Unlimited Labour: Further Notes

In an article published in this journal four years ago [1] I showed how the classical assumption, that labour is available to the capitalist sector of an economy in perfectly elastic supply, leads to different conclusions from the neo-classical assumption that the supply of labour is inelastic, and illumines several problems of economic growth which modern economics cannot solve. The following notes set out in more detail the classical position on a number of these matters, and also make some further deductions from the classical model. I return to this subject because of its practical importance. More than half the world's population (mainly in Asia and in Eastern Europe) lives in conditions which correspond to the classical and not to the neo-classical assumptions. These peoples have more to learn from the classical analysis than from anything which has been published since 1870, so it is very desirable to study classical writings and translate their findings into modern language.[2] Besides, it is time that the classical writers had a square deal. For the past fifty years economists have been judging them from the standpoint of neo-classical analysis, giving them marks for intelligent anticipations of the neo-classical theory of value (as if they were primarily value theorists, and as if the neo-classical assumptions applied in their day), and dismissing everything else, especially the theory of development in which they were chiefly interested.[3] Hence studying the classics in the context to which they belong is overdue as much in terms of justice as of utility.

Since the principal elements of the classical model of development were set out in the article to which I have referred, I begin here with the briefest recapitulation. The model can be translated into modern terms by applying the Law of Diminishing Returns in its modern version. In Figure I the quantity of

[1] "Economic Development with Unlimited Supplies of Labour," *The Manchester School*, May, 1954.

[2] Classical political economy is as widely taught and studied in Japan as is neo-classical economics. Southern Asia, however, is still under the sway of the neo-classical system.

[3] The latest example of this distorted treatment is J. A. Schumpeter's *History of Economic Analysis*.

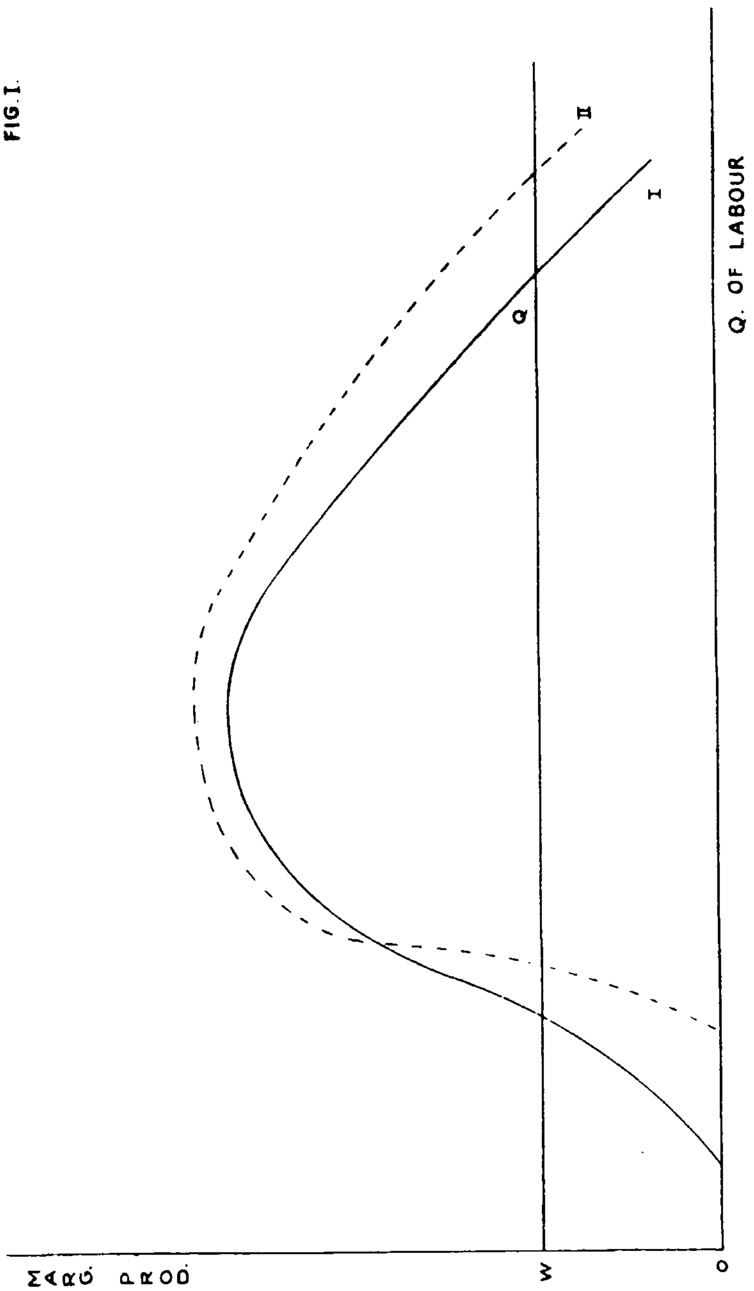


FIG. I.

labour is measured on the horizontal axis; the marginal productivity of labour on the vertical axis. The curve I shows the marginal product of labour with a given quantity of capital. If the wage is OW, employment will be WQ, provided that the surplus over wages is positive (the area under curve I up to Q, minus the rectangle OQ). The fact that there is not enough capital to provide employment for everybody is a vital distinction between this model and neo-classical analysis.

The system is dynamic. Since some saving occurs, capital will increase. So the marginal productivity curve will move outward, taking say the position II, and employment will increase continuously.

My earlier article discussed in some detail the sources from which labour flows toward capitalist employment. The classical economists put population growth first, but there are many other sources, which may be listed as peasant agriculture, cottage industry, casual labour, petty trade, domestic service, and wives and daughters entering the labour market.[1] Population growth, it should be noted, includes immigration, which has been an important source of expansion in several countries.[2] Apart from population growth, the classical economists relied on a transfer of labour from "productive" to "unproductive" employment, and it is useful to begin by probing this distinction.

[1]Most countries in the early stages of economic development have not one economy but two—a high wage economy (mines, plantations, factories, large-scale transport, etc.) and a low earnings economy (family farms, handicraft workers, domestic servants, petty traders, casual labourers, etc.). As development occurs, labour transfers from the low earnings to the high wage economy. It is of little consequence whether persons moving out of the low earnings economy have been in "disguised unemployment," or whether their marginal product has been zero, negative, or merely small. All that the analysis requires is that the supply willing to move at the current wage rate should greatly exceed the demand.

[2]The model can be used for regional analysis, where one part of a country (such as a town or province) is expanding relatively to the rest. Since output is determined by technical factors only and not by competitive valuation, the analysis cannot be applied to the firm, or to any other sector of an economy to which capital is also assumed to be in perfectly elastic supply. In the same way if the value of the region's output is determined by extra-regional competition, the analysis has to be modified to take account of this. See Part II of my earlier article (*loc. cit.*).

I. Productive and Unproductive Labour.

As Adam Smith set out the distinction, there are two elements to productive labour. First, its output consists of wage goods, and excludes services.[1] Secondly, productive labour produces a surplus over wages, and has therefore a larger average product than unproductive labour. The distinction was made and used only for the purpose of analysing capital accumulation.[2] Wage goods were produced by a roundabout process, involving time, so the number of productive labourers could not be expanded without saving.[3] Given saving, some labour could be transferred from service trades to producing more wage goods. This increase in the output of wage goods would enable the society to carry a larger population. The increase in the surplus, resulting from the increase in the number of productive workers, would also make possible still more saving. So there could be yet more expansion, in a continuing chain.

We must explore both the importance attached to wage goods, and also the notion of the surplus.

