the given conditions are not sufficient to ensure continuous accumulation, but they are such as to make continuous accumulation possible.

II. CHARACTERISTICS OF THE MODEL

It must be emphasised that this model of an economy enjoying steady growth does not correspond to the behaviour to be expected from any actual economy. It is nothing more than a piece of simple arithmetic.\(^1\) We shall make use of it in what follows as a standard of reference, in order to classify the various types of disturbances to which actual economies may be subject.

Nor does it represent an ideal objective for policy. As we shall see, steady accumulation may be accompanied by chronic or progressively growing unemployment of labour. This means not only that members of the economy may be suffering disagreeable lives but also that a more rapid rate of expansion is physically possible and could be attained by well conceived and successful economic policy. The rate of increase of income which can be continuously maintained is governed by the rate of accumulation, but there is no reason to suppose that accumulation is in any sense at the most desirable level from the point of view of society.

The distribution of income between labour and capital depends, first, upon the technical conditions which govern the relation of the physical stock of capital to capacity output in the initial position and, secondly, on the rate of profit, that is, the rate of interest plus the rate of net profit. If the rate of interest were (and always had been) lower or the entrepreneurs were habituated to a lower rate of net profit, the share of labour and the level of real wages would be so much the higher. There is no reason to suppose that the distribution of income which happens in

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\(^1\) Cf. Rosa Luxemburg, *Accumulation of Capital* [23], p. 119.
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merely an analytical device to permit us to discuss unsteady development.

6. VICISSITUDES OF A DEVELOPING ECONOMY

I. THRIFTINESS

An important feature in our picture of the golden age of steady progress is that saving represents an unchanging proportion of total income, to which the stock of productive equipment and its distribution between the sectors of industry are appropriate. We must now consider what happens if thriftiness increases (the proportion of income consumed falls), and what influences are likely to make thriftiness alter.

An increase in thriftiness may be induced by an increase in investment plans—in the large, when a society begins to develop habits of enterprise and of thrift together, or in detail, when entrepreneurs limit family expenditure or dividend payments in order to have more funds to plough back into their businesses. Then greater thrift makes possible a greater rate of accumulation. But here we wish to consider the effect of an increase in thriftiness in itself, not induced by some other change in the situation.

(a) Effect of a Rise in Thriftiness

Suppose that the system has been expanding at a steady geometrical rate, in the manner of the golden age, up to a certain moment, and that then thriftiness increases, so that the ratio of consumption to income falls. This means that the increment of demand for consumption goods falls short of the increment of supply made possible by the addition to equipment which took place over the immediate past. Surplus capacity emerges in the consumption-good industries, orders for new capital goods consequently fail to be placed, and the rate of investment falls off (or fails to increase at its former rate). If the change is foreseen before it occurs, investment in the consumption-good industries is curtailed appropriately, and surplus capacity does not appear in them, but this only means that investment falls all the sooner.

If the change came about gradually, instead of in a sudden burst, the effect would be no better. It is true that the system could accommodate itself smoothly to a gradual change if there were some force causing the proportion of investment to income to rise as the proportion of consumption fell off. But an increase in thriftiness, whether sudden or gradual, provides no such force, for it does nothing to induce an increase in investment plans, or (except to the very minor extent that it releases capacity suitable for investment industries) to make possible the speeding up of the rate at which plans are carried out.

It seems, then, that a rise in thriftiness above the level to which the system has become adjusted slows up the rate of capital accumulation.

Here it is necessary to make a short return to the controversy about the rate of interest discussed in the first part of this essay. "Classical economics" is usually represented as denying the above proposition and as showing that an increase in thriftiness is a cause of increased accumulation, the causal links being the behaviour of the rate of interest, and the behaviour of money-wage rates. But "classical economics", in this sense, is a somewhat artificial construction. It is derived by asking questions suggested by the General Theory and then patching together answers from the implicit assumptions, the asides and the obiter dicta made, for instance by

1 An alternative assumption which in some ways seems to fit the "classical" scheme better is discussed below, p. 122.
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Marshall, in the course of answering quite different questions. In particular, as was argued above, the supposed classical theory of the rate of interest will not survive being transplanted into the setting of an analysis of historical development. The view that a rising value of money is favourable to accumulation I do not think has ever seriously been maintained, outside the context of pure static theory. Thus so far as “classical economics” is concerned, there does not seem to be any case to answer.

(b) Causes of Changes in Thriftiness

Granted that increasing thriftiness unaccompanied by increasing investment opportunities is inimical to accumulation, the next question to be asked is in what conditions thriftiness is likely to increase.

Keynes, formalising a long tradition of “under-consumptionist” theory, argued that the mere increase of wealth increases thriftiness. This point of view appears at first sight to be supported by the fact that, over the up and down of the trade cycle, consumption increases in a smaller proportion than income (investment bear a higher ratio to income in the boom than in the slump) so that, when national income increases, the increment of saving may be as high as fifty per cent. of the increment of income, while total net saving is only, say, ten per cent. of total income. If this relationship holds good as income per head increases over the long run, the ratio of saving to income must be continuously increasing.

