

Space for Notes



W.A. Lewis,
“Economic Development with Unlimited Supplies of Labour”*
(1954)

1. This essay is written in the classical tradition, making the classical assumption, and asking the classical question. The classics, from Smith to Marx, all assumed, or argued, that an unlimited supply of labour was available at subsistence wages. They then enquired how production grows through time. They found the answer in capital accumulation, which they explained in terms of their analysis of the distribution of income. Classical systems stems thus determined simultaneously income distribution and income growth, with the relative prices of commodities as a minor by-product.

Interest in prices and in income distribution survived into the neo-classical era, but labour ceased to be unlimited in supply, and the formal model of economic analysis was no longer expected to explain the expansion of the system through time. These changes of assumption and of interest served well enough in the European parts of the world, where labour was indeed limited in supply, and where for the next half century it looked as if economic expansion could indeed be assumed to be automatic. On the other hand over the greater part of Asia labour is unlimited in supply, and economic expansion certainly cannot be taken for granted. Asia's problems, however, attracted very few economists during the neo-classical era (even the Asian economists themselves absorbed the assumptions and preoccupations of European economics) and hardly any progress has been made for nearly a century with the kind of economics which would throw light upon the problems. of countries with surplus populations.

When Keynes' *General Theory* appeared, it was thought at first that this was the .book which would illuminate the problems of countries with surplus labour, since it assumed in unlimited supply of labour at the current price, and also, in its final pages, made a few remarks on secular economic expansion. Further reflection, however, revealed that Keynes's book assumed not only that labour is unlimited in supply, but also, and more fundamentally, that land and capital are unlimited in supply-more fundamentally both in the short run sense that once the monetary tap is turned the real limit to expansion is not physical resources but the limited supply of labour, and also in the long run sense that secular expansion is embarrassed not by a shortage but by a superfluity of saving. Given the Keynesian remedies the neoclassical system comes into its own again. Hence, from the point of view of countries with surplus labour, Keynesianism is only a footnote to neoclassicism-albeit a long, important and fascinating footnote. The student of such economies has therefore to work right back to the classical economists before he finds an analytical framework into which he can relevantly fit his problems.

The purpose of this essay is thus to see what can be made of the classical framework in solving problems of distribution, accumulation, and growth, first in a closed and then in an open economy. It is not primarily an essay in the history of economic doctrine, and will not therefore spend time on individual writers, enquiring what they meant, or assessing its validity or truth. Our purpose is rather to bring their framework up-to-date, in the light of modern knowledge, and to see how far it then helps us to understand the contemporary problems of large areas of the earth.

I. The Closed Economy.

2. We have to begin by elaborating the assumption of an unlimited supply of labour, and by establishing that it is a useful assumption. We are not arguing, let it be repeated; that this assumption should be made for all areas of the world. It is obviously not true of the United Kingdom, or of North West Europe. It is not true either of some of the countries usually now lumped together as under-developed; for example there is an acute shortage of male labour in some parts of Africa and of Latin America. On the other hand it is obviously relevant assumption for the economies of Egypt, of India, or of Jamaica. Our present task is not to supersede neo-classical economics, but merely to elaborate a different framework for those countries which the neo-classical (and Keynesian) assumptions do not fit.

In the first place, an unlimited supply of labour may be said to exist in those countries where population is so large relatively to capital and natural resources, that there are large sectors of the economy where the marginal productivity of labour is negligible, zero, or even negative. Several writers have drawn attention to the existence of such "disguised" unemployment in the agricultural sector, demonstrating in each case that the family holding is so small that if some members of the family obtained other employment the remaining members could cultivate the holding just as well (of course they would have to work harder: the argument includes the proposition that they would be willing to work harder in these circumstances). The phenomenon is not, however, by any means confined to the countryside. Another large sector to which it applies is the whole range of casual jobs-the workers on the docks, the young men who rush forward asking to carry your bag as you appear, the jobbing gardener, and the like. These occupations usually have a multiple of the number they need, each of them earning very small sums from occasional employment ; frequently their number could be halved without reducing output in this sector. Petty retail trading is also exactly of this type; it is enormously expanded in overpopulated economies; each trader makes only a few sales ; markets are crowded with stalls, and if the number of stalls were greatly reduced the consumers would be no whit worse off-they might even be better off, since retail margins might fall. Twenty years ago one could not write these sentences without having to stop and explain why in these circumstances, the casual labourers do not bid their earnings down to zero, or why the farmers' product is not similarly all eaten up in rent, but these propositions present no terrors to contemporary economists.

A little more explanation has to be given of those cases where the workers are not self-employed, but are working for wages, since it is harder to believe that employers will pay wages exceeding marginal productivity. The most important of these sectors is domestic service, which is usually even more inflated in over-populated countries than is petty trading (in Barbados 16 per cent. of the population is in domestic service). The reason is that in over-populated countries the code of ethical behaviour so shapes itself that it becomes good ;form for each person to offer as much employment as he can. -The line between employees and dependents is very thinly drawn. Social prestige requires people to have servants; and the grad seigneur may have to keep a whole army of retainers who are really little more than a burden upon his purse. This is found not only in domestic service, but in every sector of employment. Most businesses in, under-developed countries employ a large number of "messengers," whose contribution is almost negligible ; you see them sitting outside office doors, or hanging around in the courtyard. And even in the severest slump the agricultural or commercial employer is expected to keep his labour force somehow or other-it would be immoral to turn them out, for how would they eat, in countries where the only form of unemployment assistance is the charity of relatives ? So it comes about that even

in the sectors where people are working for wages, and above all the domestic sector, marginal productivity may be negligible or even zero.

Whether marginal productivity is zero or negligible is not, however, of fundamental importance to our analysis. The price of labour, in these economies, is a wage at the subsistence level (we define this later). The supply of labour is therefore “unlimited” so long as the supply of labour at this price exceeds the demand. In this situation, new industries can be created, or old industries expanded without, limit at the existing wage ; or, to put it more exactly, shortage of labour is no limit to the creation of new sources of employment. If we cease to ask whether the marginal productivity of labour is negligible and ask instead only the question from what sectors would additional labour be available if new industries were created offering employment at subsistence wages, the answer becomes even more comprehensive. For we have then not only the farmers, the casuals, the petty traders and the retainers (domestic and commercial), but we have also three other classes from which to choose.

First of all, there are the wives and daughters of the household. The employment of women outside the household depends upon a great number of factors, religious and conventional, and is certainly not exclusively a matter of employment opportunities. There are, however, a number of countries where the current limit is for practical purposes only employment opportunities. This is true, for example, even inside the United Kingdom. The proportion of women gainfully employed in the U.K. varies enormously from one region to another according to employment opportunities for women. For example, in 1939 whereas there were 52 women gainfully employed for every 100 men in Lancashire, there were only 15 women gainfully employed for every 100 men in South Wales. Similarly in the Gold Coast, although there is an acute shortage of male labour, any industry which offered good employment to women would be besieged with applications. The transfer of women’s work from the household to commercial employment is one of the most notable features of economic development. It is not by any means all gain, but the gain is substantial because most of the things which women otherwise do in the household can in fact be done much better or more, cheaply outside, thanks to the large scale economies of specialisation, and also to the use of capital (grinding grain, fetching water from the river, making cloth, making clothes, cooking the midday meal, teaching children, nursing the sick, etc.). One of the surest ways of increasing the national income is therefore to create new sources of employment for women outside the home.

The second source of labour for expanding industries is the increase in the population resulting from the excess of births over deaths. This source is important in any dynamic analysis of how capital accumulation can occur, and employment can increase, without any increase in real wages. It was therefore a cornerstone of Ricardo’s system. Strictly speaking, population increase is not relevant either to the classical analysis, or to the analysis which follows in this article, unless it can be shown that the increase of population is caused by economic development and would not otherwise be so large. The proof of this proposition was supplied to the classical economists by the Malthusian law of population. There is already an enormous literature of the genus : “What Malthus *Really* Meant,” into which we need not enter. Modern population theory has advanced a little by analysing separately the effects of economic development upon the birth rate, and its effects on the death rate. Of the former, we know little. There is no evidence that the birth rate ever rises with economic development. In Western Europe it has fallen during the last eighty years. We are not quite sure why ; we suspect that it was for reasons associated with development, and we hope that the same thing may happen in the rest of the world as development spreads. Of the

death rate we are more certain. It comes down with development from around 40 to around 12 per thousand ; in the first stage because better communications and trade eliminate death from local famines ; in the second stage because better public health facilities banish the great epidemic diseases of plague, smallpox, cholera, malaria, yellow fever (and eventually tuberculosis) ; and in the third stage because widespread facilities for treating the sick snatch from the jaws of death many who would otherwise perish in infancy or in their prime. Because the effect of development on the death rate is so swift and certain, while its effect on the birth rate is unsure and retarded, we can say for certain that the, immediate effect of economic development is to cause the population to grow; after some decades it begins to grow (we hope) less rapidly. Hence in any society where the death rate is around 40 per thousand, the effect of economic development will be to generate an increase in the supply of labour.

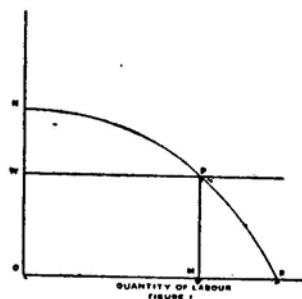
Marx offered a third source of labour to add to the reserve army, namely the unemployment generated by increasing efficiency. Ricardo had admitted that the creation of machinery could reduce employment. Marx seized upon the argument, and in effect generalised it, for into the pit of unemployment he threw not only those displaced by machinery, but also the self-employed and petty capitalists who could not compete with larger capitalists of increasing size, enjoying the benefits of the economies of scale. Nowadays we reject this argument on empirical grounds. It is clear that the effect of capital accumulation in the past has been to reduce the size of the reserve army, and not to increase it, so we have lost interest in arguments about what is “theoretically” possible.

When we take account of all the sources we have now listed—the farmers, the casuals, the petty traders, the retainers (domestic and commercial), women in the household, and population growth—it is clear enough that there can be in an over-populated economy an enormous expansion of new industries or new employment opportunities without any shortage of unskilled labour becoming apparent in the labour market. From the point of view of the effect of economic development on wages, the supply of labour is practically unlimited.

This applies only to unskilled labour. There may at any time be a shortage of skilled workers of any grade—ranging from masons, electricians or welders to engineers, biologists or administrators. Skilled labour may be the bottleneck in expansion, just like capital or land. Skilled labour, however, is only what Marshall might have called a “quasi-bottleneck,” if he had not had so nice a sense of elegant language. For it is only a very temporary bottleneck, in the sense that if the capital is available for development, the capitalists or their government will soon provide the facilities for training more skilled people. The real bottlenecks to expansion are therefore capital and natural resources, and we can proceed on the assumption that so long as these are available the necessary skills will be provided as well, though perhaps with some time lag.