(a) *The Importance of Wage Goods.*

The classical economists approached the analysis of accumulation *via* the consumption of wage goods. They divided the consumers into three classes : (1) capitalists and landlords, (2) producers of services and luxuries, and

[1] Strictly, Smith's distinction is between commodities and services. But our modern distinction between wage goods and other output seems really to be what he was striving after, and fits his analysis best.

[2] Neo-classical economists have attacked the distinction from the standpoint of value theory, but since it was not intended for that context, the attack is irrelevant.

[3] We have difficulty in following the classical analysis of capital formation because they concentrated on the need to finance the period between ploughing and harvesting, which to us seems a relatively simple problem. We can understand them better by presuming this period to be lengthened from months to several years, whereupon reminiscences of Bohm-Bawerk make us feel more at home. Another difficulty is that, whereas the classics wrote in terms of consumer goods being produced by capitalistic processes, we now most often distinguish a sector producing consumer goods, and a sector producing capital goods. This way of thinking originated with Marx, who, following Ricardo's insight into the problem presented by machinery, devoted much attention to distinguishing sharply between fixed and circulating capital.

(3) producers of wage goods. In the wider sense the consumption of the producers of non-wage goods was part of the consumption of capitalists and landlords, since they regarded class (2) as being maintained by class (1) for its amusement, etc. out of the surplus extracted from class (3). Thus, when they spoke of the capitalists saving they sometimes meant reducing their personal consumption of wage goods, but more often they meant merely having fewer servants, and so reducing the numbers maintained in class (2).

For our purposes it is convenient to add another class, namely persons engaged in making capital goods. We then get four classes of consumers of wage goods

(1) capitalists and landlords
(2) producers of services and luxuries
(3) producers of capital goods
(4) producers of wage goods.

The first three classes are maintained out of the surplus produced by the fourth above its own consumption.

The problem is to increase the number in class (3), the producers of capital goods. This can be done in one of two ways. Either, consumption by one of the other three classes must fall. Or else the output of wage goods must increase, and the increase in class (3) be financed out of this increase in wage goods output.

These are relatively trivial propositions, yet they have been neglected recently by policy makers. The classical approach to capital formation via the consumption of wage goods does have the merit of reducing the problem to its simplest terms.

The temptation to neglect the first proposition—that if the output of wage goods is given, capital formation cannot be increased without reducing somebody's consumption—is very strong in those over-populated countries where there is surplus labour on the family farms (in the sense that if some labour left the farm to work on investment projects the output of farm products would not be reduced significantly). The transfer can indeed be achieved without disturbing consumption if the farmers are going to work on Community Development projects without pay ; any person can make more capital goods for himself without consuming more wage goods, if he so desires.

But when surplus workers have to be paid to work on investment projects, the demand for wage goods is increased, partly because the workers will not accept the work unless they are paid more than they would get if they stayed on the farm, and partly because the family left at home consumes more per head.

Accordingly, even when there is surplus labour, employing more people on investment projects means cutting consumption somewhere, if the output of wage goods is fixed. The employer (call him for convenience the government, since in these cases it is most often the government) has to find a fund of "saving" from somewhere to finance the additional capital formation.

First, let us note that if the fund is found by taxing capitalists or landlords it will probably result not in reducing their personal consumption of wage goods, but in reducing their employment of other workers, whether workers in class (2) services and luxuries, or workers in class (3) engaged in capital formation. In either case greater employment by the government is offset by equally smaller employment by capitalists and landlords. Ultimately, however, employment increases in the former case, since the increase in the amount of fixed capital in existence will permit larger employment and a greater national income.

Secondly, let us ask how large the fund of saving needs to be. This depends partly on the extent to which consumption on the family farm falls as members move off the farm. Suppose that to employ a man requires 100 units of wage goods, and that his leaving the farm releases 30 units. Then, if the government can get hold of the 30 so released, it need find only 70 elsewhere. If it actually finds 100 elsewhere, then the total employment resulting is increased to the equivalent of

$$100 + 30 + 9 + 2{\cdot}7 + 0{\cdot}81 + \ldots = 142{\cdot}9$$

This is the concept which Vakil and Brahmanand have called "the consumption multiplier." [1] The concept has theoretical validity, but one may doubt its practical utility. Since it is

[1] C. N. Vakil and P. R. Brahmanand, ***Planning for an Expanding Economy***, Bombay, 1956. The authors have written a thoughtful treatise, which essentially seeks to rehabilitate much of the classical system for application to countries with surplus labour. The concept referred to here, however, was originated by Nurkse (*op. cit.*), who decided that it was not worth naming.

unlikely that the government could get hold of the 30 units presumed to be released, the authors are right to formulate the proposition in terms of a multiplier rather than in terms of a reduction in the sum the government must find elsewhere. On the other hand, the assumption that 30 units will be released, and be used by the farm family in ways which increase off-farm employment, seems equally unlikely. For, in practice the departure of one member of the family does not in these circumstances of extreme poverty reduce the consumption of wage goods on the farm. Not only do the others consume what he has left behind, but they usually also expect him to send something back out of his wage, so that they may consume marginally even more than he was consuming before.[1]

So much for capital formation, given the output of wage goods. The other proposition—that if it is difficult to decrease the consumption of any class, an increase in capital formation requires an increase in wage goods output—has also been neglected. Thus, economists in the U.S.S.R., China, Eastern Europe, India and elsewhere have debated the question : "Should we concentrate on producing capital goods first and consumer goods second, or should the order be reversed?" Our scheme enables us to answer this question at once. We can only put capital goods first in so far as somebody's consumption can be reduced. Beyond this point, capital formation can be increased only be increasing simultaneously the output of wage goods. Hence in a poor country, where it is difficult to reduce consumption, the necessary condition for increasing capital formation is to increase the output of wage goods so as to provide an extra surplus which can be impounded for capital formation.[2] Is it not odd that it is the Marxist policy

[1]However the multiplier does not in any case fall below unity, since remittances reduce the worker's own consumption.

[2]Vakil and Brahmanand (*loc. cit.*) use this point for a wholesale condemnation of the trend of Indian planning. Their strictures seem greatly exaggerated. The Indian planners have shown their awareness of the point by their great stress on raising agricultural productivity, and by their plans to increase the output of cottage industries. Whether the supply of consumer goods will meet the demand is doubtful, but if it does not, the reason will be the over-optimism of the planners, rather than their failure to recognize the case for expanding the output of wage-goods. The authors also advance an argument for producing the required wage-goods with machines, instead of with surplus labour, but this is a separate issue, which we take up in the part of this paper which deals with technological unemployment.

makers, presumably bred in the classical tradition, who have most often neglected this proposition?

(b) The Superior Productivity of the Capitalist Sector

The second element of the distinction between productive and unproductive labour is that the former produces a surplus, so that a transfer of workers from the latter to the former raises the national income, increases the total surplus over wages, and so makes possible further expansion. Adam Smith tied this to the distinction between wage goods and other output, but the tie is not important. Thus Malthus explained that, from the angle of the surplus, whether the workers make commodities is unimportant; and he thought that the terminology could be improved:

> "If we do not confine wealth to tangible and material objects, we might call all labour productive, but productive in different degrees; and the only change that would be required in Adam Smith's work, on account of this mode of considering the subject, would be, the substitution of the terms more productive and less productive, for those of productive and unproductive.
>
> All labour, for instance, might be stated to be productive of value to the amount of the value paid for it, and in proportion to the degree in which the produce of the different kinds of labour, when sold at the price of free competition, exceeds in value the price of the labour employed upon them.[1]"

Here the distinction turns upon the surplus which a labourer produces above his own wages. This surplus is profit and rent; it accrues to capitalists and landlords because the labourer works with means of production which do not belong to him, to produce a commodity (or service) which is sold for a profit. This in turn gives us the definition of the capitalist sector of an economy, as used in this model: the capitalist sector is that sector of the economy where labour is employed for wages for profit-making purposes. Labour employed for wages with no intention of resale (e.g., domestic servants in the home, as distinct from the services of office cleaners) is excluded, as is all labour which is not employed for wages, whether such labour works with capital or not (e.g., peasant agriculture). So the non-capitalist sector includes both some employees and also the self-employed.