But there is a great deal of difference between an increase in real national income which comes about in the upswing of a boom and an increase due to capital accumulation and technical progress. In a boom, the increase of income goes too fast for consumption habits to be fully adjusted to it, and it is confined to small sectors of the community, whereas the long-run increase in income is gradual and widely diffused. Boom incomes may not be expected to last, so that prudence dictates the building up of reserves.

Moreover, the proportion of profits to national income rises, as a boom develops, above its long-run average, because prices rise relatively to money costs, and the propensity to save which applies to profits is markedly higher than that for wages, or even for rentier incomes. The question can be treated in terms of Marshall’s short and long-period supply price: when demand increases, given capital equipment, prices rise relatively to money-wage rates and abnormal profits are earned. When the consequent stimulus to investment has led to an appropriate expansion of capacity, profits fall back to normal. And super-normal thriftiness disappears with super-normal profits.

It is therefore impossible to argue from the high short-run marginal propensity to save to a secular rise in thriftiness.

Nor is there much force in the argument that as real income rises material human wants become progressively more fully satisfied, for wants increase with the power to meet them, especially in a stratified society, where the upper income groups are continually putting ideas into the heads of those below, and where artful salesmanship is continually creating new wants in order to exploit them.

But the “under-consumptionist” case does not rest mainly on the idea that thriftiness must rise with average

1 General Theory [1], p. 219.

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1 Mr. Hicks (A Contribution to the Theory of the Trade Cycle [9], p. 31) suggests that the apparent difference between average and marginal propensity to consume is entirely due to time lags, and is no more than a statistical optical illusion.

2 Cf. Duesenberry [3], The Theory of Consumer’s Behaviour, chapter III.

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income, rather that it must increase with growing inequality of incomes, and that inequality tends to grow as capitalism develops, because the discovery of ever more ways of substituting power and mechanical devices for human muscle and skill is continuously reducing the share in the product of industry received by labour.

We shall see, however, that a priori there is no particular reason to expect technical progress to be “favourable to capital” in the sense that it raises the ratio of capital to output, and statistical investigation, as far as it has gone, suggests that the ratio tends to be fairly constant over the long run.

Moreover, as technique grows more complex it increases the amount of professional and administrative services which industry requires, so that the number of families supported by the non-wage share of total proceeds grows relatively to the number of workers in the narrow sense. Thus even when the share of wages falls, thriftiness does not necessarily increase.

(Technical progress has a further equalising tendency in that it raises the purchasing power of incomes mainly spent upon mass-produced commodities faster than those devoted to personal services and the products of individual craftsmen, but to pursue this point would take us too deeply into index-number problems.)

Another major influence upon distribution is the prevalence of monopoly. Here we must beware of double counting, for, if the degree of monopoly is measured simply by the ratio of gross margins to prime costs, it will appear to rise as a result of a mere increase in the ratio of capital costs to output due to capital-favouring changes in technique. Moreover, a prevalent type of quasi-monopoly limits competition in price while allowing it free play in salesmanship of all sorts (a part of which, indeed, may be genuine improvements in the quality of commodities) so that costs, instead of profits, are raised by it. The type of monopoly which is relevant here is that which raises the average rate of profit because it puts obstacles in the way of the process (described below) by which an excess of price over costs is competed away.

It may be that the prospect of enjoying a monopoly, at least for a certain time, is required to induce many innovations, and in so far as this is true, there is an element of monopoly profit in the “necessary supply price” of some commodities. But all the same a growth in the rate of profit due, for instance, to an increase in the minimum investment required by new techniques (which increases risk and reduces the number of entrepreneurs who can command the necessary finance) reduces the share of wages in net output just as much as a rise in profits brought about by nefarious means.

There are reasons apart from the nature of technical change why we should expect monopoly to increase as time goes by. In many industries a few firms, escaping the degeneration described by Marshall, gradually grow and swallow up the smaller fry. And in many an amalgamation or cartel formed in mere self-defence during a period of surplus capacity persists for ever after (though some break down when prosperity returns).

1 Mr. Kalecki (“The Distribution of the National Income”, Essays in Economic Fluctuations [16]) stated his argument in such a way as to make it appear circular, which has caused its importance to be under-rated.
2 See p. 89.
4 See Schumpeter, Capitalism, Socialism and Democracy [41], p. 88.
5 Cf. Keirstead, The Theory of Economic Change [18], chapter XI.
6 See above, p. 4.
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But even if there is a tendency for monopoly to increase as time goes by, there is a powerful counter-acting force in the development of Trade Unions, which persuade the monopolists to pass back a part of their profits to the workers, in the form of wages and amenities, in order to avoid industrial strife.

From all this it appears that, although there is much to support the under-consumptionist view that the share of wages in income must fall as capital accumulates, and thriftiness increases, yet it is also possible that the counteracting forces may be sufficiently powerful to reverse the result.