3. If unlimited labour is available, while capital is scarce, we know from the Law of Variable Proportions that the capital should not be spread thinly over all the labour. Only so much labour should be used with capital as will reduce the marginal productivity of labour to zero. In practice, however, labour is not available at a zero wage. Capital will therefore be applied only up to the point where the marginal productivity of labour equals the current wage. This is illustrated in Figure I. The horizontal axis measures the quantity of labour, and the vertical axis its marginal product. There is a fixed amount of capital. *OW* is the current wage. If the marginal product of labour were zero outside the capitalist sector, *OR* ought to be employed. But it will pay to employ only *OM* in the capitalist sector. *WNP* is the capitalists' surplus. *OWPM* goes in wages to workers in the capitalist sector, while workers

outside this sector (*i.e.* beyond M) earn what they can in the subsistence sector of the economy.



The analysis requires further elaboration. In the first place, after what we have said earlier on about some employers in these economies keeping retainers, it may seem strange to be arguing now that labour will be employed up to the point where the wage equals the marginal productivity. Nevertheless, this is probably the right assumption to make when we are set upon analysing the expansion of the capitalist sector of the economy. For the type of capitalist who brings about economic expansion is not the same as the type of employer who treats his employees like retainers. He is more commercially minded, and more conscious of efficiency, cost and profitability. Hence, if our interest is in an expanding capitalist sector, the assumption of profit maximisation is probably a fair approximation to the truth.

Next, we note the use of the terms “capitalist” sector and “subsistence” sector. The capitalist sector is that part of the economy which uses reproducible capital, and pays capitalists for the use thereof. (This coincides with Smith’s definition of the productive workers, who are those who work with capital and whose product can therefore be sold at a price above their wages). We can think, if we like, of capitalists hiring out their capital to peasants ; in which case, there being by definition an unlimited number of peasants, only some will get capital, and these will have to pay for its use a price which leaves them only subsistence earnings. More usually, however, the use of capital is controlled by capitalists, who hire the services of labour. The classical analysis was therefore conducted on the assumption that capital was used for hiring people. It does not make any difference to the argument, and for convenience we will follow this usage. The subsistence sector is by difference all that part of the economy which is not using reproducible capital. Output per head is lower in this sector than in the capitalist sector, because it is not fructified by capital (this is why it was called “unproductive” ; the distinction between productive and unproductive had nothing to do with whether the work yielded utility, as some neo-classicists have scornfully but erroneously asserted). As more capital becomes available more workers can be drawn into the capitalist from the subsistence sector, and their output per head rises as they move from the one sector to the other.

Thirdly we take account of the fact that the capitalist sector, like the subsistence sector, can also be subdivided. What we have is not one island of expanding capitalist employment, surrounded by a vast sea of subsistence workers, but rather a number of such tiny islands. This is very typical of countries in their early stages of development. We find a few industries highly capitalised, such as mining or electric power, side by side with the most primitive techniques; a few high class shops, surrounded by masses of old style traders ; a few highly capitalised plantations, surrounded by a sea of peasants. But we find the same contrasts also outside their economic life. There are one or two modern towns, with the finest architecture, water supplies, communications and the like, into which people drift from other

towns and villages which might almost belong to another planet. There is the same contrast even between people ; between the few highly westernised, trousered, natives, educated in western universities, speaking western languages, and glorying in Beethoven, Mill, Marx or Einstein, and the great mass of their countrymen who live in quite other worlds Capital and new ideas are not thinly diffused throughout the economy; they are highly concentrated at a number of points, from which they spread outwards.

Though the capitalised sector can be subdivided into islands, it remains a single sector because of the effect of competition in tending to equalise the earnings on capital. The competitive principle does not demand that the same amount of capital per person be employed on each "island," or that average profit per unit of capital be the same, but only that the marginal profit be the same. Thus, even if marginal profits were the same all round, islands which yield diminishing returns may be more profitable than others, the earliest capitalists having cornered the vantage points. But in any case marginal profits are not the same all round. In backward economies knowledge is one of the scarcest goods. Capitalists have experience of certain types of investment, say of trading or plantation agriculture, and, not of other types, say of manufacturing, and they stick to what they know. So the economy is frequently lopsided in the sense that there is excessive investment in some parts and under-investment in others. Also, financial institutions are more highly developed for some purposes than for others-capital can be got cheaply for trade, but not for house building or for peasant agriculture, for instance. Even in a very highly developed economy the tendency for capital to flow evenly through the economy is very weak ; in a backward economy it hardly exists. Inevitably what one gets are very heavily developed patches of the economy, surrounded by economic darkness.

Next we must say something about the wage level. The wage which the expanding capitalist sector has to, pay is determined by what people can earn outside that sector. The classical economists used to think of the wage as being determined by what is required for subsistence consumption, and this may be the right solution in some cases. However, in economies where the majority of the people are peasant farmers, working on their own land, we have a more objective index, for the minimum at which labour can be had is now set by the average product of the farmer; men will not leave the family farm to seek employment if the wage is worth less than they would be able to consume if they remained at home. This objective standard, alas, disappears again if the farmers have to pay rent, for their net earnings will then depend upon the amount of rent they have to pay, and in overpopulated countries the rent will probably be adjusted so as to leave them just enough for a conventional level of subsistence. It is not, however, of great importance to the argument whether earnings in the subsistence sector are determined objectively by the level of peasant productivity, or subjectively in terms of a conventional standard of living. Whatever the mechanism, the result is an unlimited supply of labour for which this is the minimum level of earnings.

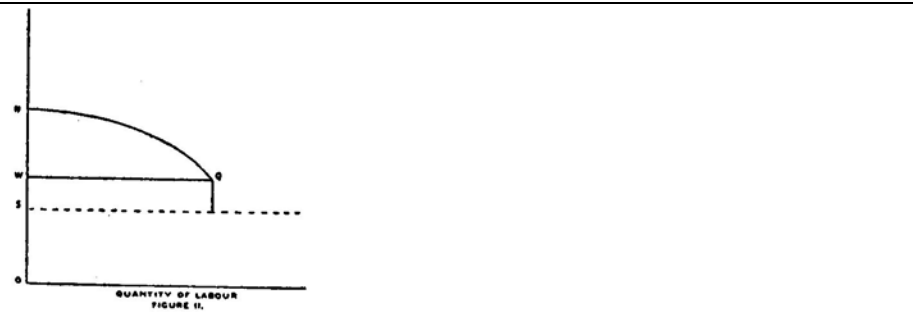
The fact that the wage level in the capitalist sector depends upon earnings in the subsistence sector is sometimes of immense political importance, since its effect is that capitalists have a direct interest in holding down the productivity of the subsistence workers. Thus, the owners of plantations have no interest in seeing knowledge of new techniques or new seeds conveyed to the peasants, and if they are influential in the government, they will not be found using their influence to expand the facilities for agricultural extension. They will not support proposals for land settlement, and are often instead to be found engaged in turning the peasants off their lands. (Cf. Marx on "Primary Accumulation"). This is one of the worst features of imperialism, for instance. The imperialists invest capital and hire

workers; it is to their advantage to keep wages low, and even in those cases where they do not actually go out of their way to impoverish the subsistence economy, they will at least very seldom be found doing anything to make it more productive. In actual fact the record of every imperial power in Africa in modern times is one of impoverishing the subsistence economy, either by taking away the people's land, or by demanding forced labour in the capitalist sector, or by imposing taxes to drive people to work for capitalist employers. Compared with what they have spent on providing facilities for European agriculture or mining, their expenditure on the improvement of African agriculture has been negligible. The failure of imperialism to raise living standards is not wholly to be attributed to self interest, but there are many places where it can be traced directly to the effects of having imperial capital invested in agriculture or in mining.

Earnings in the subsistence sector set a floor to wages in the capitalist sector, but in practice wages have to be higher than this, and there is usually a gap of 30 per cent. or more between capitalist wages and subsistence earnings. This gap may be explained in several ways. Part of the difference is illusory, because of the higher cost of living in the capitalist sector. This may be due to the capitalist sector being concentrated in congested towns, so that rents and transport costs are higher. All the same, there is also usually a substantial difference in real wages. This may be required because of the psychological cost of transferring from the easy going way of life of the subsistence sector to the more regimented and urbanised environment of the capitalist sector. Or it may be a recognition of the fact that even the unskilled worker is of more use to the capitalist sector after he has been there for some time than is the raw recruit from the country. Or it may itself represent a difference in conventional standards, workers in the capitalist sector acquiring tastes and a social prestige which have conventionally to be recognised by higher real wages. That this last may be the explanation is suggested by cases where the capitalist workers organise themselves into trade unions and strive to protect or increase their differential. But the differential exists even where there are no unions.

The effect of this gap is shown diagrammatically in Figure II, which is drawn on the same basis as Figure I. OS now represents subsistence earnings, and OW the capitalist wage (real not money). To borrow an analogy from the sea, the frontier of competition between capitalist and subsistence labour, now appears not as a beach but as a cliff.

This phenomenon of a gap between the earnings of competing suppliers is found even in the most advanced economies. Much of the difference between the earnings of different classes of the population (grades of skill, of education, of responsibility or of prestige) can be described only in these terms. Neither is the phenomenon confined to labour. We know of course that two firms in a competitive market need not have the same average profits if one has some superiority to the other; we reflect this difference in rents, and ask only that marginal rates of profit should be the same. We know also that marginal rates

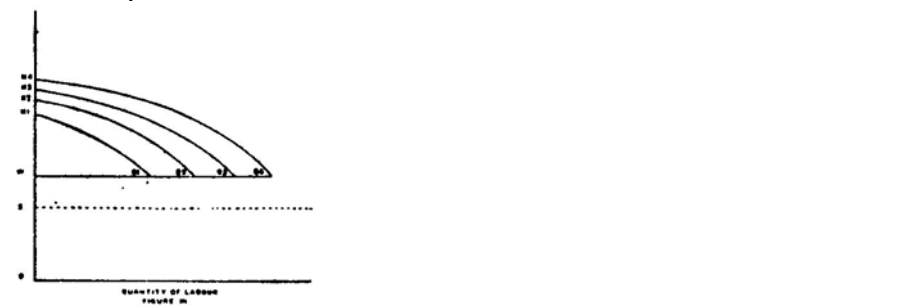


will not be the same if ignorance prevails-this point we have mentioned earlier. What is often puzzling in a competitive industry is to find a difference in marginal profits, or marginal costs, without ignorance, and yet without the more efficient firm driving its rivals out of business. ' It is as if the more efficient says : "I could compete with you, but I won't," which is also what subsistence labour says when it does not transfer to capitalist employment unless real wages are substantially higher. The more efficient firm, instead of competing wherever its real costs are marginally less than its rivals, establishes for itself superior standards of remuneration. It pays its workers more and lavishes welfare services, scholarships and pensions upon them. It demands a higher rate on its marginal investments ; where its competitors would be satisfied with 10%, it demands 20%, to keep up its average record. It goes in for prestige expenditure, contributing to hospitals, universities, flood relief and such. Its highest executives spend their time sitting on public committees, and have to have deputies to do their work. When all this is taken into account it is not at all surprising to find a competitive equilibrium in which high cost firms survive easily side by side with firms of much greater efficiency.