[1]T. R. Malthus, *Principles of Political Economy*, page 38.

The average product of a worker in the capitalist sector exceeds that of a worker outside this sector because it reproduces wages *plus a surplus*. This idea is found in all the classical writers. The surplus exists because the labourer in this sector is working with capital ; or if the self-employed sector is also using capital, the surplus exists because the capitalist sector uses even more capital per head.[1] Productivity must be higher in the capitalist sector because the employment will not be offered unless there is a surplus over wages, and will not be accepted unless wages are at least as high as the average product of the self-employed sector, which is what the worker could otherwise earn.[2]

Thus, this aspect of the distinction between productive and unproductive workers can be restated as follows, in modern language : In the early stages of economic development there is not enough capital to provide employment for everybody in the capitalist sector. Even if marginal products were the same,[3] the average product of labour would still be higher in the capitalist sector than outside. Capital accumulation makes it possible to increase the ratio of workers inside the capitalist sector to workers outside, and so raises national income.

In this model the dynamic force is capitalist accumulation, resulting in the expansion of capitalist employment. This is not the only possible theoretical model of growth. One could have a model in which the dynamic force was located in the self-employed sector. For example, growth could be due to the expansion of peasant agriculture. Peasant agriculture may

[1]If some of the self-employed hire capital, paying interest on it, they are really within the capitalist sector. See my earlier article, *loc. cit.*, pp. 146-7.

[2]Servants in the home may also be using capital, e.g., vacuum cleaners, but the psychic surplus which their employment yields to their employers (and which alone justifies their employment) does not count in this context, since it is not saleable and usable to provide employment for somebody else, as is the surplus which accrues to a cleaning agency which hires out the services of cleaners. The national income statisticians also ignore psychic surpluses.

[3]In perfect competition the marginal product of workers inside and outside the capitalist sector would be the same. In my earlier article (*loc. cit.*), I have explained why this is not so in practice. Because a difference exists, a transfer of workers into the capitalist sector would increase the national income even if there were no increase of capital.

become more productive for various reasons. New crops, improved seeds, new markets, roads, water supplies, etc. make peasants richer. So, in an economy which had abundant land but few capitalists, peasant agriculture might be expanding more rapidly than capitalist employment. In practice this is not very likely. If the peasants are growing rich they will demand increasing supplies of non-agricultural goods and services of the kind which are most efficiently produced on a capitalist basis, whether as aids to their production (e.g., transport facilities), or else for personal consumption. Hence the very prosperity of peasant agriculture will cause the capitalist sector to expand.[1] Historically, capitalist employment has everywhere expanded relatively to peasant agriculture in developing economies, and this relative expansion, as we have seen, must itself be raising the national income, since if the capitalist sector is expanding, productivity must be higher inside the capitalist sector than outside it.

Accordingly, however productive and dynamic the self-employed sector of the economy may be, the expansion of the capitalist sector relatively to the rest of the economy is an important part of the process of economic growth. The fact that this model concentrates on analysing capitalist expansion should not be taken as implying lack of interest in how peasants can be enriched.[2]

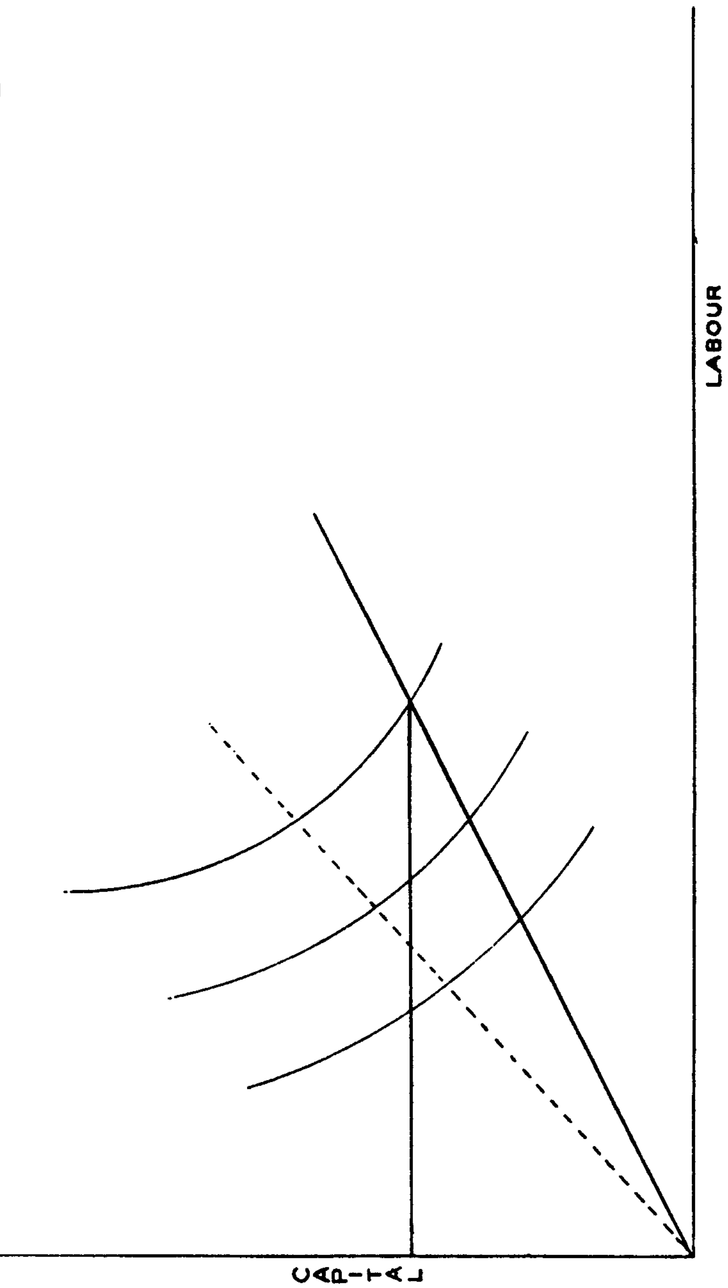
II. Technological Unemployment.

So long as unlimited labour is available at a constant wage, capital accumulation must increase employment, since it cannot pay to use capital as a substitute for labour. This follows from the Law of Diminishing Returns : extra capital

[1]It will not, however, be expanding at constant real wages unless the commodity terms of trade are moving in its favour. See below. Part III, section (*c*). The argument above shows that peasant prosperity expands capitalist employment to supply the home market; but it may at the same time cause capitalist employment for other purposes (e.g., for export) to decline. Though unlikely, it is theoretically possible for the net result to be a decline in capitalist employment.

[2]This would hardly be worth saying if one reviewer of my book *The Theory of Economic Growth* had not implied the opposite, in spite of the fact that large sections of the book are concerned with how to enrich the peasants !

FIG. II



must yield more when combined with extra labour than if it were merely added to existing capital with the same labour.

Technological change, on the other hand, may increase, reduce or leave unchanged the demand for labour with a given quantity of capital. The neo-classical and the classical formulations of this proposition are not quite the same. In the neo-classical formulation we hold *relative* wages constant, and, assuming that the isoquants fulfil the conditions of constant returns to scale, we can read off along a straight "Engel" line how much employment corresponds to how much capital. Technological change alters the isoquants, and thus gives us a new Engel line, which may run to the right or the left of the old one. If it coincides with the old one the innovation is said to be neutral as between labour and capital. If it runs to the left, the innovation is biassed in favour of capital, and full employment is maintained only by lowering relative wages : absolute wages may, however, still have increased, since the innovation may have increased the national income.