II. THE SUPPLY OF LABOUR

The conditions which make the golden age of steady accumulation possible entail that total output increases at the same proportional rate as the stock of capital measured in terms of product. The demand for labour is increasing or shrinking according as the rise in output per man-hour, due to technical progress, goes on at a slower or a faster pace than the increase in total output. When output per man-hour rises faster than total output there is a continually growing amount of technological unemployment, or a continual fall in hours worked per man-year. When output per man-hour is rising more slowly, the demand for labour is increasing.

We must now consider the inter-action between the demand for labour and the growth of population.

There are many complicated and important questions connected with the age, class and sex composition of a population which are bound up with changes in its rate of growth, and with the length of past time that any given pattern of growth has been experienced. All this group of problems we shall ignore, setting out only a crude argument in terms of absolute numbers of “men”.

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The two aspects of the problem which are most germane to our argument are (a) the cessation of population growth after it has been going on for some time and (b) the continuance of population growth at an excessive rate.

(a) Cessation of Growth in Numbers

First consider an economy which has been enjoying steady progress, in the manner of the golden age, in which technical progress is raising output per man-hour less fast than capital is accumulating. This has been possible because population has been growing, and every year more hands are producing and more mouths consuming than the year before.

Let us suppose that, by a fortunate accident, accumulation of capital and growth of population are in harmony so that the rate of growth in the numbers of workers required to operate the ever-growing stock of capital at normal capacity is just about equal to the rate of growth in the number of available workers. So long as slumps are avoided, unemployment is a small and fairly steady proportion of the ever-growing total of employment.

Since the growth of real income per head is insufficient to keep demand expanding at the same rate as capacity output, the system, so to say, relies upon the increase in population to keep it running. What would happen if the growth of population slowed down?

As soon as entrepreneurs, each in his own line, foresee that the market for commodities will cease to expand at its former rate, they curtail investment plans, a slump sets in and profits fall below normal. If they fail to observe what is happening and go blindly on with investment plans at the rate appropriate to the former situation, excess capacity emerges and consequently the slump, by being delayed, is so much the worse when it comes.
This decline in investment would be offset if there were a corresponding decline in propensity to save. The change in the pattern of life entailed by a change in the rate of growth of population must certainly affect every aspect of the economy, but there is no presumption that any change in thriftiness which results from it will be sufficient to offset the decline in investment; or even that it will be in the right direction. ¹

Assuming that (in the absence of conscious interference with the laissez faire economy) the propensity to consume is no greater than it was when population was increasing faster, the economy has fallen into a slump. The community, now, is suffering from "underconsumption" in the purest sense. It has a propensity to save appropriate to a higher rate of accumulation than now appears profitable to its entrepreneurs.

Though the trouble is due to failure of its numbers to increase, it is in no sense suffering from a "scarcity of labour", for, quite apart from the unemployment caused by the slump conditions, there is redundant labour in the investment industries. If consumption were to increase above its former level, there would be labour available to meet demand. Lack of mobility, it is true, may be an impediment to transfers of labour from one sector to another, but the question of mobility fails to arise, for in fact, far from increasing, total consumption falls as a result of the fall in incomes derived from investment activity, and there is general unemployment of the all-too-familiar kind.

(Though this situation can properly be described as "underconsumption" it does not follow that, if the community were to depart from pure laissez faire and try to deal with the position by a conscious policy, an increase in consumption would be the best policy to adopt—that is quite another story.)

(b) Over-population

Now consider a case with steady accumulation and neutral progress as before, but with the population growing at a faster rate than the demand for labour. Let us assume first of all that there are no opportunities for employment except those offered by capitalist enterprise, and let us compare the position at two points of time divided by an interval during which the population has increased.

Does the existence of available labour tend to increase the amount of employment? Clearly it increases human needs, but does it increase effective demand?

In so far as State or individual charity provides consumption for the unemployed at the expense of saving that would otherwise be made—that is, in so far as consumption of the recipient of charity is additional to and not in substitution for the consumption of the givers (or tax payers)—the level of consumption (at a given level of investment) has been raised and consequently the total level of employment in consumption industries is greater. But this cannot have eliminated unemployment, for if it did it would not. As soon as the unemployed were off their conscience the rest of the community would return to a higher rate of saving. It requires a growing amount of unemployment to keep employment increasing in this way.