4. So far we have merely been setting the stage. Now the play begins. For we can now begin to trace the process of economic expansion.

The key to the process is the use which is made of the capitalist surplus In so far as this is reinvested in creating new capital, the capitalist sector expands, taking more people into capitalist employment out of the subsistence sector.. The surplus is then larger still, capital formation is still greater, and so the process continues until the labour surplus disappears.

OS is as before average subsistence earnings, and OW the capitalist wage. WN_1Q_1 represents .. the surplus in the initial' stage. .", Since some of this is reinvested, the amount of fixed capital increases. Hence the schedule of the marginal productivity of labour is now raised throughout, to the level of N_2Q_2 . Both the surplus and capitalist employment are now larger. Further reinvestment raises the schedule of the marginal productivity of labour to N_3Q_3 . And the process continues so long as there is surplus labour.



Various comments are needed in elaboration. First, as to the relationship between capital, technical progress, and productivity. In theory it should be possible to

distinguish between the growth of capital and the growth of technical knowledge, but in practice it is neither possible nor necessary for this analysis. As a matter of statistical analysis, differentiating the effects of capital and of knowledge in any industry is straightforward if the product is homogeneous through time, if the physical inputs are also unchanged (in kind) and if the relative prices of the inputs have remained constant. But when we try to do it for any industry in practice we usually find that the product has changed, the inputs have changed and relative prices have changed, so that we get any number of indices of technical progress from the same data, according to the assumptions and the type of index number which we use. In any case, for the purpose of this analysis it is unnecessary to 'distinguish between capital formation and the growth of knowledge within the capitalist sector. Growth of technical knowledge outside the capitalist sector would be fundamentally important, since it would raise the level of wages, and so reduce the capitalist surplus. But inside the capitalist sector knowledge and capital work in the same direction, to raise the surplus and to increase employment. They also work together. The application of new technical knowledge usually requires new investment, and whether the new knowledge is capital-saving (and thus equivalent to an increase in capital) or labour-saving (and thus equivalent to /an increase in the marginal productivity of labour) makes no difference to our diagram. Capital and technical knowledge also work together in the sense that in economies where techniques are stagnant savings are not so readily applied to increasing productive capital ; in such economies it is more usual to use savings for building pyramids, churches, and other such durable consumer goods. Accordingly, in this analysis the growth of productive capital and the growth of technical knowledge are treated as a single phenomenon (just as we earlier decided that we could treat the growth of the supply of skilled labour and the growth of capital as a single phenomenon in long run analysis).

Next we must consider more closely the capitalist surplus. Malthus wanted to know what the capitalists would do with this ever-growing surplus; surely this would be an embarrassing glut of commodities? Ricardo replied that there would be no glut; what the capitalists did not consume themselves, they would use for paying the wages of workers to create more fixed capital (this is a free interpretation, since the classical economists associated the expansion of employment with an increase of circulating rather than of fixed capital). This new fixed capital would then in the next stage make possible the employment of more people in the capitalist sector. Malthus persisted; why should the capitalists produce more capital to produce a larger surplus which could only be used for producing still more capital and so *ad infinitum*? To this Marx supplied one answer: capitalists have a passion for accumulating capital. Ricardo supplied another: if they don't want to accumulate, they will consume instead of saving; provided there is no propensity to hoard, there will be no glut. Employment in the next stage will not be as big as it would have been if they had created more fixed capital and so brought more workers into the capitalist sector, but so long as there is no hoarding it makes no difference to the current level of employment whether capitalists decide to consume or to save. Malthus then raised another question; suppose that the capitalists do save and invest without hoarding, surely the fact that capital is growing more rapidly than consumption must so lower the rate of profit on capital that there comes a point when they decide that it is not worth while to invest? This, Ricardo replied, is impossible; since the supply of labour is unlimited, you can always find employment for any amount of capital. This is absolutely correct, for his model; in the neo-classical model capital grows faster than labour, and so one has to ask whether the rate of profit will not fall, but in the classical model the unlimited supply of labour means that the capital/labour ratio, and therefore the rate of surplus, can be held constant for any quantity of capital (*i.e.*, unlimited "widening" is possible). The only fly in the ointment is that there may develop a shortage of

natural resources, so that though the capitalists get any amount of labour at a constant wage, they have to pay ever rising rents to landlords. This was what worried Ricardo; it was important to him to distinguish that part of the surplus which goes to landlords from that part which goes to capitalists, since he believed that economic development inevitably increases the relative scarcity of land. We are not so certain of this as he was. Certainly development increases the rent of urban sites fantastically, but its effect on rural rents depends on the rate of technical progress in agriculture, which Malthus and Ricardo both gravely under-estimated. If we assume technical progress in agriculture, no hoarding, and unlimited labour at a constant wage, the rate of profit on capital cannot fall. On the contrary it must increase, since all 'the benefit of technical progress in the capitalist sector accrues to the capitalists.

Marx's interest in the surplus was ethical as well as scientific. He regarded it as robbery of the workers. His descendants are less certain of this. The surplus, after all, is only partly consumed; the other part is used for capital formation. As for the part which is consumed, some of it is a genuine payment for service rendered-for managerial or entrepreneurial services, as well as for the services of public administrators, whether these are paid salaries out of taxes, or whether they live off their rents or *rentes* while performing unpaid public duties as magistrates, lord-lieutenants, or the like. - Even in the U.S.S.R. all these functionaries are paid out of the surplus, and handsomely paid too. It is arguable that these services are over-paid ; this is why we have progressive taxation, and it is also one of the more dubious arguments for nationalisation (more dubious because the functionaries of public corporations have to be paid the market rate if the economy is only partially nationalised). But it is not arguable that all this part of the surplus (*i.e.* the part consumed) morally belongs to the workers, in any sense. As for the part which is used for capital formation, the experience of the U.S.S.R. is that this is increased, and not reduced, by transforming the ownership of capital. Expropriation deprives the capitalists of control over this part of the surplus, and of the right to consume this part at some later date, but it does nothing whatever to transfer this part of the surplus to the workers. Marx's emotional approach was a natural reaction to the classical writers, who sometimes in unguarded moments wrote as if the capitalist surplus and its increase were all that counted in the national income (c.f. Ricardo, who called it "the net revenue" of production). All this, however, is by the way; or our present interest is not in ethical questions, but in how the model works.

5. The central problem in the theory of economic development is to understand the process by which a community which was previously saving and investing 4 or 5 per cent of its national income or less, converts itself into an economy where voluntary saving is running at about 12 to 15 per cent. of national income or more. This is the central problem because the central fact of economic development is rapid capital accumulation. (including knowledge and skills with' capital"). We cannot explain any "industrial" revolution (as the economic historians pretend to do) until we can explain why saving increased relatively to national income.

It is possible that the explanation is simply that some psychological change occurs which causes people to be more **thrifty**. This, however is not a plausible explanation. We are interested not in the people in general, but only say in the 10 per cent. of them with the largest incomes, who in countries with surplus labour receive up to 40 per cent. of the national income (nearer 30 per cent. in more developed countries). The remaining 90 per cent. of the* people never manage to save a significant fraction of their incomes. The important question is why does the top 10 per cent. save more ? The reason may be because they decide to consume less, but this reason does not square with the facts. There is no evidence of a fall in personal consumption by the top 10 per cent. at a time when industrial revolutions

are occurring. It is also possible that, though they do not save any more, the top 10 per cent. spend less of their income on durable consumer goods (tombs, country houses, temples) and more on productive capital. Certainly, if one compares different civilisations this is a striking difference in the disposition of income. Civilisations in which there is a rapid growth of technical knowledge or expansion of other opportunities present more profitable outlets for investment than do technologically stagnant civilisations, and tempt capital into productive channels rather than into the building of monuments. But if one takes a country only over the course of the hundred years during which it undergoes a revolution in the rate of capital formation, there is no noticeable change in this regard. Certainly, judging by the novels, the top 10 per cent. in England were not spending noticeably less on durable consumer goods in 1800 than they were in 1700.

Much the most plausible explanation is that people save more because they have more to save. This is not to say merely that the national income per head is larger, since there is no clear evidence that the proportion of the national income saved increases with national income per head-at any rate our fragmentary evidence for the United Kingdom and for the United States suggests that this is not so. The explanation is much more likely to be that saving increases relatively to the national income because the incomes of the savers increase relatively to the national income. The central fact of economic development is that the distribution of incomes is altered in favour of the saving class.

Practically all saving is done by people who receive profits for rents. Workers' savings are very small. The middle-classes save a little, but in practically every community the savings of the middle-classes out of their salaries are of little consequence for productive investment. Most members of the middle-class are engaged in the perpetual struggle to keep up with the Jones's; if they manage to save enough to buy the house in which they live, they are doing well. They may save to educate their children, or to subsist in their old age, but this saving is virtually offset by the savings being used up for the same purposes. Insurance is the middle-class's favourite form of saving in modern societies, yet in the U.K., where the habit is extremely well developed, the annual net increase in insurance funds from all classes, rich, middle, and poor is less than 1.5 per cent. of the national income. It is doubtful if the wage and salary classes ever anywhere save as much as 3 per cent. of the national income, net (possible exception : Japan). If we are interested in savings, we must concentrate attention upon profits and rents.

For our purpose it does not matter whether profits are distributed or undistributed ; the major source of savings is profits, and if we find that savings are increasing as a proportion of the national income, we may take it for granted that this is because the share of profits in the national income is increasing. (As a refinement, for highly taxed communities, we should say profits net of taxes upon profits, whether personal income or corporate taxes). Our problem then becomes what are the circumstances in which the share of profits in the national income increases ?