In the classical system, on the other hand, it is the absolute level of wag that is held constant. The innovation must reduce the wage rate relatively to the return on capital, since it will not be adopted unless it increases the return on capital. Thus it must increase the absolute surplus over wages, but it may increase or reduce employment or leave it unchanged ; and even national income as a whole, may be increased, reduced or left unchanged.

Ricardo stated this correctly,[1] and though he was berated by McCulloch [2] for making this concession to the enemies of capitalism, he stuck to his guns. J. S. Mill agreed with him.[3]

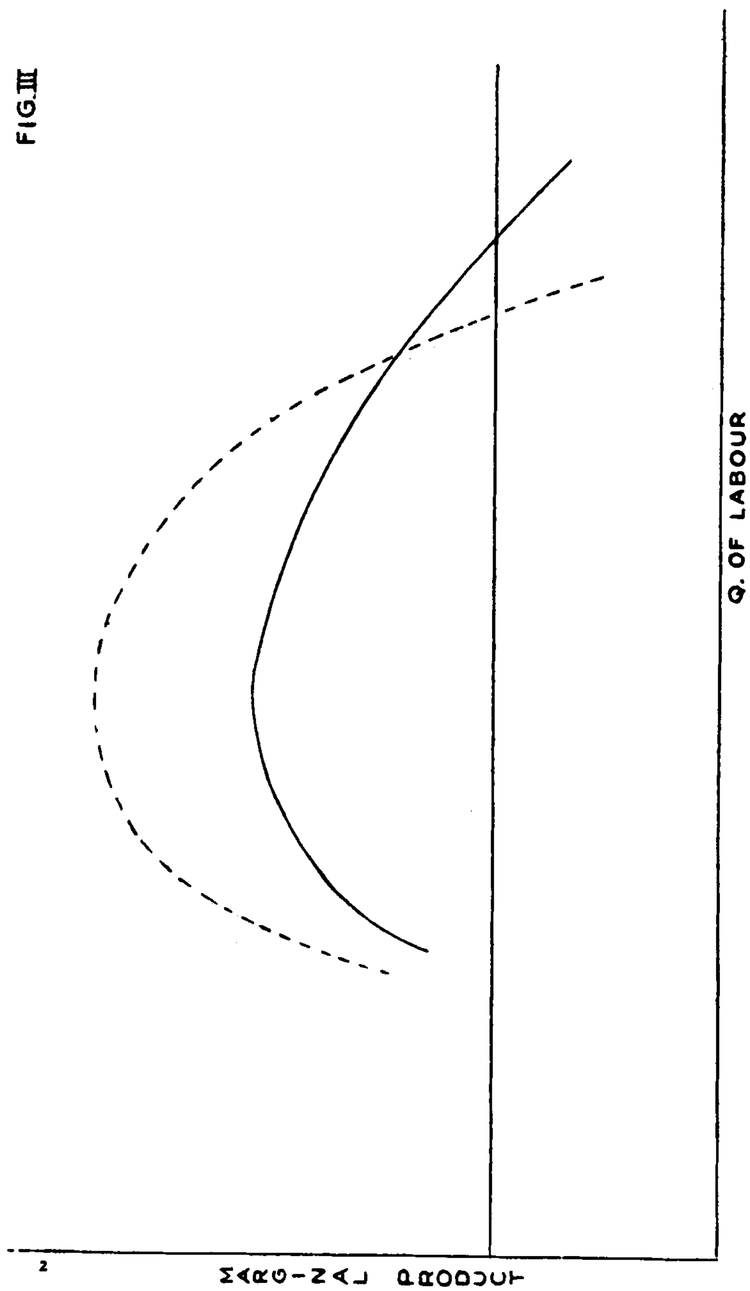
The same problem can be formulated in another way : should capital be used where it is marginally most profitable, or where the capital-output ratio is marginally lowest ? This problem does not arise in the neo-classical model ; since the quantity of labour is fixed in that model, we maximise output by maximising the return on capital. But in a system where the

[1] *Principles of Political Economy and Taxation*, Chapter XXXI, "On Machinery."

[2] *Letters of Ricardo to Malthus*, Bonar edition, p. 184.

[3] *Principles of Political Economy*, Vol. I, Book I, Chapter VI.

FIG. III



quantity of employment is variable, the most profitable uses of capital need not be those which maximise output or employment. Adam Smith was troubled by this difference—as many recent writers have been—and he devoted Chapter V of Book II to the subject. Malthus also touched on it, in the passage already quoted. Ricardo answered that what matters is not to maximise output but to maximise the surplus over wages.[1]

This was the same answer which he and Mill gave on the subject of technological unemployment. They argued that technological change must in the long run be favourable to employment, even though it might temporarily reduce employment. This was because the innovation must increase absolutely the surplus over wages, or it would not be adopted. Since the surplus increased, capital accumulation would proceed more rapidly, and so employment must increase more rapidly.

We have thus two forces operating in different directions : capital accumulation, which must increase employment, and technological change, which may sometimes reduce employment. One cannot say *a priori* which must win out. Using hindsight we can see that Ricardo was right : even though some technological change reduces employment, the combination of capital accumulation and of the kind of technological change which increases employment, has brought about an immense increase in the demand for labour. This is the classical answer to those who want to restrict innovation in order to protect employment.

The validity of this answer, however, depends upon several conditions. First, it depends upon the assumption that it is more important to maximise output and employment in the long run than in the short run. This in turn depends partly on how rapidly capital is accumulating, since this determines how short the short run is. One is more likely to accept the objective of maximising the surplus if capitalists are using most of the surplus for capital accumulation than if they are using it mostly for consumption.

Secondly, the argument depends on the assumption that the rate of accumulation depends primarily upon the level of

[1]*Op. cit.*, Chapter XXVI. Also *Notes on Malthus*, Sraffa edition, pages 18-22.

profits. This is true enough in a pure capitalist system, but it may not be true in a directed economy. For example, in an increasing number of countries, saving is financed to some extent out of taxes, levied upon all classes of the economy. If saving is a function not of profit but of national income, then the rate of accumulation is maximised by maximising not profit but national income, and innovations which reduce the national income (or fail to increase it) while increasing profits should be resisted.

Given that accumulation is a function of profit, the application of the Ricardian argument depends thirdly upon the assumption that the market for capital is perfect. Otherwise it has first to be demonstrated that capital could not be used more profitably in some alternative way than in exploiting the innovation which involves technological unemployment. In a perfect market economy, where capital flows always towards the most profitable uses, this may be taken for granted, but conditions may be different in the real world.

Thus, in India, much capital formation is done by the government, at low interest rates. The real return on irrigation works, steel plants, railways and roads is not measured by the interest yielded by government bonds, or by the profits earned at the prices fixed by the government. Indian planners believe the real social return on capital used in such purposes exceeds the real social return on capital invested in new cotton mills ; since, given that there is surplus labour in the cottage industry, capital investment in cotton yields no more cotton goods than would otherwise be available—it merely reduces employment. The return to private shareholders is nevertheless higher in cotton than in lending to the government. If the planners are right, the national income is increased by prohibiting further investment in cotton at present, and by channeling savings into more productive uses, until the catching up of demand with supply from existing cottage sources, raises the real productivity of new investment in cotton beyond marginal productivity in other sectors.

The only difference which the accumulation argument makes to this reasoning is to substitute maximisation of the surplus over consumption for maximisation of national income.