Moreover, the contribution which "doles" make to the consumption of the unemployed may be very small. "It's the poor what helps the poor", and most of what the unemployed consume is not additional demand. If the unemployed are supported by friends and relations who

in any case have no margin for saving, an addition to the number of mouths to be fed has no effect upon total consumption, and therefore no effect upon output and employment at all.\(^1\)

(\textit{It may seem unduly pessimistic to argue that both an excess and a deficiency in population growth causes unemployment, but we should look at employment, rather than unemployment, to see what is happening. In the first case, a fall in the rate of growth of numbers causes a fall in the rate of growth of employment; in the second case employment increases at its former rate, but it increases by less than available labour, so that unemployment increases also.})

The existence of the “reserve army” of unemployed workers reacts upon employment in another way. It weakens the bargaining position of labour and makes it impossible for Trade Unions to keep monopoly profits in check. Thus prices tend to be higher relatively to money-wage rates than they are where full employment and full capacity coincide. In consequence, the competitive advantage to be gained by finding labour-saving techniques is weakened. Moreover, since the price of equipment (as of other commodities) is raised relatively to wage rates by the high rate of profit, capital-saving techniques are likely to be sought for even if they are actually labour-using. Consequently employment per unit of output is kept high. This is the reverse of technological unemployment.\(^2\) Thus compared to an economy which has


\(^2\) Static equilibrium with full employment requires that the rate of interest should be such as to induce techniques to be used that will employ all available labour. There does not seem to be any place for this argument in the above analysis, since there is no reason why the existence of redundant population should raise the rate of interest so as to make a given amount of capital employ more labour. It often happens, however, that developed without redundant labour, an economy with a large reserve army of unemployed workers may have a reserve of productive capacity, which more capital would release, also within the labour force which it does employ.

There is another channel through which some of the redundant workers may get themselves into employment, and that is through the demand for housing. A growth in the numbers supported by a given family income deflects demand from consumption goods in general to demand for housing (a man would rather wear clogs in his own house than leather boots in his mother-in-law’s). We shall not consider a country where the unemployed can build themselves hovels of mud, but one where housing is provided by capitalist enterprise. Now, the industry whose output is room-years of living space employs exceptionally little current wage-labour, so that more of the flow of expenditure on house-rent goes to capital than is the case with almost any other kind of outlay. Thus a deflection of demand from things in general to housing has the same effect as a bout of innovations “favourable to capital” and tends to promote investment in the same way. (This cannot, of course, provide a permanent cure for unemployment due to an excessive rate of growth of population, for it requires a given rate of growth to maintain given employment in building.) The effect of an increase in house building is powerfully reinforced if the society concerned has certain standards of public health so that, if not housing itself, at least the auxiliary services of drainage, etc. are provided at public expense.

Thus it is an exaggeration to say that the existence of a scarcity of finance and a surplus of labour are found together, for both are features of “under-developed economies”. Limited finance and a high rate of interest reinforce the tendencies above described to keep output per man low and therefore employment per unit of output high.
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available labour has no influence at all on the amount of employment.

The assumption that all employment is given by capitalist enterprise is also exaggerated. No society is so completely specialised as to make self-employment quite impossible. The reserve army can usually produce some kind of output, for its own use or for trade with the capitalist sector. Industries may be built upon material salvaged from capitalist rubbish heaps (petrol tins in Syria). Personal services are pressed upon whoever has a copper to spare (shoe-blacks in Spain) and layers of middlemen squeeze themselves into every gap between cost and demand-price (traders in Africa).¹

The distinction between employment and "disguised unemployment" in a slump, though not absolutely clear cut, is a straightforward conception. Workers have been expelled from jobs that they were recently holding, and will return as soon as they are sent for. In a developing economy the line is not so easy to draw, for the self-supporting members of the reserve army are tiny capitalists (even a couple of old petrol tins is a stock of capital goods if they are in process of being made into saucepans), and may even employ each other for wages. The "kulaks" among them approximate to capitalist employers. However, the distinguishing characteristic of their industry is that it has a very marked inferiority in productive efficiency to regular employment, and that their propensity to consume is markedly higher than that of regular capitalists, because they are living very near the minimum of subsistence.²

² The several types of unemployment cannot be exactly distinguished, but schematically we may divide them as follows: Write A for the total amount of labour available, E for the actual level of employment and N for the

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The whole picture is radically different when there is land available to be taken into cultivation outside the capitalist sphere. Where the workers who are not offered employment by capitalists can set off into hitherto unpeopled territory where they can support their families by their own labour, their departure relieves the situation in three ways: first, they find themselves a less wretched means of life; second, by removing the enervating influence of redundant labour, they stimulate the capitalists at home to improve technique; and third, their trade, in due course, with the centres they have left, causes the total of effective demand to expand at a faster rate, and so sets up an inducement to invest in capitalist industries which export to them.¹

(The safety valve of migration to the New World from areas of surplus population was an essential part of the mechanism of nineteenth-century capitalism, and now that it is choked up we begin to realise how much it contributed to the working of the machine.)

III. THE SUPPLY OF LAND

In our model of the golden age there is free land available to be taken into use as required; we must now consider the case, familiar in economic theory, of a capitalist

¹ See below p. 127.
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economy which already occupies all the space there is, that is, with a fixed supply of land.

From a formal point of view land may be regarded as a special kind of capital equipment the supply of which cannot be increased, but can be permanently maintained with a small upkeep cost (we shall not enter into the special problems of mining—that is, using up of natural resources). To introduce scarce land into our analysis we will divide output into two categories: agricultural commodities, which we shall call “wheat”, and “manufactures”, which require a negligible amount of land.