The modified classical model which we are using here has the virtue of answering the question. In the beginning, the national income consists almost entirely of subsistence income. Abstracting from population growth and assuming that the marginal product of labour is zero, this subsistence income remains constant throughout the expansion, since by definition labour can be yielded up to the expanding capitalist sector without reducing subsistence output. The process therefore increases the capitalist surplus and the income of capitalist employees, taken together, as a proportion of the national income. It is possible to imagine conditions in which the surplus nevertheless does not increase relatively to national income. This requires that capitalist employment should expand relatively much

faster than the surplus, so that within the capitalist sector gross margins or profit plus rent are falling sharply relatively to wages. We know that this does not happen. Even if gross margins were constant, profits in our model would be increasing relatively to national income. But gross margins are not likely to be constant in our model, which assumes that practically the whole benefit of capital accumulation and of technical progress goes into the surplus ; because real wages are constant, all that the workers get out of the expansion is that more of them are employed at a wage above the subsistence earnings. The model says, in effect , that if unlimited supplies of labour are available at a constant real wage, and if any part of profits is reinvested in productive capacity, profits will grow continuously relatively to the national income, and capital formation will also grow relatively to the national income.

The model also covers the case of a technical revolution. Some historians have suggested that the capital for the British Industrial Revolution came out of profits made possible by a spate of inventions occurring together. This is extremely hard to fit into the neo-classical model, since it involves the assumption that these inventions raised the marginal productivity of capital more than they raised the marginal productivity of labour, a proposition which it is hard to establish in any economy where labour is scarce. (If we do not make this assumption, other incomes rise just as fast as profits, and investment does not increase relatively to national income). On the other hand the suggestion fits beautifully into the modified classical model, since in this model practically the whole benefit of inventions goes into the surplus, and becomes available for further capital accumulation.

This model also helps us to face squarely the nature of the economic problem of backward countries. If we ask “why do they save so little, the truthful answer is not “because they are so poor,” as we might be tempted to conclude from the path-breaking and praiseworthy correlations of Mr. Colin Clark. The truthful answer is “because their capitalist sector is so small” (remembering that “capitalist” here does not mean private capitalist, but would apply equally to state capitalist). If they had a larger capitalist sector, profits would be a greater part of their national income, and saving and investment would also be relatively larger. (The state capitalist can accumulate capital even faster than the private capitalist, since he can use for the purpose not only the profits of the capitalist sector, but also what he can force or tax out of the subsistence sector).

Another point which we must note is that though the increase of the capitalist sector involves an increase in the inequality of incomes, as between capitalists and the rest, mere inequality of income is not enough to ensure a high level of saving. In point of fact the inequality of income is *greater* in over-populated under-developed countries than it is in advanced industrial nations, for the simple reason that agricultural rents are so high in the former. Eighteenth century British economists took it for granted that the landlord class is given to prodigal consumption rather than to productive investment, and this is certainly true of landlords in underdeveloped countries. Hence, given two countries of equal incomes, in which distribution is more unequal in one than in the other, savings may be greater where distribution is more equal if profits are higher relatively to rents. It is the inequality which goes with profits that favours capital formation, and not the inequality which goes with rents. Correspondingly, it is very hard to argue that these countries cannot afford to save more, when 40 per cent. or so of the national income is going to the top 10 per cent., and so much of rent incomes is squandered.

Behind this analysis also lies the sociological problem of the emergence of a capitalist class, that is to say of a group of men who think in terms of investing capital productively. The dominant classes in backward economies-landlords,

traders moneylenders, priests, soldiers, princes-do not normally think in these terms. What causes a society to grow a capitalist class is a very difficult question, to which probably, there is no general answer. Most countries seem to begin by importing their capitalists from abroad; and in these days many (*e.g.* U.S.S.R., India) are growing a class' of state capitalists who, for political reasons of one sort or another, are determined to create capital rapidly on public account. As for indigenous private capitalists, their emergence is probably bound up with the emergence of new opportunities, especially something that widens the market, associated with some new technique which greatly increases the productivity of labour if labour and capital are used together. Once a capitalist sector has emerged, it is only a matter of time before it becomes sizeable. If very little technical progress is occurring, the surplus will grow only slowly. But if for one reason or another the opportunities for using capital productivity increase rapidly, the surplus will also grow rapidly, and the capitalist class with it.

6. In our model so far capital is created only out of profits earned. In the real world, however, capitalists also create capital as a result of a net increase in the supply of money --especially bank credit. We have now also to take account of this.

In the neo-classical model capital can be created only by withdrawing resources from producing consumer goods. In our model, however, there is surplus labour, and if (as we shall assume) its marginal productivity is zero, and if, also, capital can be created by labour without withdrawing scarce land and capital from other uses, then capital can be created without reducing the output of consumer goods. This second proviso is important, since if we need capital or land to make capital the results in our model are the same as the results in the neo-classical model, despite the fact that there is surplus labour. However, in practice the proviso is often fulfilled. Food cannot be grown without land, but roads, viaducts, irrigation channels and buildings can be created by human labour with hardly any capital to speak of--witness the Pyramids, or the marvellous railway tunnels built in the mid--nineteenth century almost with bare hands. Even in modern industrial countries constructional activity, which lends itself to hand labour, is as much as 50 or 60 per cent. of gross fixed investment, so it is not difficult to think of labour creating capital without using any but the simplest tools. The classical economists were not wrong in thinking of lack of circulating capital as being a more serious obstacle to expansion in their world than lack of fixed capital. In the analysis which follows in this section we assume that surplus labour cannot be used to make consumer goods without using up more land or capital, but can be used to make capital goods without using any scarce factors.

If a community is short of capital, and has idle resources which can be set to creating capital, it seems very desirable on the face of the matter that this should be done, even if it means creating extra money to finance the extra employment. There is no loss of other output while the new capital is being made, and when it comes into use it will raise output and employment in just the same way as would capital financed not by credit creation but out of profits. The difference between profit-financed and credit-financed capital is not in the ultimate effects on output, but in the immediate effects on prices and on the distribution of income.

Before we come to the effects on prices, however, we should pause a moment to notice what happens to the output of consumer goods in this model and the others while credit-financed capital is being created, but before it begins to be used. In the neo-classical model an increase in capital formation has to be accompanied by a corresponding fall in the output of consumer goods, since scarce resources can do one or the other. In the Keynesian model an increase in capital formation also increases the output of consumer goods, and if the multiplier exceeds 2, the output

of consumer goods increases even more than capital formation. In our model capital formation goes up, but the output of consumer goods is not immediately affected. This is one of those crucial cases where it is important to be certain that one is using the right model when it comes to giving advice on economic policy.

In our model, if surplus labour is put to capital formation and paid out of new money, prices rise, because the stream of money purchases is swollen while the output of consumer goods is for the time being constant. What is happening is that the fixed amount of consumer goods is being redistributed, towards the workers newly employed, away from the rest of the community (this is where the lack of circulating capital comes into the picture). This process is not "forced saving" in the useful sense of that term. In the neo-classical model the output of consumer goods is reduced, forcing the community as a whole to save. In our model, however, consumer goods output is not at any time reduced ; there is a forced redistribution of consumption, but not forced saving. And, of course, as soon as the capital goods begin to yield output, consumption begins to rise.

This inflationary process does not go on forever; it comes to an end when voluntary savings increase to a level where they are equal to the inflated level of investment. Since savings are a function of profits, this means that the inflation continues until profits increase so much relatively to the national income that capitalists can now finance the higher rate of investment out of their profits without any further recourse to monetary expansion. Essentially equilibrium is secured by raising the ratio of profits to the national income. The equilibrator need not however be profits ; it might equally be government receipts, if there is a structure of taxes such that the ratio of government receipts to the national income rises automatically as the national income rises. This seems to be just about what happened in the U.S.S.R. In the crucial years when the economy was being transformed from a 5 per cent. to a (probably) 20 per cent. net saver, there was a tremendous inflation of prices (apparently prices rose about 700 per cent. in a decade), but the inflationary profits largely went to the government in the form of turnover tax, and by the end of the decade a new equilibrium was in sight.

It is not, however, always a simple matter to raise profits relatively to national income simply by turning on the monetary tap. The simplest and most extreme model of an inflation would be to assume that when the capitalists finance capital formation by creating credit, the money all comes back to them in the very next round in the form of an increase in their profits. In such a model profits, voluntary savings and capital formation can be raised to any desired level in a very short time, with only a small increase in prices. Something like this may well apply in the U.S.S.R. In real terms, however, this implies that there has been a fall in the share of the national income received by other people, including a fall in their real consumption, since they have had to release consumer goods for the previously unemployed who are now engaged in capital formation. It may be the farmers who are worse off, this showing itself in the prices of manufactures rising relatively to farm prices Or it may be the workers in the capitalist sector who are worse off, because farm prices and the prices of manufactures rise faster than their wages. Or the blow may be falling upon salaried workers, pensioners, landlords or creditors. Now in the real world none of these classes will take this lying down. In the U.S.S.R., where the intention was that the capital formation should be at the expense of the farmers, it led in the end to organised violence on both sides. In our model it is hard to get away with it at the expense of the workers, since the wage in the capitalist sector must stand at a certain minimum level above subsistence earnings if labour is to be available. Generally, what happens as prices rise is that new contracts have to be made to take account of rising price levels. Some classes get caught, but only temporarily.

Now, if one pursued this argument logically, it would lead to the conclusion that equilibrium could never be reached at any rate, so long as the banking system is content to supply all "legitimate" demands for money. If none of the other classes can be soaked, it seems impossible for profits to rise relatively to the national income for more than a temporary space, and it therefore seems impossible to reach an equilibrium level of savings equal to the new level of investment. The inflation, once begun goes on forever. This, however, is not possible for another reason, namely the fact that the real national income is not fixed, but rising, as a result of the capital formation. Therefore all that is required is that capitalists' real incomes rise faster than other people's. Beyond the first year or two, when the additional consumer goods begin to appear, it is not necessary for any class to reduce its consumption. By the time the process of recontracting has begun; output has also begun to rise, and it is therefore possible to reach a *modus vivendi*.

We can give an exact description of this equilibrium in our modified classical model. In this model the average subsistence real income is given, and so also therefore is the real wage in the capitalist sector. It is not possible, by inflation or otherwise, to reach a new equilibrium in which the capitalist surplus has increased at the expense of either of these. If, therefore, the capitalists begin to finance capital formation out of credit, they lower the real incomes of the others only temporarily. Wages would then be chasing prices continuously but for the fact that, since output is growing all the time, profits are growing all the time. Hence the part of the investment which is financed out of credit is diminishing all the time, until equilibrium is reached. For example, suppose that an investment of £100 a year yields £20 a year profit, of which £10 a year is saved. Then, if capitalists invest an extra £100 a year, all of which in the first year is financed out of credit, by the eleventh year profits will be £200 a year greater, savings will be £100 a year greater and there will be no further monetary pressure on prices. All that will remain from the episode is that there will be £1,000 more useful productive capital at work than there would have if the credit creation had not taken place.