Instead of saying that the Indian planners are right if the real social marginal productivity of capital is greater elsewhere than in cotton, one must say that they are right if capital creates a greater surplus elsewhere than it does in cotton. Conversely, if one wishes to prove them wrong, one must show that investment in cotton would lead to a greater increase in savings than would investment in irrigation, steel, or other alternative uses of capital. This their critics have not even tried to do.[1]

III. The Rate of Profit.

(a) *The Connection between Profit and Accumulation.*

The expansion of the capitalist sector does not depend upon whether saving is done out of profits or out of other incomes. Whether saving is done out of wages, salaries, rents, or the incomes of the self-employed, so long as saving is channeled into investment in the capitalist sector, that sector will expand.

The assumption that most saving comes out of profit is relevant only in the context of explaining why the ratio of saving to national income increases in the first stage of economic development. For this explanation to work one need not assume that all saving comes out of profit ; it is necessary only that the marginal propensity to save should be higher out of profits than out of other incomes. Then it will follow that, as the capitalist sector expands, and profits rise relatively to national income, the ratio of savings to national income will rise.

[1]Vakil and Brahmanand (*loc. cit.*) found a fierce criticism of India's protection of cottage weaving upon the argument that factory production gives rise to a greater surplus of savings than does cottage production. But they never mention that the imperfection of the capital market makes it possible that capital could be more profitably used (in the real sense) in other sectors, giving rise to a larger savings potential and a greater increase in savings than would accrue from profits in capitalist cotton production.

It is useful to have this explanation of the rise in the savings ratio which accompanies economic growth.[1] As argued in my earlier article, the rival explanations do not carry conviction : saving does not rise automatically with income per head ; it is not a function of inequality as such, which is also not necessarily greater in rich than in poor countries ; and class by class, there is no evidence of increasing thriftiness during the relevant periods. The proposition that the marginal propensity to save is higher out of profits than out of other incomes is the best explanation we have of why the savings ratio rises in the first stage of economic development.

Moreover, the model explains not only why the savings ratio rises in the first stage of development, but also why it ceases to rise in the second stage, and this adds to its merit.

The classical economists did not all assert that profit is the source of saving. They agreed that a high rate of profit acts as an incentive to saving, but this is a different matter. They also agreed that saving comes mainly out of the surplus over wages, i.e., in their system, out of rents and profits. Malthus asserted that saving is done out of profit, while landlords use their income rather for consumption.[2] In this he was preceded by David Hume[3] and by William Spence[4] and was followed

[1] U. [illegible] tistics do not show a significant increase in the savings ratio in [illegible] rty years before the first World War. This may be due to [illegible] rfections of the statistics, but it may also have other explanations. [illegible] is that since the country was being peopled with immigrants, who are notoriously thrift-minded, the propensity to save out of non-profit incomes may have been higher than elsewhere ; the farmers in particular seem to have been very thrifty (farmers employing labour count as capitalists in the Ricardian system). Another is that in a country developed with immigrant labour the non-capitalist sector may be very small from the start ; there is then little room for expansion of the capitalist sector relatively to the economy as a whole, so profits rise relatively to national income only if the profit margin is rising in the capitalist sector (see below, section (*b*)). A third possible explanation is that wages were rising rapidly, so profits did not rise as much relatively to national income as they would have done if wages had been constant. Wages were rising partly because productivity was increasing in the sources whence labour was being recruited (from Europe and also from domestic agriculture) (see below, section (*c*)). There was also an inflow of foreign capital, helping to raise wages.

[2] *Op. cit.*, pp. 465-6.

[3] *Essays, Moral, Political and Literary*, Vol. I, Part II, Essay IV, "Of Interest."

[4] *Britain Independent of Commerce*, 1808, quoted in Maurice Dobb, *Political Economy and Capitalism*, p. 51.

★

by Marx.[1] Smith, Ricardo, and J. S. Mill, however, are silent on this issue. Ricardo probably accepted the Malthusian version. At any rate, he had so many opportunities to dispute it, and he disputed so much else, that one may reasonably conclude from his silence that he was willing to accept it.

(*b*) *The First Stage of Development.*

So long as unlimited labour is available at a fixed real wage, the share of profits in the national income will increase. There are two reasons for this. First the share of profits in the capitalist sector may increase. And secondly the capitalist sector will expand relatively to national income.

Let us note first that in this system the rate of profit on capital cannot fall. As Ricardo pointed out,[2] however big the increase in capital may be, it can always be matched by a proportionate increase in the employment of labour. With given technology and unlimited labour at constant wages, no "deepening" of capital takes place ; only "widening." So the rate of profit on capital is constant. This was the point Ricardo continually reiterated to Malthus : the rate of profit could fall only if wages were rising. Ricardo thought that diminishing returns to land would raise wages, but we shall come to this in section (*c*).

Assuming away diminishing returns to land, the rate of profit on capital cannot fall. On the contrary, it must rise, because all the benefit of technological progress accrues to capital, the wage rate being constant. Thus, the rate of profit rises all the time, while the wage rate is constant. What happens to the relative share of profits depends partly on what technological progress does to the demand for labour. Relative shares in the capitalist sector will be constant if technological change increases the demand for labour in exactly the same proportion as it raises the rate of profit ; but the relative share of profits will rise if technological progress reduces the demand for labour, or leaves it unchanged, or increases it insufficiently. Though technological change must raise the profit rate relatively to

[1]*Capital*, Vol. I, Chapter XXIV, Section 3, "Separation of Surplus Value into Capital and Revenue."

[2]*Principles of Political Economy and Taxation*, Sraffa edition, Chapter XXI, p. 289.

the wage rate, we cannot say *a priori* whether it will raise the share of profits in the capitalist sector, and therefore the ratio of saving. But, from what we know of innovations, it is not improbable that on balance the share of profits in the capitalist sector will rise.

Whatever the effect of innovations may be, the share of profits must rise relatively to national income for another reason, namely, the expansion of the capitalist sector relatively to the rest. This may not always be important. It will not be important if there is not much non-capitalist sector to begin with. Thus, if the capitalist sector expands by bringing immigrants into an empty country, capitalist sector and national economy virtually coincide. If the immigrants are available at a constant wage, the profit ratio may grow because of technological change, but not because the capitalist sector expands relatively to the national economy. Even if the non-capitalist sector is large, the capitalist sector will not expand relatively to the whole if the non-capitalist sector is growing as rapidly. This is unlikely, for reasons given when we discussed the superior productivity in the capitalist sector.

Thus, so long as labour is available at a constant wage, profits will grow relatively to national income, unless innovations are on balance highly favourable to the demand for labour ; the savings ratio will grow, and the rate of growth of national income will accelerate.

(*c*) *The Turning Point.*

This acceleration must continue so long as the share of profits in the national income is increasing. Anything which raises wages relatively to profits will check the speed at which the rate of profit on capital is increasing ; it may stabilise the share of profits (and so the rate of growth of the economy), or it may even cause the share of profits to fall. (As before, what happens to relative shares depends on what happens to employment as well as on what happens to rates of wages and profits).

Profits may be checked for one of three classes of reasons : (*i*) Wages may rise, or profits fall, for exogenous reasons not due to the expansion of the capitalist sector itself. (*ii*) The terms of trade may turn against the capitalist sector because of its expansion. Either (*i*) or (*ii*) may end the expansion of the capitalist sector even though there is still surplus labour available at the ruling wage. If not, expansion must eventually result in (*iii*) the supply of labour becoming inelastic, because capital accumulation has caught up with the labour supply.

(*i*) *Exogenous factors*. In this category we include checks which do not themselves result from the expansion of the capitalist sector. There are several possibilities, including natural disasters such as epidemics or earthquakes. We consider just three economic examples.