In order to reduce the problem to its bare essentials we will at first make the following extreme assumptions.

(1) The demand of an individual consumer for wheat does not increase with his income.

(2) Substitution between wheat and manufactures is negligible, so that the demand of an individual for wheat is highly inelastic to its price in terms of other commodities.

(3) All land is alike.

And throughout the argument we will assume that:

(4) Innovations are neutral as between labour and capital so that capital per unit of labour does not vary.

(5) The rate of profit is constant.

First we will examine the case where the yield of wheat per acre is rigidly fixed by natural conditions, whatever technique of production is used.

Technical progress is going on, both in industry and in agriculture, which raises output per man-hour, and so reduces the labour required to produce a given output equally of wheat and of manufactures.

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We will first consider a case where the population is stationary, and where industry happens to be expanding just fast enough to absorb its own technological unemployment and to take on the workers released from agriculture by labour-saving innovations in the production of wheat. The total of man-hours per year being worked in the economy as a whole is then constant. The output of wheat is constant and the output of manufactures is rising as time goes by.

Now examine the economy at two points of time divided by an interval in which technical progress has taken place. The cost of wheat, reckoned in wage-units, has fallen, but demand for wheat is unchanged and so is the amount available. The price of wheat, relatively to wages, is constant, while the prices of manufactures have fallen with their costs. The real wage per man is constant in terms of wheat, and has risen in terms of manufactures. The whole of the fall in cost of production of wheat has accrued to land owners as an increase in rent. The terms of trade between industry and agriculture have turned in favour of agriculture.

Now, still with full employment, imagine that the population has increased. The demand for wheat has risen with the number of mouths. The price of wheat has risen, relatively to wages, to whatever extent is necessary to cut back demand to equality with the fixed supply (however inelastic an individual’s demand may be, his consumption must suffer a reduction at some point as his real purchasing power falls). Rent per acre has been increased (in terms of wage units) by the rise in the price of wheat as well as by the fall in the cost of an acre’s output of wheat. The real wage in terms of wheat has fallen. (If wheat consumption was formerly at subsistence level, Malthusian checks have prevented the increase in
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population from being realised, and the wage rate has not fallen for those who survive.)

Next suppose that population has increased but employment has not. There is no dole and employed workers are supporting their unemployed relations. The total demand for wheat has increased by less than in the former case, and in the limit has not increased at all. Then the wage rate in terms of wheat is unchanged, but the consumption of wheat per head has fallen (more mouths are fed from each unit of wages).

Now, returning to the case where population and employment have remained unchanged, let us remove the assumption that the yield of land is fixed and suppose that land-saving innovations have been made (say, an improved breed of wheat has been introduced) so that the yield of wheat per acre has gone up. Since the quantity demanded is unchanged, the price has fallen abruptly to equality with cost of production (including profit on the capital employed in agriculture) and rent has disappeared at a stroke. From now on, the real wage in wheat will rise pari passu with the real wage in terms of manufactures as labour-saving progress continues in each.

These examples illustrate the generalisation that movements in the real wage rate in terms of wheat depends mainly upon the relation of the growth of numbers employed to the rate at which land-saving innovations are made, and that the terms of trade between wheat and manufactures depends upon the inter-action between the above relation on the one hand and the rate of technical progress in manufactures on the other.

Any number of complications can be woven around this simple analysis. It was unnatural to assume that the demand for land does not increase with real income. The demand for food is not absolutely inelastic, even at a

very high standard of life, and land provides many consumer goods (gardens, golf courses) for which demand rises with income. Thus, even in the first case, with constant population, we should allow for some rise in the price of wheat (which stands for all the produce of land) as real income in terms of manufactures rises. On the other hand, if output per acre were not rigid but could be increased, though at diminishing returns, by using more labour and capital per acre, the rise in price of wheat when total demand increases is mitigated. Again, where land is not all alike, a bout of land-saving innovations (with a given total demand for wheat) does not eliminate rent altogether, but throws some land out of cultivation and leaves some Ricardian rent to the rest.

This is all well-trodden ground, and we need not pause to examine it further, but there is another aspect of the matter which is of importance for the present argument: that is the influence upon demand for manufactures of changes in the amount of rent. As the price of wheat in terms of manufactures rises the purchasing power over manufactures of rent income is raised at the expense of wage incomes and capitalist incomes alike. If the owners of land are similar in their spending habits to other owners of property, this increases the thriftiness of the economy as a whole. There is no offsetting increase in the induce-

ment to invest, for demand for manufactures fails to expand in proportion to the former rate of expansion of output and the former rate of accumulation cannot be profitably maintained. In such a case the limitation upon the supply of land would be a continuous drag upon effective demand, which might end by bringing expansion to a standstill.