Thus we have two simple models marking the extreme cases. In the first, all the credit created comes back to the capitalists at once as profits for to the state capitalist as taxes). Equilibrium is then reached easily, with the capitalists gaining at the expense of all others. In the other model the capitalists can only gain temporarily; equilibrium then takes much longer to reach, but it is reached eventually. In the first case we need only an expansion of money income ; but in the second case it is the expansion of real income which eventually brings the capitalists the required proportion of the national income.

The fact that capital formation increases real output must also be borne in mind in the analysis of the effects of credit creation upon prices. The inflations which loom most in our minds are those which occur in war-time, when resources are being withdrawn from producing consumer goods. If the supply of money is increasing while the output of goods is falling, anything can happen to prices. Inflation for the purpose of capital formation, however, is a very different kettle of fish. For it results in increasing consumer goods output, and this results in falling prices if the quantity of money is held constant.

Perhaps it may be as well to illustrate a simple case. Suppose that £100 is invested every year, in the first instance by creating credit, and that each investment yields £30 a year in its second year and after. Suppose that it costs nothing to reap the yield ; the price of £30 charged for the product being pure rent derived from its scarcity (investment in an irrigation works is a nearly perfect illustration). Then, if we use the Keynesian formula for a demand inflation, and assume the multiplier to

be 2, money income will rise to an equilibrium level of + £200 a year. Output, however, will begin to increase by + £30 a year from the second year onward. By the eighth year output will have increased by + £210, while money income will have increased only by slightly less than + £200. Thereafter prices will be below the initial level, and will fall continuously. The alleged precision of this analysis is of course subject to all the usual objections against applying multiplier analysis to inflationary conditions, namely the instability of the propensity to consume, the effect of secondary investment, and the dangers of cost inflation. But though the precision is spurious, the result is nevertheless real. Inflation for purposes of capital formation is self-destructive. Prices begin to rise, but are sooner or later overtaken by rising output, and may, in the last state end up lower than they were at the beginning.

We may now sum up this section. Capital formation is financed not only out of profits but also out of an expansion of credit. This speeds up the growth of capital, and the growth of real income. It also results in some redistribution of the national income, either temporarily or permanently, according to the assumptions one makes in the model we are using, the redistribution is only temporary. It also prevents prices from falling, as they otherwise would (if money is constant and output rising), and it may drive prices up substantially if (as in our model) the distribution of income cannot be altered permanently by monetary measures, since prices will then continue to rise until real output has risen enough to effect the required redistribution. Thereafter prices fall further, since inflation raises prices while capital is being created, but the increased output which then results brings them down again.

One point remains. We have seen that if new money is used to finance capital formation the rise of prices eventually peters out, as savings grow into equilibrium with investment ; and reverses itself, as the output of consumer goods begins to pour out. The new equilibrium, however, may take a long time to reach, and if also the flow of new money is substantial the resulting rise of prices may strike fear into the hearts of the public. People do not panic if prices rise for two or three years ; but after that they may begin to lose confidence in money, and it may become necessary to call a drastic halt. This is the most important practical limitation on the extent to which capital formation can be financed in this way. This is why the banking authorities have always tended to alternate short periods of easy credit with sharp periods of restriction. Bank credit moves three steps up and one step down instead of moving up continuously. This also brings us to the threshold of the trade cycle. If capital were financed exclusively out of profits, and if there were also no hoarding, capital formation would proceed steadily. It is mainly the existence of an elastic credit system which makes the trade cycle an integral part of the mechanism of economic development in an unplanned economy. It is not necessary, however, for us to enter into analysis of the cycle since in this respect the model we are using does not yield results different from those of other models.

7. We have said very little so far about the activities of government, since our basic model uses only capitalists, their employees, and subsistence producers. Governments affect the process of capital accumulation in many ways, however, and not least by the inflations into which they run. Many governments in backward countries are also currently anxious to use surplus man-power for capital formation, and as there is a great deal that can be done with labour and a few tools (roads, irrigation, river walls, schools and so on), it is useful to say something on the subject. We shall therefore in this section analyse the effect of inflation-financed government formation of capital, and thereby also give ourselves the chance to recapitulate the analysis of the previous section.

The results, it will be remembered, lie within two extremes. At one extreme all the money spent by the government comes back to it in taxes, and this is accepted by all classes. In this case, prices rise very little. At the other extreme, all classes refuse to accept a redistribution between themselves and the government. In this case prices tend to rise continuously, except that rising output (as a result of the capital formed) sooner or later catches up with prices and brings them down again. Rising output will also increase the government's "normal" share of the national income, and all monetary pressure will cease when the "normal" share has risen to the level of the inflated share which it was trying to get.

These results give us the questions we must ask. (1). What part of marginal income returns automatically to the government? (2). What effect does inflation have upon the various classes? And (3). What effect has government capital formation upon output?

(One other point must be remembered. In all this analysis so far we have assumed a closed economy. In an open economy inflation plays havoc with the balance of payments. We have therefore to assume that the government has strict control over foreign transactions. This assumption holds for some backward economies ; others would get into an awful mess if they launched upon inflationary finance).

It is not possible that all the money spent by the government should come back to it in the first round, since this would presume that the government took 100 per cent. of marginal income. If the government takes any part of marginal income, some of the money will come back to it ; but even the Keynesian multiplier will not bring it all back unless taxation is the only leakage (*i.e.* there is no saving). The larger the government's share of marginal incomes, the more it will get back, the quicker it will get it, and the smaller will be the effect on prices.

Since the second world war a number of governments of modern industrial states seem to be taking around 40 to 50 per cent. of marginal incomes in taxation, and this is one of the major reasons why their price levels have not risen more, despite heavy pressure on resources for capital formation, defence, etc. In backward countries, however, governments take only a very small part of marginal incomes. The best placed governments from this point of view are those in countries where output is concentrated in a few large units (mines, plantations) and therefore easily taxed, or where foreign trade is a large part of the national income, and is thus easily reached by import and export duties. One of the worst off is India, with a large part of its output produced by subsistence producers and small scale units, hard to reach, and with less than ten per cent. of national income passing in foreign trade. In many cases, marginal taxation is less than average taxation, for when money incomes rise, the government continues to charge the same prices for railway travel or for stamps, and hesitates to raise land taxes on the peasants, with the result that money incomes rise faster than government receipts. No government should consider deficit financing without assuring itself that a large part of increases in money income will automatically come back to itself. By contrast, the U.S.S.R., with its very high rate of turnover tax, automatically mops up surplus funds injected into the system, before they are able to generate much demand inflation *via* the multiplier process.

The next question is the effect of inflation upon the distribution of income. The surplus money raises prices, some more than others. The government will probably try to prevent prices from rising, but will succeed better with some than with others. It is easy to apply price control to large scale enterprises, but very hard to prevent the farmers from raising food prices, or the petty traders from making big margins. From the point of view of capital formation, the best thing that can happen is for the

surplus money to roll into the pockets of people who will reinvest it productively. The merchant classes would probably use it mainly for speculation in those commodities that are getting scarce. The middle-classes would mainly buy big American cars with it, or go on trips to Europe, wangling the foreign exchange somehow. The peasants ought to use it to improve their farms, but probably most would use it only to pay off debt, or to buy more land. There is really only one class that is pretty certain to reinvest its profits productively, and that is the class of industrialists. The effects of an inflation on secondary capital formation therefore depend first on how large the industrial class is, and secondly on whether the benefit goes largely to this class. In countries which have only a small industrial class, inflation leads mainly to speculation in commodities and in land, and to the hoarding of foreign exchange. But in any country which has a substantial industrialist class, with the passion this class has for ruling over bigger and better factories, even the most frightening inflations (*e.g.* Germany from 1919) leave behind a substantial increase in capital formation. (Have we hit here upon some deep psychological instinct which drives the industrialist to use his wealth more creatively than others? Probably not. It is just that his job is of the kind where passion for success results in capital formation. The peasant farmer wants to have more land, not more capital on his land (unless he is a modern capitalist farmer) so his passion is dissipated merely in changes in the price and distribution of land. The merchant wants to have a wider margin, or a quicker turnover, neither of which increases fixed capital. The banker wants more deposits. Only the industrialist's passion drives towards using profits to create a bigger empire of bricks and steel). It follows that it is in industrial communities that inflations are most helpful to capital formation ; whereas in countries where the industrial class is negligible there is nothing to show for the inflation when it is over, except the original investment which started it off. We should also note that many governments do not like the fact that inflation enables industrialists to earn the extra profits with which they create fixed capital, since this results in an increase of private fortunes. They therefore do all they can to prevent the inflation from increasing the profits of industrialists. More especially, they clamp down on industrial prices, which are also from the administrative point of view the easiest prices to control. Since it is the industrialist class which saves most, the result is to exacerbate the inflation. It would be much sounder to pursue policies which would result in the profits of industrialists rising more rapidly than other incomes, and then to tax these profits away, either immediately, or at death.

Inflation continues to be generated so long as the community is not willing to hold an amount equal to the increased investment expenditure. It is not therefore enough that savings should increase to this extent, for if these savings are used for additional investment the initial gap still remains. The gap is closed only if the savings are hoarded, or used to buy government bonds, so that the government can now finance its investments by borrowing, instead of by creating new money. Hence in practice, if the government wishes the inflation to be ended without reducing its investment, it must find means of bringing into its coffers as much in taxes or in loans as it is spending. If it is failing to do this, the inflation will continue ; it is then better that it should continue because capitalists are spending their profits on further capital formation than because other classes are chasing a limited output of consumer goods; but if it is desired to end inflation as soon as possible, all classes should be encouraged to invest in government bonds rather than to spend in other ways. Finally we come to the relation between capital and output. If the intention is to finance capital formation by creating credit, the best objects for such a policy are those which yield a large income quickly. To finance school building by creating credit is asking for trouble. On the other hand, there are a lot of agricultural programmes (water supplies, fertilisers, seed farms, extension) where quick and substantial results may be expected from modest expenditure. If

there are idle resources available for capital formation it is foolish not to use them simply because of technical or political difficulties in raising taxes. But it would be equally foolish to use them on programmes which take a long time to give a small result, when there are others which could give a large result quickly.