First, real wages may rise even though the labour supply is abundant. In the classical system the normal level of wages is the subsistence level at which the working class exactly reproduces its numbers. In Asia or Africa the wage floor is set by the productivity of small scale agriculture : men will not accept wage employment unless it yields at least as much as they would consume if they remained on the farm. In practice it must yield even more, perhaps as much as 50 per cent. more ; and thus the floor is set to wages. On the other hand, while the existence of excess supply makes it possible for capitalists to hold the wage at this level, they do not necessarily keep it there. For one thing, they may have moralistic notions which limit the rate of profit on capital ; e.g., they may think that a profit margin of say 25 per cent. is adequate, and they may therefore deliberately raise wages as productivity increases. Or they may react in the same way towards trade union pressure, or even to ward off the growth of unions. Thus, large industrial corporations in Japan pay wages twice as high as small industrial employers pay. If this is how capitalists normally behave, there will be an ever-widening gap between the wages they pay, and the subsistence wage at which unlimited labour is still available. This is consistent with Marx's proposition that the rate of exploitation or surplus value is constant,[1] which amounts to saying that the wage rate

[1] *Capital*, Book III, Chapter XIII "The Theory of the Law" (of the falling tendency of the rate of profit). There are "Counteracting Causes" in Chapter XIV, but the availability of labour at a constant wage rate, which is so important to the rest of his system, and which is inconsistent with Chapter XIII, is not mentioned here.

rises as rapidly as productivity ; elsewhere he says the opposite —wages are constant at the subsistence level—but he may have been unintentionally right. If so, rising wages are not an exogenous but an endogenous check. However, if we assume that wages rise proportionately with productivity, this does not stop capitalist expansion. It makes profits a constant proportion of income in the capitalist sector. Profits will still be a rising proportion of national income if there is a non-capitalist sector which is not expanding so rapidly. If there is no non-capitalist sector (e.g., a country developed by immigration for capitalist employment) profits and saving are a constant proportion of national income throughout, and the rate of capitalist expansion does not accelerate.[1]

Alternatively, wages may rise exogenously because the source from which labour is recruited is experiencing increasing productivity. Thus, if labour is being recruited from abroad, through immigration, from countries where wages are rising, wages will have to rise at home, too, or the rate of expansion will be checked. Malaya did not have to pay rising wages to Indians or to Chinese for this reason, but North America may have had to pay rising wages to European immigrants. Similarly, if labour is being recruited from peasant agriculture, where productivity is rising, it may be necessary to pay higher wages. This depends partly on whether the capitalist sector and the peasant sector trade with each other. If they do not trade, rising productivity in the peasant sector will certainly

[1]The evidence as to the behaviour of wages during the British industrial revolution is conflicting. Even contemporary writers disagreed. Professor T. S. Ashton suggests that we should think in terms of two groups of workers : those who benefited from the expansion of factory employment, and those who did not ("masses of unskilled or poorly skilled workers—seasonally employed agricultural workers and handloom weavers in particular"). There is no doubt that the former group increased in numbers relatively to the latter. Since the wage rate was higher in the capitalist sector than outside, this transfer of workers into the capitalist sector would automatically raise the "average" standard of life of the workers in the economy as a whole, even if the real wage in the capitalist sector remained constant. See "The Standard of Life of the Workers in England, 1790-1830" in *Capitalism and the Historians*, ed. F. A. Hayek. The question whether real wages *in the capitalist sector* rose during the first half of the nineteenth century remains unsettled. What with Irish immigration and a falling death rate, capital seems not to have caught up with labour supply until the second half of the century.

force up wages in the capitalist sector. If they trade, however, rising productivity may to some extent be offset by deteriorating terms of trade, even to the point where wages, considered not in terms of wage goods in general, but in terms of the commodities produced in the capitalist sector, may actually be reduced because the terms of trade are moving in favour of the capitalist sector.

A rise in real wages stops the profit rate from growing as rapidly as it otherwise would, but it does not necessarily bring expansion to an end. It will not even stop the acceleration of growth, if productivity is rising faster than wages. There may have been cases, in the real world, where the capitalist sector of a country ceased to expand because of an exogenous rise in wages, but one cannot think of many such cases. On the other hand, this is happening all the time in the expansion of towns or regions within a country, where the expansion of employment in one place, relatively to the rest of the economy, is brought to an end because developments elsewhere raise wages and drain away labour.

(*ii*) *The Terms of Trade.* Profits may be checked because the expansion of the capitalist sector moves the terms of trade against it. In these cases real wages remain constant, in terms of purchasing power over wage goods in general, but profits fall because a larger amount of the capitalist product has to be surrendered to and by the workers in order to purchase the constant quantity of wage goods.

The classical economists all predicted this fate for capitalism, because they believed that diminishing returns in agriculture would move the terms of trade in favour of landlords. Adam Smith had stated the opposite. In his system there is more than adequate technological improvement in agriculture, and rents diminish constantly relatively to national income.[1] So far Smith has proved right and the Ricardians wrong in all countries where agriculture is on a capitalist basis.

The position is quite different, however, in countries where agriculture is on a peasant basis. We know that productivity can increase sharply in peasant agriculture if research is being

[1] *The Wealth of Nations*, Modern Library edition, Book II, Chapter III, page 318.

done into peasant problems, and if an agricultural extension system, an agricultural credit system, roads, water supplies and so on are provided on an adequate basis. We also know, however, that peasant agriculture has a tendency to stagnate in the absence of such measures, and also that such measures have been adopted in relatively few countries. If the capitalist sector trades with the peasant sector (e.g., depends on it for food or for raw materials and therefore for markets), its continued expansion would be menaced if the peasant sector were stagnant, since this would move the terms of trade against the capitalist sector. In practice, failure of peasant agriculture to increase its productivity has probably been the chief reason holding down the expansion of the industrial sector in most of the under-developed countries of the world.

If domestic agriculture fails to expand, capitalist industry can nevertheless continue its expansion if it can substitute foreign trade. The expansion of industry then leads to ever-increasing imports of food and raw materials, matched by exports of manufactures. This, however, depends on the skill of the industrialists in opening up foreign markets. If they are inefficient competitors in foreign trade, the terms of trade will turn against them; the expansion of home industry has then to be slowed down to the rate which the expansion of foreign trade is able to carry.[1]

An adverse movement of the terms is due to "unbalanced growth" of the various sectors of the economy. This may occur at any stage of economic development, at the beginning, in the middle, or after a century of rapid progress. It is probably the main reason why only a few countries have made substantial progress.

(*iii*) *Exhaustion of the Surplus.* It is possible for the capitalist sector to cease expanding long before the labour surplus is exhausted. Wages may be rising for exogenous reasons faster than productivity, so that expansion is checked even though at any time there is an excess supply of labour at the market rate. Similarly, profits may fall relatively to wages, through adverse terms of trade, although there is a perfectly

[1]For further discussion of this phenomenon, see my article "International Competition in Manufactures," *American Economic Review*, May, 1957.

elastic labour supply at a wage rate constant in terms of its purchasing power over wage goods. The system may, however, escape either of these fates. In that case, the capitalist sector will expand until capital accumulation catches up with the labour supply, whereupon we reach a new stage of economic development.

If the capitalist sector expands fast enough, it must sooner or later embrace the whole economy ; and wages will start to rise long before this happens.[1] Adam Smith recognized that capital could catch up with labour supply, and raise wages in the process.[2] Malthus, Ricardo and the other classical economists denied this, because they thought that population growth must keep up with accumulation. In this they were wrong. Medical knowledge was not in their day adequate to reduce death rates below 20 per 1,000 in Europe (North America seems to have been healthier) so the population could not increase faster than 2 per cent. per annum. Even to-day increases exceeding 3 per cent. per annum are most exceptional. Since capital can increase by more than 3 per cent. per annum, there is no difficulty in exhausting the labour surplus in due course.

