long drawn-out process having only a negligible effect on the actual labour supply in any short period of time. In the interim, any sizeable spurt of accumulation must then cause wages to be bid up, eat into profits, and bring accumulation itself, to a halt. From the start, therefore, accumulation could never get going in such a system. Even if it did, its continuation would always be in jeopardy because the mechanism of adjustment of labour supply is an inherently unreliable one, fraught with the possibility that at any time wages may rise to eat up the profits that are the well-spring of accumulation.

This feature of classical analysis was soundly criticized and rejected by Marx (*Capital*, I, pp. 637–9). In its place, he sought to introduce a principle that was internal to the accumulation process, that would account for the continuing generation of a supply of labour to meet the needs of accumulation from within the accumulation process itself. This was the principle of the reserve army of labour or the 'law of relative surplus population' (*Capital*, I, ch. 25, sections 3 and 4). The reserve army results from a process of 'recycling' of labour through its displacement from existing employment due to mechanization and structural changes in production. In addition to this pool of labour there are other possible sources of increased labour supply to feed the accumulation process. These originate, for instance, in increased labour force participation rates among existing workers, in labour migration, and in the erosion of household work and other forms of non-capitalist production. Capital export to other regions can play the same role. These sources have been observed historically to be more or less significant at various times and places. It appears, therefore, that there is considerable flexibility of labour supply, and hence of accumulation, even without taking account of population growth. The existence of population growth certainly adds to the pool of available labour, as is now widely recognized. But the singular and unique role attributed to it by the Malthusian theory has by now been discredited and abandoned.

Conclusion

The Classical economists are often regarded as 'pessimistic' in their prognosis for economic growth. It is said that they constituted economics as the 'dismal science'. Still, there is much to be learned, that is of contemporary relevance, from a close examination of their analytical system. What emerges from such an examination is a complex structure of ideas expressing a deep understanding of the nature of capitalism as an economic system, the sources of its expansionary drive, and the barriers or limits to its expansion. Their ideas were essentially limited, however, to the conditions of a predominantly agrarian economy, without significant change in methods of production, in which, because of the limited quantity and diminishing fertility of the soil, growth is arrested by increasing costs of production of agricultural commodities. Their analysis underestimated the far-reaching character of technological change as a powerful and continuing force in transforming the conditions of productivity both in agriculture and in industry. While they clearly perceived the possibilities opened up by international trade and foreign investment, they failed to incorporate these elements as integral components of a systematic theory of the growth process. It remained for Marx to pinpoint some of the major limitations and deficiencies of the classical analysis and to develop an analysis of the capitalist accumulation process that went beyond that of the classical economists in many respects while also leaving many unresolved questions. Subsequent work has continued to address the issues with limited success. Until today, the theory of growth of capitalist economies continues to be one of the most fascinating and still unresolved areas of economic theory.

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