We may sum up as follows. If labour is abundant and physical resources scarce, the primary effect on output is exactly the same whether the government creates capital out of taxation or out of credit creation : the output of consumer goods is unchanged, but is redistributed. Hence credit creation must be seen primarily as an alternative to taxation, which is worth the troubles it brings only if trying to raise taxes would bring even more troubles. Credit creation has however one further lead upon taxation in that if it also redistributes income towards the industrial class (if there is an industrial class), it will speed up capital formation out of profits. If it is impossible to increase taxation, and the alternative is between creating capital out of credit, and not creating it at all, the choice one has then to make is between stable prices or rising output. There is no simple formula for making this choice. In some communities any further inflation of prices would ruin their fragile social or political equilibrium ; in others this equilibrium will be destroyed if there is not a sharp increase in output in the near future ; and in still others the equilibrium will be ruined either way.

8. We may now resume our analysis. We have seen that if unlimited labour is available at a constant real wage, the capitalist surplus will rise continuously, and annual investment will be a rising proportion of the national income. Needless to say, this cannot go on forever.

The process must stop when capital accumulation has caught up with population, so that there is no longer surplus labour. But it may stop before that. It may stop of course for any number of reasons which are outside our system of analysis, ranging from earthquake or bubonic plague to social revolution. But it may also stop for the economic reason that, although there is a labour surplus, real wages may nevertheless rise so high as to reduce capitalists' profits to the level at which profits are all consumed and there is no net investment.

This may happen for one of four reasons. First, if capital accumulation is proceeding faster than population growth, and is therefore reducing absolutely the number of people in the subsistence sector, the average product per man in that sector rises automatically, not because production alters, but because there are fewer mouths to share the product. After a while the change actually becomes noticeable, and the capitalist wage begins to be forced up. Secondly, the increase in the size of the capitalist sector relatively to the subsistence sector may turn the terms of trade against the capitalist sector (if they are producing different things) and so force the capitalists to pay workers a higher percentage of their product, in order to keep their real income constant. Thirdly, the subsistence sector may also become more productive in the technical sense. For example, it may begin to imitate the techniques of the capitalist sector ; the peasants may get hold of some of the new seeds, or hear about the new fertilisers or rotations. They may also benefit directly from some of the capitalist investments, *e.g.*, in irrigation works, in transport facilities, or in electricity. Anything which raises the productivity of the subsistence sector (average per person) will raise real wages in the capitalist sector, and will therefore reduce the capitalist surplus and the rate of capital accumulation, unless it at the same time more than correspondingly moves the terms of trade against the subsistence sector. Alternatively,, even if the productivity of the capitalist sector is unchanged, the workers in the capitalist sector may imitate the capitalist way of life,` and may thus need more to live on. The subsistence level is only a conventional idea, and conventions change. The effect of this would be to

widen the gap between earnings in the subsistence sector, and wages in the capitalist sector. This is hard to do, if labour is abundant, but it may be achieved by a combination of trade union pressure and capitalist conscience. If it is achieved, it will reduce the capitalist surplus, and also the rate of capital accumulation.

The most interesting of these possibilities is that the terms of trade may move against the capitalist sector. This assumes that the capitalist and subsistence sectors are producing different things. In practice this is a question of the relationship between industry and agriculture. If the capitalists are investing in plantation agriculture side by side with their investment in industry, we can think of the capitalist sector as self-contained. The expansion of this sector does not then generate any demand for anything produced in the subsistence sector, and there are therefore no terms of trade to upset the picture we have drawn. To bring the terms of trade in, the simplest assumption to make is that the subsistence sector consists of peasants producing food, while the capitalist sector produces everything else.

Now if the capitalist sector produces no food, its expansion increases the demand for food, raises the price of food in terms of capitalist products, and so reduces profits. This is one of the senses in which industrialisation is dependent upon agricultural improvement ; it is not profitable to produce a growing volume of manufactures unless agricultural production is growing simultaneously. This is also why industrial and agrarian revolutions always go together, and why economies in which agriculture is stagnant do not show industrial development. Hence, if we postulate that the capitalist sector is not producing food, we must either postulate that the subsistence sector is increasing its output, or else conclude that the expansion of the capitalist sector will be brought to an end through adverse terms of trade eating into profits. (Ricardo's problem of increasing rents is first cousin to this conclusion ; he worried about rents increasing *inside* the capitalist sector, whereas we are dealing with rents *outside* the sector).

On the other hand, if we assume that the subsistence sector is producing more food, while we escape the Scylla of adverse terms of trade we may be caught by the Charybdis of real wages rising because the subsistence sector is more productive. We escape both Scylla and Charybdis if rising productivity in the subsistence sector is more than offset by improving terms of trade. However, if the subsistence sector is producing food, the elasticity of demand for which is less than unity, increases in productivity will be more than offset by reductions in price. A rise in the productivity of the subsistence sector hurts the capitalist sector if there is no trade between the two, or if the demand of the capitalist sector for the subsistence sector's product is elastic. On the assumptions we have made, a rise in food productivity benefits the capitalist sector. Nevertheless, when we take rising demand into account, it is not at all unlikely that the price of food will not fall as fast as productivity increases, and this will force the capitalists to pay out a larger part of their product as wages.

If there is no hope of prices falling as fast as productivity increases (because demand is increasing), the capitalists' next best move is to prevent the farmer from getting all his extra production. In Japan this was achieved by raising rents against the farmers, and by taxing them more heavily, so that a large part of the rapid increase in productivity which occurred (between 1880 and 1910 it doubled) was taken away from the farmers and used for capital formation ; at the same time the holding down of the farmers' income itself held down wages, to the advantage of profits in the capitalist sector. Much the same happened in the U.S.S.R., where farm incomes per head were held down, in spite of farm mechanisation and the considerable release of labour to the towns ; this was done jointly by raising the prices of manufactures relatively to farm products, and also by levying heavy taxes upon

the collective farms.

This also defines for us the case in which it is true to say that it is agriculture which finances industrialisation. If the capitalist sector is self-contained, its expansion is in no way dependent upon the peasants. The surplus is wholly "at the expense" of the workers in the capitalist sector. But if the capitalist sector depends upon the peasants for food, it is essential to get the peasants to produce more, while if at the same time they can be prevented from enjoying the full fruit of their extra production, wages can be reduced relatively to the capitalist surplus. By contrast a state which is ruled by peasants may be happy and prosperous, but it is not likely to show such a rapid accumulation of capital. (*E.g., will China and the U.S.S.R. diverge in this respect ?*).

We conclude, therefore, that the expansion of the capitalist sector may be stopped because the price of subsistence goods rises, or because the price is not falling as fast as subsistence productivity per head is rising, or because capitalist workers raise their standard of what they need for subsistence. Any of these would raise wages relatively to the surplus. If none of these processes is enough to stop capital accumulation, the capitalist sector will continue to expand until there is no surplus labour left. This can happen even if population is growing. For example, if it takes 3 per cent. of annual income invested to employ 1 per cent. more people, an annual net investment of 12 per cent. can cope with as much as a 4 per cent. increase in population. But population in Western Europe at the relevant times grew only by 1 per cent. or so per annum (which is also the present rate of growth in India), and rates of growth exceeding 2J per cent. per annum are even now rather rare. We cannot say that capital will always grow faster than labour (it obviously has not done so in Asia), but we can say that if conditions are favourable for the capitalist surplus to grow more rapidly than population, there must come a day when capital accumulation has caught up with labour supply. Ricardo and Malthus did not provide for this in their models, because they over-estimated the rate of growth of population. Marx did not provide for it either, because he had persuaded himself that capital accumulation increases unemployment instead of reducing it, (he has a curious model in which the short run effect of accumulation is to reduce unemployment, raise wages and thus provoke a crisis, while the long run effect is to increase the reserve army of unemployed). Of the classical economists only Adam Smith saw clearly that capital accumulation would eventually create a shortage of labour, and raise wages above the subsistence level.

When the labour surplus disappears our model of the closed economy no longer holds. Wages are no longer tied to a subsistence level. Adam Smith thought they would then depend upon the degree of monopoly (a doctrine which was re-presented in the 1930's as one of the novelties of modern economic analysis). The neo-classicists invented the doctrine of marginal productivity. The problem is not yet solved to anyone's satisfaction, except in static models which take no account of capital accumulation and of technical progress. It is, however, outside the terms of reference of this essay and we will not pursue it here.

Our task is not, however, finished. In the classical world all countries have surplus labour. In the neo-classical world labour is scarce in all countries. In the real world, however, countries which achieve labour scarcity continue to be surrounded by others which have abundant labour. Instead of concentrating on one country, and examining the expansion of its capitalist sector, we now have to see this country as part of the expanding capitalist sector of the world economy as a whole, and to enquire how the distribution of income inside the country and its rate of capital accumulation, are affected by the fact that there is abundant labour available elsewhere at a subsistence wage.

II. The Open Economy.

9. When capital accumulation catches up with the labour supply, wages begin to rise above the subsistence level, and the capitalist surplus is adversely affected. However, if there is still surplus labour in other countries, the capitalists can avoid this in one of two ways, by encouraging immigration or by exporting their capital to countries where there is still abundant labour at a subsistence wage. We must examine each of these in turn.

10. Let us first clear out of the way the effects of the immigration of skilled workers, since our main concern is with an abundant immigration of unskilled workers released by the subsistence sectors of other countries. It is theoretically possible that the immigration of skilled workers may reduce the demand for the services of native unskilled workers, but this is most unlikely. More probably it will make possible new investments and industries which were not possible before, and will thus increase the demand for all kinds of labour, relatively to its supply.

We must also get out of the way relatively small immigrations. If 100,000 Puerto Ricans emigrate to the United States every year, the effect on U.S. wages is negligible. U.S. wages are not pulled down to the Puerto Rican level ; it is Puerto Rican wages which are then pulled up to the U.S. level.

Mass immigration is quite a different kettle of fish. If there were free immigration from India and China to the U.S.A., the wage level of the U.S.A. would certainly be pulled down towards the Indian and Chinese levels. In fact in a competitive model the U.S. wage could exceed the Asian wage only by an amount covering migration costs plus the "cliff" to which we have already referred. The result is the same whether one assumes increasing or diminishing returns to labour. Wages are constant at subsistence level plus. All the benefit of increasing returns goes into the capitalist surplus.

This is one of the reasons why, in every country where the wage level is relatively high, the trade unions are bitterly hostile to immigration, except of people in special categories, and take steps to have it restricted. The result is that real wages are higher than they would otherwise be, while profits, capital resources, and total output are smaller than they would otherwise be.

11. The export of capital is therefore a much easier way out for the capitalists, since trade unions are quick to restrict immigration, but much slower in bringing the export of capital under control.