Marx rejected the Malthusian population theory, but still thought that there would always be a surplus. He recognized that capital could catch up with the labour supply, since accumulation, as distinct from technological change, always increases employment if wages are constant. He argued, however, that once the limit of labour supply was reached, accumulation would raise wages, this would promote the "deepening" of capital, and so wages would fall back to their previous subsistence level.[3] This is an error in the same class as "if the demand increases the price will rise ; this will reduce the demand, and so the price will return to its previous level." Deepening and a rise in wages are not substitutes for each other; deepening occurs only to the extent that wages rise. One can

[1]As people transfer from the non-capitalist to the capitalist sector, pressure is relieved, real consumption per head increases, and this shows itself sooner or later in a rise in the supply price of labour, even though there is still a labour surplus.

[2]*Op. cit.*, Book I, Chapter VIII, pp. 68-70.

[3]*Capital*, Vol. I, Chapter XXV.

make better sense of Marx by ignoring this error, and resting his case instead upon adverse technological inventions. Then, as soon as capital catches up with labour, and starts to raise wages, capitalists turn to the kind of innovation which reduces the demand for labour. No matter how fast capital may accumulate, the argument must continue, capitalists are always able to find enough technological innovations of the adverse kind to offset capital accumulation and also those innovations which increase the demand for labour. Now such a statement is a statement of fact. Marx gave no reason why it should be so. Yet practically the whole of his system rests on this assertion about the nature of technological progress—for it is this that keeps wages at the subsistence level, this that (in his under-consumption moods) produces the disproportion between saving and consumption, this that produces the ever-increasing reserve army of unemployed, this that increases the misery of the working-class, and so this that ultimately brings revolution and communism. Seldom has so much depended upon so little.

Where Marx was right was in making the point that for a while the capitalist sector creates surplus labour by invading sectors to which it is superior, especially by putting the handicraft workers out of business, and also by reducing the labour requirement in agriculture, if it is permitted to reorganize agriculture on a capitalist basis. A corollary of this is that, from the point of view of capitalist expansion, even a pre-capitalist economy with abundant land is capable of developing a labour surplus. For example in most of Africa and Latin America labour is more or less fully employed, since there is no shortage of cultivable land. However, a labour surplus could be created by the expansion of capitalist production at the expense of pre-capitalist forms of handwork, in manufacturing, in agriculture and elsewhere. But this substitution cannot continue forever. Sooner or later the pre-capitalist forms are all destroyed, and the labour surplus is exhausted.

Once capital catches up with labour, the supply of labour becomes inelastic. The countries which have surplus labour have never reached this stage. Their capitalist sectors have begun to expand at one period or another, but their expansion has hitherto always been checked by an unbalanced development, with labour still in excess supply.

(*d*) *The Second Stage of Development.*

When capital catches up with labour supply, an economy enters upon the second stage of development. Classical economics ceases to apply ; we are in the world of neo-classical economics, where all the factors of production are scarce, in the sense that their supply is inelastic. Wages are no longer constant as accumulation proceeds ; the benefits of improved technology do not all accrue to profits ; and the profit margin does not necessarily increase all the time.[1]

Adam Smith seems to be the only economist to have recognized that there are these two different stages of economic development, with two different sets of results. Marx recognized that capital must sooner or later catch up with labour supply, but he evaded the issue.[2] The neo-classical economists in their turn have ignored the existence of the first stage ; have erroneously applied second-stage analysis to first-stage problems ; and have rudely brushed aside the classical writers as if their model were a mere evasion of reality. Failure to grasp the distinction between the two stages of development is the main reason why the historians of economic thought have made so little sense of the classical writers.

Once the second stage is reached, what happens to the profit ratio, savings, etc. ? Classical economics does not deal with this problem. Neo-classical writers have put forward

[1]Some pre-capitalist economies, where land is abundant (e.g., in Africa) have a formal similarity to second stage capitalist economies, in the sense that they have no labour surplus. Nevertheless, since a capitalist sector could expand within these economies at constant wages, by destroying their small scale manufacturing and agricultural sectors, and so producing a labour surplus, these economies are more properly regarded as being in a stage which precedes the first stage of capitalist expansion than as being in the second stage. In other words, Adam Smith and Karl Marx throw more light on how these economies will develop than does Walras or Pigou.

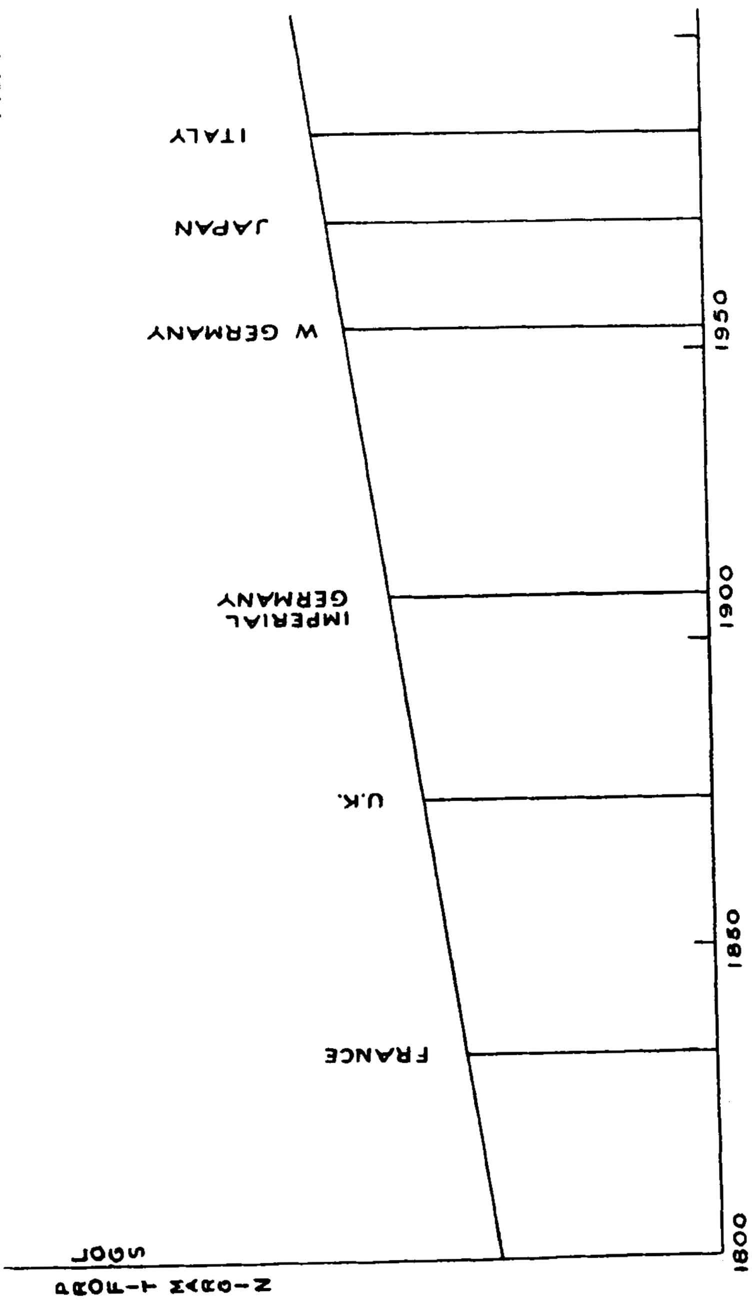
[2]Lenin recognized that there is more than one stage of capitalism, but he gave the wrong reason for this. Following Marx, he did not see that real wages must rise, and he attributed the phenomena of the second stage (capital export, etc.) to the concentration of capital in monopolies. Also he had no warrant for suggesting that there are only two stages. V. I. Lenin, *Imperialism, the Last Stage of Capitalism*.

many theories of distribution (marginal productivity, perfectly elastic supply of capital, the degree of monopoly, Keynesian equilibrium between investment and saving via the profit ratio, etc.) but their very profusion shows how unsatisfactory they all are.