But this picture is not very life-like, for land is not just the same as other kinds of property. The recipients of rent
may be of various social types. Old-style landlords are notoriously a spending class, and so are tycoons who retire to the country to dissipate fortunes derived from industry in amateur farming. What if the land is owned by peasant farmers? They are usually credited with an exceptionally low marginal propensity to consume, but this opinion is based upon the fact that, from year to year, their expenditure is found to be more stable than their incomes (debt incurred in bad seasons being partly paid off in good seasons). A permanent increase in income (good years averaged with bad) such as occurs in the case we are examining, may be presumed to lead to a permanent increase in their rate of consumption of industrial products, including in consumption saving in kind (or investment financed out of income, whichever we like to call it) as they build up equipment on their farms.

Where the recipients of rent spend all they get, our former argument is reversed, for that part of the rise in rent which is at the expense of profit is partly at the expense of saving by capitalists, so that total outlay on the industrial sector is increased by the transfer from profit to rent, and the improving terms of trade of agriculture give buoyancy to effective demand (though, of course, where total population is increasing, the falling real-wage rate in terms of wheat is an extremely serious matter for the industrial workers).

In this case (which seems likely to be the most common) land-saving innovations, which reduce the price of wheat in terms of manufactures and increases the real purchasing power of industrial incomes, lead to an increase in demand in the industrial sector for its own products which is less than the fall in demand coming from the agricultural sector, so that a slump is precipitated in industry. Thus, so far as effective demand is concerned, plenty rather than scarcity of land appears to be a menace to capitalist prosperity.¹

An economy which in the past has enjoyed free land and has been expanding in space must undergo many radical changes when it reaches the limit of available land, and rent begins to emerge, but there does not seem to be any reason to expect it to fall into a chronic slump.

The case is very different when free land was used to be taken up ahead of the expanding circle of capitalist enterprise by redundant labour from industry. Then the "closing of the frontier" reacts upon the capitalist sector by cutting off a source of expanding demand on which it has grown to depend, as well as by increasing the misery of the workers and, perhaps, weakening the stimulus to technical progress, in the converse of the manner described above.

There is another way in which the supply of land may have an extremely important influence upon capitalist development. Consider an economy in which land has been scarce for some time, the terms of trade tilting in favour of agriculture and rents rising. Now a new territory is discovered, or some large-scale innovation in

¹ The contrary opinion of Ricardo depends upon assumptions which rule out the possibility of a deficiency of demand.
transport brings a territory formerly inaccessible to
capitalism over the horizon of possible exploitation. The
effect upon the rents of land already in use is similar to
that of a sudden burst of land-saving innovations, and the
consequent adverse effect upon the incomes of the “old”
agriculturists may, as we have seen, have a tendency to
reduce the propensity of the economy to consume. But
the effect is likely to be swamped for a long time, perhaps
for generations, by the increase in inducement to invest
represented by opportunities for profit in opening up the
new lands. The glacial pace of accumulation that we
have imagined in our model of an economy enjoying
steady progress is then suddenly turned to a rushing
torrent. An economy which has enjoyed this stimulus
from time to time in the past, and then finds itself in a
present in which there are no more worlds to conquer,
suffers a profound shock. (This is perhaps the best place
to look for a clue to the characteristic difference between
nineteenth and twentieth-century capitalism.)

IV. THE SUPPLY OF FINANCE

One of the prerequisites of continuous expansion is
that the supply of finance (that is, the purchasing power
at the disposal of entrepreneurs, whether from their own
wealth or their capacity to borrow) should be renewed at
an adequate rate as it is used up in schemes of investment.
The inflow into the pool of potential finance may fall
short of the actual outflow for a number of reasons which
have already been discussed,¹ and need only be re-
capitulated here.

(a) Money. Out of every increment of privately owned
wealth, made by accumulating savings, a part will

¹ See above, pp. 14 et seq.

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normally be held in the form of money. Moreover a
continual growth of national income in money terms
requires a growing total of money in active circulation.
If the supply of money fails to increase correspond-
ingly, the increment of demand for other paper
assets falls short of the increment of supply which
corresponds to an increment in stock of real capital,
and so there is a tendency for the rate of interest to
rise and new borrowing to become difficult.

(b) Land. A similar effect is seen where each increment
of private wealth increases the demand for “real
property” the supply of which is fixed. The yield on
land (rent over purchase price) then falls continuously
relatively to the yield on industrial assets, and the cost
of new borrowing for industry tends to be raised.

(c) Distribution of reserves. Where it happens that the
most successful firms are the most cautious, and they
follow the policy of the dog in the manger, failing
either to carry out schemes of investment themselves
or to lend to their more venturesome colleagues,
the pool of finance is continually being syphoned off
into reserves which are held in cash or gilt-edged
assets, and the rate of interest or the risk premium
on new borrowing is gradually pushed up.

(d) Confidence. The consequences of a collapse of
financial confidence (refusal to lend) are too well
known to need elaboration.

The first three causes may set a gradually increasing
drag on accumulation. The last jerks it sharply to a halt,
usually after some other cause has undermined con-

The converse of all these causes eases finance and
assists the maintenance of accumulation.
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Innovations in the supply of finance (such as the application of the hire-purchase system to house building) may suddenly make it possible to satisfy a formerly latent demand for investment, and bring about a spurt of accumulation.