The effect of exporting capital is to reduce the creation of fixed capital at home, and therefore to reduce the demand for labour. Labour will still be required to create the capital (*e.g.* to make machines for export), but domestic labour will no longer be required to work with the capital, as it would also be if the capital were invested at home.

This, however, is only one side of the picture, for the capital may be used in foreign countries in ways which raise the standard of living of the capital exporting country (and so offset wholly or partly the first effect), or-in ways which lower it (thus aggravating the first effect). The result depends on the type of competition which there is between the capital exporting and the capital importing countries.

12. Let us assume, to begin with, that there is no competition, and even no trade. Both countries are self-sufficient. Wages however are rising in country A, while

labour is abundant in country *B*. *A*'s capitalists therefore invest their capital in *B*. Trade returns show first the export surplus from *A*, representing the transfer of capital, and later the import surplus representing the return home of dividends. There is no effect on the workers in *A* other than that their wages cease to rise, as they would have if the capital were invested instead at home. If *A*'s resources and *B*'s resources are exactly the same, wages cannot rise in *A* until capital accumulation in *B* has wiped out *B*'s labour surplus.

Now in the real world the resources of two countries are not exactly alike, and it cannot be taken for granted that it will be more profitable to invest in *B* if profits are falling in *A* (which also cannot be taken for granted). The profitability of investing in a country depends upon its natural resources, upon its human material, and upon the amount of capital already invested there.

The most productive investments are those which are made to open up rich, easily accessible natural resources, such as fertile soil, ores, coal or oil. This is the principal reason why most of the capital exported in the last hundred years went to the Americas and to Australasia rather than to India or to China, where the known resources were already being used. In the well developed parts of the world (in the resource sense) the main opportunity for productive investment lies in improving techniques-these countries are well (even over-) developed in the resource sense, but under-developed in their techniques. It is profitable to use capital to introduce new techniques, but this is not as profitable as using capital to make available both new techniques and also new resources. This also explains why the United Kingdom rapidly became a capital exporting country (the limits of its natural resources were soon reached), whereas the United States is very late in reaching this stage, since its natural resources are so extensive that capital investment at home is still very profitable even though wages are very high.

Productivity depends also on the human material. Even though the genetic composition of peoples may be much the same, as far as potential productivity may be concerned, their cultural inheritance is very different. Differences in literacy, forms of government, attitudes to work, and social relations generally may make a big difference to productivity. Capitalists naturally find it more profitable and safer to invest in countries where the atmosphere is capitalist than they do in widely different cultures.

But this is not all. For the productivity of investment in *B* depends not only upon *B*'s natural resources and its human institutions, but also upon the efficiency of all other industries whose services the new investment would require to use. This depends partly upon how highly capitalised these other industries are. The productivity of one investment depends upon other investments having been made before. Hence it may be more profitable to invest capital in countries which already have a lot of capital than to invest it in a new country. If this were always so, no capital would be exported, and the gap between wages in the surplus (labour) and non-surplus countries would not diminish but would widen. In practice capital export is small, and the gap does widen, and we cannot at all exclude the possibility that there is a natural tendency for capital to flow towards the capitalised, and to shun the un-capitalised.

If we could assume that there is a natural tendency for the rate of profit to fall in a closed economy, we could say that however low the rate may be in other countries, the rate in the closed economy must ultimately fall towards the level elsewhere, after which capital export must begin. Practically all the best known economists of every school, in every century, have affirmed that such a tendency exists, though their reasons have varied widely. The most notable exception is Marshall, who gave

the right answer, which is that increasing capital per head tends to lower the yield of capital, while increasing technical knowledge tends to raise it. Thus, said Marshall, the yield fell from 10 per cent. in the Middle Ages to 3 per cent. in the middle of the eighteenth century—a long period of slow technical growth—after which the decline was arrested by the great increase in opportunities for using capital. This being so, the natural tendency for the yield of capital to fall is nothing but a popular myth. The yield may fall or it may not; we cannot foretell.

We get a different answer, however, if we turn from the rate of profit on capital in general to the rate in particular lines of investment. In any particular line the possibilities of further expansion are soon exhausted, or at any rate greatly reduced. All industries develop on a logistic pattern, growing fairly slowly at first, then rapidly, and later on growing again quite slowly. Hence the investors in any particular line sooner or later come to a point where there is not much more scope for investment in that line at home. It is open to them to put their accumulating profits into quite different industries. But there is also the temptation to stick to the field in which they have specialised knowledge, and to use their profits to take the industry into new countries.

What brings about the exportation of capital is not inevitably falling home profits, or rising wages at home, but simply the fact that foreign countries having different resources unutilised in different degrees there are some profitable opportunities for investment abroad. This is not even dependent on capital accumulation having caught up with surplus labour at home; for even if there is still surplus labour at home, available at subsistence wages, investment opportunities abroad may be more profitable. Many capitalists residing in surplus labour countries invest their capital in England or the United States.

We must therefore beware of saying that a country will begin to export capital as soon as capital accumulation at home catches up with labour supply. All the same, countries do export capital, and we can say that if labour is scarce in those countries, the effect is to reduce the demand for labour in those countries and thus to prevent wages from rising as much as they otherwise would.

13. Let us now assume that the two countries do not compete, but trade with each other. There are two variants of this case. One where the two countries produce only one good, but a different good in each. Here wage levels are not determined in relation to each other. In the second case, each country produces two or more goods, one of which is common to both, and is the good produced in the subsistence sector.

Suppose that in the first case country A produces wheat, and country B produces peanuts. Relative prices are determined solely by supply and demand. Assume that a capitalist sector develops in A, applying new techniques to wheat production. At first it may get unlimited labour at an average wage in wheat related to average subsistence wheat production. In due course, however, the surplus is eliminated and wheat wages start to rise. If the capitalist techniques which fructified wheat production are equally applicable to peanuts, it will pay to export capital to B, where unlimited labour is available at a wage related to average subsistence output of peanuts.

As in the case discussed before, wages in A will be held down by the profitability of investing capital in B. A new element, however enters into consideration, because of the effects of investment on the terms of trade. When capital is being invested in A, and raising the output of wheat, the price of peanuts will rise relatively. Hence the capitalist workers in A as well as subsistence workers in A

will be worse off in terms of peanuts, though earning the same real wage in wheat. And the workers in *B* will be better off in terms of wheat, while earning the same in peanuts. When capital is invested in *B* the opposite happens : the terms of trade are moved against the *B* workers in favour of the *A* workers.

The moral is that capital export may benefit the workers on balance if it is applied to increasing the supply of things they import. For example, in the Britain of 1850 exclusive investment at home in the cotton industry, while tending to raise wages, might also still more have depressed the terms of trade against the cotton industry.

When we pass to the second case, the result is the same, except that the terms of trade are now determinate. Assume that both countries produce food, but do not trade in it. Country *A* also produces steel, and country *B* also produces rubber. If *B* can release unlimited supplies of labour from subsistence food production, wages in *B* will equal average (not marginal) product in food (abstracting from the difference between subsistence and capitalist wages). In *A* also the wage cannot fall below productivity in the food industry. We may simplify by assuming in the first instance that labour is the sole factor of production and that one day's labour

in <i>A</i> produces	3 food or 3 steel
in <i>B</i> “	1 food or 1 rubber.

Earnings in *A* will then be three times earnings in *B* (the difference in food productivity). And the rate of exchange will be 1 food = 1 steel = 1 rubber. Suppose now that productivity increases in *B*'s rubber industry only, so that one day's labour produces instead 3 rubber. This is excellent for the workers in *A*, since 1 steel will now buy 3 rubber. But it will do the workers in *B* no good whatsoever (except in so far as they purchase rubber), since their wage will continue to be 1 food. If on the other hand the subsistence economy became more productive, wages would rise correspondingly. Suppose that 1 day's labour in *B* now produced 3 food or 1 rubber, wages would be as high in *B* as in *A*, and the price of rubber would now be 1 rubber = 3 steel. Workers in *A* are benefitted if productivity in *B* increases in what they buy, and are worse off if productivity in *B* increases in *B*'s subsistence sector. Workers in *B* are benefitted only if productivity increases in their subsistence sector ; all other increases in productivity are lost in the terms of trade.

We have here the key to the question why tropical produce is so cheap. Take for example the case of sugar. This is an industry in which productivity is extremely high by any biological standard. It is also an industry in which output per acre has about trebled over the course of the last 75 years, a rate of growth of productivity which is unparalleled by any other major industry in the world—certainly not by the wheat industry. Nevertheless workers in the sugar industry continue to walk barefooted and to live in shacks, while workers in wheat enjoy among the highest living standards in the world. The reason is that wages in the sugar industry are related to the fact that the subsistence sectors of tropical economies are able to release however many workers the sugar industry may want, at wages which are low, because tropical food production per head is low. However vastly productive the sugar industry may become, the benefit accrues chiefly to industrial purchasers in the form of lower prices for sugar. (The capitalists who invest in sugar do not come into the argument because their earnings are determined not by productivity in sugar but by the general rate of profit on capital ; this is why our leaving capital out of this and subsequent analysis of the effects of changing productivity upon wages and the terms of trade simplifies the analysis without significantly affecting its results). To raise the price of sugar, you must increase the productivity of the tropical subsistence food economies. Now the contribution of the temperate world to the tropical world, whether in capital or in knowledge, has in the main been

confined to the commercial crops for export, where the benefit mainly accrues to the temperate world in lower prices. The prices of tropical commercial crops will always permit only subsistence wages until, for a change, capital and knowledge are put at the disposal of the subsistence producers to increase the productivity of tropical food production for home consumption.

The analysis applies to all tropical commercial products of which an unlimited supply can be produced because unlimited natural resources exist, in relation to demand-e.g., land of suitable quality. It does not apply where natural resources of a particular kind are scarce. For example, the lands suitable for cultivating sugar or peanuts are very extensive. But mineral bearing lands, or lands with just the right suitability for cocoa, are relatively scarce. Hence the price of a mineral, or of cocoa, may rise to any level consistent with demand. If the lands are owned by capitalists, employing workers, this will make little difference to their wages. But if these scarce lands are owned by peasants, the peasants may of course become rich. In general the peasants have got little out of their mineral bearing lands, especially when these have been expropriated by imperial governments (or declared to be Crown property) and sold to foreign capitalists for a song. Cocoa is the only case (a doubtful one) where it seems that a world scarcity of suitable land may now permanently bring to the peasants earnings higher than they could obtain from subsistence food production.