Whichever neo-classical theory may win the day, it seems that one of the facts it will have to explain is why the ratio of profits to national income becomes relatively stable (apart from cyclical variations) in the second stage. The classical model cannot explain this, but if one accepts the stability, the classical model can throw light on the level at which the ratio stabilises. For, since the ratio rises during the first stage and then stabilises, the task of explaining where it stabilises really belongs to the first stage, and so to the classical model.

This line of explanation traces back to the proposition that during the first stage technological innovation raises the rate of profit on capital, but not the wage rate. Wherefore, unless innovations are on balance very favourable to employment (raising employment as much as they raise the profit rate) the profit margin will increase all the time. We may represent the situation schematically by supposing that technology has been raising productivity steadily since some such arbitrary date as 1800 A.D., and has raised profits faster than employment. Then, in every country in the first stage of development, the potential profit margin would rise from 1800 to such date as it entered its second stage of development. It follows that profit margins will be lowest in countries which reach their second stage earliest, and will be highest in countries where the second stage is longest delayed. It follows also that the countries which begin to develop latest will stabilise with higher savings ratios and higher rates of growth than those which reach their second stage earliest. The conclusion is subject to many modifications. (1) The effect of innovations on employment is not the same in every country. (2) The capitalist sectors of different countries do not use the same technology at the same time. (3) Subsistence wages are not the same in different countries, and are increasing at different rates ; profit margins should be much higher in countries where the peasants' productivity is low, such as Central Africa, than where it is high, such as Japan.

FIG. IV.


ITALY
JAPAN
W GERMANY
IMPERIAL GERMANY
U.K.
FRANCE
1950
1900
1850
1800

(4) The margin between actual wages and the subsistence level is not the same everywhere. And (5) the international migration of capital tends to prevent differences in the rate of profit from being as wide as they would otherwise be. Nevertheless, there is a little evidence supporting the order which is indicated in the accompanying diagram. France seems to have reached her second stage earliest in Western Europe, because of her slow population growth and comparatively stagnant agriculture. Western Germany entered upon a new first stage after the second world war, because of refugee immigration ; she has recently re-entered the second stage. Of the advanced capitalist countries, profit margins seem to be highest in Western Germany, in Japan (which now expects to reach its turning point in about ten years, because of the sharp fall in its birth rate) and in Italy, where the labour surplus is still substantial.

IV. Ricardian Socialism.

Analysis is not the same as prescription. This model shows that employment expands as the share of national income accruing to private profits increases. It does not follow that those who make this analysis advocate increasing the share of private profits in the national income.

Both Adam Smith and Ricardo refuted this charge specifically. In Adam Smith's model the rate of wages rises continuously, and both the rate of profits and also the share of rent in the national income fall. He welcomed this state of affairs :

> "Is this improvement in the circumstances of the lower ranks of the people to be regarded as an advantage or as an inconveniency to the society ? The answer seems at first sight abundantly plain. Servants, labourers and workmen of different kinds, make up the far greater part of every great political society. But what improves the circumstances of the greater part can never be regarded as an inconveniency to the whole. No society can surely be flourishing and happy, of which the far greater part of the members are poor and miserable. It is but equity, besides, that they who feed, clothe and lodge the whole body of the people, should have such a share of the produce of their own labour as to be themselves tolerably fed, clothed and lodged." [1]

[1] *Op. cit.*, page 78. See also pp. 87 and 92-5.

Even Ricardo wanted wages to rise at the expense of both profits and rents. What prevented this, in his model, was that population increases if the wage rate rises above the natural rate. However,

> "It is not to be understood that the natural price of labour, estimated even in food and necessaries, is absolutely fixed and constant. It varies at different times in the same country, and very materially differs in different countries. It essentially depends on the habits and customs of the people . . . The friends of humanity cannot but wish that in all countries the labouring classes should have a taste for comforts and enjoyments, and that they should be stimulated by all legal means in their exertions to procure them. There cannot be a better security against a super-abundant population.[1] "

With these words Ricardo opened the door to the socialists, for these words implied that rent and profit were an arbitrary levy, the size of which was determined wholly by the attitude of the working classes toward reproduction, as reflected in the natural price below which they would not maintain the labour force. The argument was thus shifted from the analytical to the ethical plane. What right had land and capital to share in the produce of labour? As Thomas Hodgskin put it :

> "The landlord and the capitalist produce nothing. Capital is the product of labour, and profit is nothing but a portion of that produce, uncharitably exacted for permitting the labourer to consume a part of what he has himself produced.[2] "

Marx despised these Ricardian socialists. He called them "utopians" because they shifted from the analytical to the ethical plane. He preferred his own "scientific" demonstration that the socialist revolution was inevitable. But apart from the failure of his "science," in the last analysis it is on the ethical plane that social problems have to be solved.

The capitalist has found defenders along two lines. First, the marginal productivity theory of distribution denies that the whole produce is due to labour, and claims to be able to show precisely how much is contributed respectively by labour, by land, and by capital "at the margin." This returns the question to the analytical plane, without answering the ethical question. Even if one can calculate the marginal productivity

[1] *Principles*, pp. 96, 100.

[2] Quoted in Esther Lowenthal, *The Ricardian Socialists*.

of land, it does not follow that a particular group of citizens, entitled landowners, should receive a sum equal to marginal product times quantity. The marginal productivity theory shows how much ***land*** puts in ***at the margin***, and how much ***landowners*** are able to extract ***in total***, in a purely competitive society; but it does not tell us how much landowners ***should*** get, if anything.

The second line of defence proceeds along Benthamite lines by demonstrating that it is necessary to the good of society as a whole, including the workers, that capitalists should receive a large share of the product—both to encourage enterprise, and also as a source of saving. This implies that neither enterprise nor saving is possible without private profit. The answers to this are well known. The school of co-operators advances co-operative enterprise and saving as one alternative; the socialists advance public enterprise and public saving as another alternative. The answers to these answers are also well known. Thus the purpose of this postscript is fulfilled: to warn the reader that he should not try to deduce directly from this model of economic expansion any prescription relating to the social institutions which economic development requires.

W. ARTHUR LEWIS

University of Manchester.

APPENDIX

I take this opportunity to draw attention to two errors in the earlier article, which have been pointed out by Professor Harry Johnson.

1. On page 174 it is implied that if the elasticity of demand for food were unity, increased productivity in the subsistence sector would be exactly offset by an adverse price movement. This neglects the fact that, since the subsistence workers consume some of their own product, their income elasticity of demand for it has to be taken into account as well as the buyers' price elasticity. My formulation would have been correct only if the subsistence workers sold all they produce. However, the main points of the paragraph are unaffected, namely that the capitalist sector benefits if the change in the terms of trade more than offsets the increase in productivity, and secondly that this is what happens in practice.

2. On pages 182-3 it is assumed that "both countries produce food but do not trade in it," as well as that each produces a second product. It is then concluded that the relative prices of these second products are determinate. However, these relative prices are determinate only because it is assumed that one unit of food in country *A* must equal one unit of food in country *B*, and it is only the possibility of trade in food which ensures this equality. My assumption therefore is not that they do not trade in food, but that whether they do or not, equilibrium is maintained by the possibility of trade. But, given that this is the assumption, case two on pages 182-3 is really only a special example of case three on page 185.