V. THE RATE OF INTEREST

We must also consider the direct effects of changes in the rate of interest. When the process of adjustment to a fall in the rate of interest involves a change over to more capital-using techniques for the rate of output already being produced, and transfers demand to more capital-using types of consumption (as when a fall in house rents increases outlay on living space from a given family income), then, as we shall see, it may require investment not offset by a corresponding increase in saving by entrepreneurs. Something of this kind is likely to occur even if techniques are physically unchanged and markets so imperfect that prices are very sticky. A fall in the rate of interest raises the capital value of assets expected to yield a given return (the number of years' purchase of its rent at which a standing house will sell is raised) and this encourages investment in them up to the point at which a fall in average utilisation restores their price once more to equality with their cost of production (the stock of houses to meet a given demand is increased until the interval between lettings reduces average rent received to equality with the rate of interest on the capital cost of a new house). Thus a fall in the rate of interest gives rise to a once-and-for-all burst of extra investment.

It may lead to a once-and-for-all burst of extra consumption as owners of wealth, who find the real purchasing power of their stock of property increased, reduce it towards its former level by dissaving—"spending out of capital". It may also give a permanent downward jerk to thriftiness (though here, as Mr. Harrod has failed to disprove, the reaction may be in the opposite direction). Thus a fall in the rate of interest may precipitate boom conditions, and a rise, slump conditions.

A fall in the rate of interest expected in the near future checks investment. An expected rise in bond prices tempts entrepreneurs to use their available funds in the bull market (or in lending at a high short rate to bulls) instead of in schemes of real investment, which they consequently postpone. Thus a rise in the rate of interest which is expected to be reversed is a greater deterrent to investment than one which is regarded as permanent.

VI. OTHER VICISSITUDES

Some other disturbing influences may be mentioned briefly, as they are well known and obvious in their effects.

(a) Prices.

A rise in the general level of prices such as occurs when money-wage rates shoot ahead of rising productivity, reduces the purchasing power of rentier incomes. The characteristic of rentier incomes is that they are fixed, by long-term contracts, in money terms. The batch of new contracts entered into today are made in the light of today's prices, but the bulk of rentier incomes being received at any moment are based on contracts made at some time in the past. The main contracts, apart from private house-rents, are entered into by entrepreneurs (debenture interest, managerial salaries) so that the advantage of a fall in their real value mainly accrues to

1 See p. 98.
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net profit, the category of incomes with the highest marginal propensity to save;\(^1\) thus a fall in the real income of rentiers tends to reduce consumption. At the same time, and for the same reason, the burden of debt upon entrepreneurs is reduced and the supply of finance eased. On the other hand, the "money-illusion" of accountants, and legal requirements, which lead entrepreneurs to keep the value of their capital intact in money instead of in real terms, tend to reduce thriftiness.

An expectation of rising costs in the future stimulates investment, for capital goods created now will live into a future when their value is expected to be higher. An expectation of rising prices, moreover, causes ordinary consumers to take on something of the character of entrepreneurs and to "invest" in stocks of durable goods. A sharp and immediate expectation of a rise in prices precipitates hyper-inflation and endangers the stability of the economy, but a vague general impression that prices in the future are more likely to rise than to fall gives buoyancy to effective demand.

A fall of prices, such as occurs as a result of increasing productivity with constant money-wage rates and a constant rate of profit, compared to a constant price level (money wage rates rising with productivity) increases the share of rentier income at the expense of profit, and so is relatively favourable to consumption and unfavourable to the supply of finance, but in this case the "money illusion" tends to increase thriftiness.\(^2\)

A fall in money wage rates accentuates these influences, and, if too rapid, may disrupt the economy by causing a financial crisis.\(^3\)

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1. Kalecki [16], p. 87.

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An expectation of a future fall in money-wage rates restricts consumption and investment and sets a drag upon accumulation, the converse of the effect of an expectation of rising wages.

(b) Changes in Tastes.

Changes in the objects of consumption, if gradual, need produce no disturbing effects (provided that they are neutral between capital and labour) for productive capacity can be switched from one line to another by changing its character as it is renewed in the normal course out of amortisation funds, and the supply of skilled labour can be adapted to requirements (though this may be a more troublesome process) by normal wastage and recruitment. But a sudden and large switch of demand from one commodity to another causes super-profits, a speeding up of investment, and possibly a rise in relative wage rates, in the expanded market, and losses, disinvestment and unemployment in the contracted market. Since investment is concentrated over a shorter time than disinvestment, a sufficiently great swing in demand may cause a boom,\(^4\) while later total investment is at a lower level than it would otherwise have been until the redundant capital in the shrunken market has been worked out of existence.

A change in demand in the direction of simplicity of tastes and home-produced pleasures causes a general slump (as in Mandeville's bee-hive).

(c) Changes in Technique.