This is not to say that the tropical countries gain nothing from having foreign capital invested in commercial production for export. They gain an additional source of employment, and of taxation. The accumulation of fixed capital in their midst also brings nearer the day when the demand for labour will catch up with the supply (though even this will not raise wages in any one tropical country until they start to rise in all, since capital would otherwise merely transfer itself to the countries where there is still a surplus). What they do not gain is rising real wages: the whole benefit of increasing productivity in the commercial sector goes to the foreign consumer, at least in the early stages. In the latest stages they may also gain if their peasants imitate the capitalist techniques, so that subsistence productivity rises; or if the continual increase in the output of commercial crops moves the terms of trade in favour of subsistence food production; either of these changes would react upon real wages (see section 8), but would do so effectively only when the changes have extended throughout the tropical world.

14. In the next case we assume that the two countries can produce the same things, and trade with each other. *A* is the country where labour is scarce, *B* the country where unlimited labour is available in the subsistence (food) sector. Using the classical framework for the Law of Comparative Costs we write that one day's labour

in <i>A</i> produces	3 food or 3 cotton manufactures
in <i>B</i>	2,, or 1 “

This, of course, gives the wrong answer to the question “who should specialise in which,” since we have written the average instead of the marginal products. We can assume that these coincide in *A*, and also in cotton manufacture in *B*. Then we should write, in marginal terms,

in <i>A</i> produces	3 food or 3 cotton manufactures
in <i>B</i>	“ 0 “ or 1 “

B should specialise in cotton manufacture and import food. In practice, however, wages will be 2 food in *B* and between 3 food and 6 food in *A*, at which levels it will be “cheaper” for *B* to export food and import cotton.

This divergence between the actual and what it ought to be is the most serious difference which the existence of surplus labour makes to the neo-classical theory of international trade. It has caught out many economists, who have wrongly advised under-developed countries on the basis of current money costs, instead of lifting the veil to see what lies beneath. It has also caught out many countries, which have allowed (or been forced to allow) their industries to be destroyed by cheap foreign imports, with the sole effect of increasing the size of the labour surplus, when the national income would have been increased if the domestic industries had instead been protected against imports. The fault is not that of the Law of Comparative Costs, which remains valid if written in real marginal terms, but of those who have forgotten that money costs are entirely misleading in economies where there is surplus labour at the ruling wage.

Of course if labour is a free good but the two industries use some scarce resource, such as land or capital, the comparison has to be made not in terms of labour cost but in terms of the scarce resource. Thus, even though labour is unemployed, it may be more economic to use capital to increase the production of food than to use it in creating new manufacturing industries. Adam Smith was as usual on the ball; this was the substance of his argument that a tariff could not raise the national income even if it increased employment, since it would simply be diverting capital from more to less productive uses. (The Keynesian model doesn't help, since it assumes unlimited capital as well as unemployment). All the same, there may be cases where it is more economic to use capital to create new industries, rather than to fructify old ones, and where this is nevertheless not the most profitable thing to do, in the financial sense, because labour has to be paid a wage when its marginal productivity is really zero. Moreover, many manufacturing activities do not in fact use any other scarce resource but labour. The handicraft and cottage industries especially, which may provide employment for up to ten per cent. of the people in backward countries, use no capital resources to speak of. Yet these are the very first industries to be destroyed by cheap imports of manufactures (*e.g.* the havoc wrought to the Indian cotton industry in the first half of the nineteenth century).

The Law of Comparative Costs, rightly applied, enables us to predict the pattern of international trade. We can say that those countries which have inadequate agricultural resources in relation to their populations (*e.g.* India, Japan, Egypt, Great Britain, Jamaica) must live by importing agricultural products and exporting manufactures; metal manufactures if they have the coal and, ores (India, Great Britain) and light manufactures if they have not (Japan, Egypt, Jamaica). Correspondingly countries which are rich in agricultural land (U.S.A., Argentina), should be net exporters of agricultural products at relatively good terms of trade. Currently this pattern is distorted by the divergence between money and real costs. But if world population continues to grow at its current rate, this pattern must emerge in due course, unless there are revolutionary developments in agricultural science.

Let us, however continue to examine this case, assuming that no distortion is taking place. As before *A* is developed while *B* has surplus labour in food. Suppose that one day's labour

in *A* produces 5 food or 5 cotton manufactures
 in *B* " 1 " or 3 " (average)

B ought to specialise in cotton, and will actually do so. Wages and prices are determinate. The wage in *B* will be 1 food, the price of cotton will be 1 cotton equals *j* food, the wage in *A* will be 5 food, and *A* will get all the benefit of the exchange. Suppose now that productivity increases in *B*'s cotton industry. *B*'s wage is unchanged, and the whole benefit accrues to *A*. But if productivity increases in

B's food industry (the average rising say from 1 to 2) *B's* wage will rise (from 1 food to 2 food). *A's* wage will still be 5 food, but cotton will now be dearer (1 cotton equals 1 food), to the advantage of *B* and disadvantage of *A*. (*B's* wage is determinate because there is unlimited labour available at a subsistence wage ; and all the benefit of the exchange goes to *A* because *B* is producing both commodities).

15. It is time to say a word about the effect of increasing the subsistence productivity in countries with surplus labour. The analysis is the same as we made for the closed economy (section 8), except that we must now think of the world as a whole as the closed economy. We must also think of the commercial sector of these economies as being a part of the world capitalist sector.

Then, if the world capitalist sector is not dependent on the peasants for food, even to feed its plantation and mining labourers in the surplus countries, an increase in the productivity of the peasants must raise wages against the capitalists. To have this effect, however, productivity must rise in all these countries, otherwise the capitalists will simply transfer from those countries where subsistence productivity has risen to those where it has not.

If, on the other hand, we assume that the capitalists need the peasants' food, and that the demand for food is inelastic, then increased productivity reduces the price of food even more, and so reduces the share of capitalist workers in the capitalist product. This again assumes that the changes are world-wide; if one country raises its productivity, the price of food will not fall; wages will rise in that country, and capitalists will move elsewhere. However, even if the price of food falls, the peasants eat most of their output, and will still be better off. For example, suppose a peasant produces 100 food, eats 80 food, and sells 20 food for 20 manufactures. Suppose now that his productivity increases to 200, reducing the price of food by more than half, say to 0.4. The peasant can now have 30 manufactures, costing 75 food, and still eat 125 food instead of 80. The standard of living in the surplus countries is thus raised nearer to that of the advanced countries, but the terms of trade move against both the food and the commercial products of the surplus countries (would move in favour of the commercial products if the elasticity of demand for food were 1.0 or more).

In practice, food production in tropical countries with surplus labour is only a small part of world food production (Asia and Africa together produce less than 20 per cent. of the world's food). Hence increases in food productivity in the tropics could not reduce the price of food *Pari passu*. Real wages would therefore rise, and the terms of trade would move in favour of tropical commercial products. This would hurt labour in the industrial countries in so far as it was buying such products, and benefit it in so far as tropical countries were competing in industrial production.

16. This brings us finally to the case where the two countries *A* and *B* produce competing goods to sell in third markets. This need not detain us long. If capital is exported in ways which raise subsistence productivity in the capital importing country, the workers in the capital exporting country will benefit, since the wages of their rivals will be raised. If, however, it is exported to increase productivity in the exporting sector of the capital importing country, the workers in the capital exporting country will be doubly hit, first by the reduced capital accumulation at home, and then again by the fall in their rivals' prices.

17. We may conclude as follows. Capital export tends to reduce wages in capital exporting countries. This is wholly or partly offset if the capital is applied to cheapening the things which the workers import, or to raising wage costs in

countries which compete in third markets (by raising productivity in their subsistence sectors). The reduction in wages is however aggravated if the capital is invested in ways which raise the cost of imports (by increasing productivity in subsistence sectors), or which increase the productivity of competing exports. We have also seen that capital importing countries with surplus labour do not gain an increase in real wages from having foreign capital invested in them, unless this capital results in increased productivity in the commodities they produce for their own consumption.

III. Summary.

18. We may summarise this article as follows

1. In many economies an unlimited supply of labour is available at a subsistence wage. This was the classical model. The neo-classical model (including the Keynesian) when applied to such economies gives erroneous results.

2. The main sources from which workers come as economic development proceeds are subsistence agriculture, casual labour, petty trade, domestic service, wives and daughters in the household, and the increase of population. In most but not all of these sectors, if the country is overpopulated relatively to its natural resources, the marginal productivity of labour is negligible, zero, or even negative.

3. The subsistence wage at which this surplus labour is available for employment may be determined by a conventional view of the minimum required for subsistence ; or it may be equal to the average product per man in subsistence agriculture, plus a margin.

4. In such an economy employment expands in a capitalist sector as capital formation occurs.

5. Capital formation and technical progress result not in raising wages, but in raising the share of profits in the national income.

‘6. The reason why savings are low in an undeveloped economy relatively to national income is not that the people are poor, but that capitalist profits are low relatively to national income. As the capitalist sector expands, profits grow relatively, and an increasing proportion of national income is re-invested.

7. Capital is formed not only out of profits but also out of credit creation. The real cost of capital created by inflation is zero in this model, and this capital is just as useful as what is created in more respectable fashion (*i.e.* out of profits).

8. Inflation for the purpose of getting hold of resources for war may be cumulative ; but inflation for the purpose of creating productive capital is self-destructive. Prices rise as the capital is created, and fall again as its output reaches the market.

9. The capitalist sector cannot expand in these ways indefinitely, since capital accumulation can proceed faster than population can grow. When the surplus is exhausted, wages begin to rise above the subsistence level.

10. The country is still, however, surrounded by other countries which have surplus labour. Accordingly as soon as its wages begin to rise, mass immigration and the export of capital operate to check the rise.?

11. Mass immigration of unskilled labour might even raise output per head, but its effect would be to keep wages in all countries near the subsistence level of the poorest countries.

12. The export of capital reduces capital formation at home, and so keeps wages down. This is offset if the capital export cheapens the things which workers import, or raises wage costs in competing countries. But it is aggravated if the capital export raises the cost of imports or reduces costs in competing countries.

13. The importation of foreign capital does not raise real wages in countries which have surplus labour, unless the capital results in increased productivity in the commodities which they produce for their own consumption.

14. The main reason why tropical *commercial* produce is so cheap, in terms of the standard of living it affords, is the inefficiency of tropical *food* production per man. Practically all the benefit of increasing efficiency in export industries goes to the foreign consumer ; whereas raising efficiency in subsistence food production would automatically make commercial produce dearer.

15. The Law of Comparative Costs is just as valid in countries with surplus labour as it is in others. But whereas in the latter it is a valid foundation of arguments for free trade, in the former it is an equally valid foundation of arguments for protection.

W. Arthur Lewis

Manchester.

* *The Manchester School*, May (1954).