The most important source of disturbances in an expanding economy lies in the very process of technical change which is the mainspring of expansion. An un-

1. Cf. [35], p. 98.
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foreseen slowing down in the stream of innovations, as we shall see,\(^1\) tends to cause slump conditions, and a speeding up tends to cause a boom, particularly when it takes the form of a sudden, important invention which causes a great bout of innovations to be made.

7. FOSSILS

Since a private-enterprise economy is subject to so many vicissitudes, it can never in fact enjoy steady progress, and we must abandon the artificial device of imagining it to confront each change of fortune with a history of smooth development behind it.

One of the basic assumptions of our model of steady progress was that the age composition of the stock of capital was such as to require a constant proportion of renewals every year. Where over the past (going back perhaps fifty years and more) there has been an alternation of periods of rapid and sluggish investment the stock of capital carries within itself fossils of its own past (just as the profile of a population table betrays the past history of the birth rate). Then renewals, instead of falling due in a regular stream, come in sudden rushes, divided by periods when the accumulation of amortisation funds exceeds current expenditure on replacement, and "echoes" of the original speeding up or retardation of the rate of investment repeat themselves several times before dying out.\(^2\)

Another arbitrary assumption that we made was that the gestation period of capital equipment does not vary from year to year, so that the capital that has newly

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\(^1\) See p. 104.

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present, for it is all that there is to go by, and one must
go by something.¹

In each of the vicissitudes listed above we broke off the
story at the point where a boom or a slump began. This
was because it would have been idle to go on with the
tale while we were still making use of the assumption of
given expectations. In fact, a boom changes expectations
favourably, and a slump unfavourably, so that each
source of disturbance amplifies itself.

8. INSTABILITY

I. THE END OF A BOOM

We have now emerged from the mythical golden age of
steady progress into unstable times. (And, by the same
token, we have come into a territory well ploughed up
with theories, though as yet little harvested of certainties.)

When the rate of investment rises relatively to what it
has been in the recent past, consumption increases, in
accordance with the short-period marginal propensity to
consume,² and there is a secondary wave of investment in
working capital, and a further increase in consumption.
Now in some lines producers find themselves in a seller’s
market (demand exceeding capacity) and the optimists
among them (or those with strong animal spirits³), acting
on the assumption that the demand will last, place orders
for equipment to enlarge their capacity. So the upswing
in investment amplifies itself.⁴

¹ General Theory [21], p. 149.
² There has been a great deal of study of the time lag in this movement.
See Hicks, A Contribution to the Theory of the Trade Cycle [9], chapter II.
³ General Theory [21], p. 162.
⁴ The alternative formulation in terms of the “accelerator” is dis-
cussed below, pp. 131 et seq.

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At some point the rise in the rate of investment reaches
a limit (we shall return to this point in a moment) and
income reaches a maximum. Meanwhile new plants
have begun to emerge from gestation; soon there is more
capacity to cater for a rate of outlay that has ceased to
rise. The sellers’ market disappears (at best capacity
only just catches up with demand—more often it over-
shoots the mark). The rate of investment therefore falls
off, income declines, and the boom collapses.¹

So much is familiar, and (apart from fine details)
generally accepted. The ground for disagreement is about
the limit which brings a rise in the rate of investment to a
halt. Why does not a small initial impulse produce an
indefinite upswing in investment?

(a) The Financial Limit.

Can a limit be found in the supply of finance? A rise
in national income causes an increased demand for
money, and so drives up the rate of interest, and an
over-rapid drain on the pool of finance exhausts it, so that,
after a certain time, there are insufficient funds available
to be borrowed, and new schemes of investment cease to be
made. An explanation on these lines is plausible enough
when we are discussing a boom in one part of an inter-
national trading system. A relative boom causes diffi-
culties in the balance of payments of the booming country,

¹ Kalecki [16], “A Theory of the Business Cycle”, and “The ‘Pure’
Business Cycle” [17]. Mr. Kaldor’s “Model of the Trade Cycle” [14],
Economic Journal, March 1940, belongs to the same family. That of Mr.
Hicks [9] has some resemblance to it, but is excessively vague about the
main point—the relation of capacity to the demand for output. R. M.
Goodwin (Econometrics in Business-Cycle Analysis [6]), a chapter in Alvin
Hansen, Business Cycles and National Income) reworks Kalecki’s theory with
capacity instead of finance as the short-period bottleneck. His point of
view is therefore pretty well identical with mine. This light is hidden
under a bushel, and I did not see it until the present work was completed.
which have to be corrected by credit restriction, as under traditional bank-rate policy.

But when the boom is spread evenly over the world, so that we can treat the world as a single economy, it is hard to see why finance should check the upswing, for the financial bottle has an elastic neck. There is no reason why the banking system, in a closed economy, should not "meet the needs of trade" and allow the supply of money to expand as required, and even if the rate of interest does rise as a boom develops, the cost of borrowing to entrepreneurs is likely to fall, as their own confidence in future profits communicates itself to the other side of the market for loans.¹

Moreover, a boom is a time of high profits, and an abnormal proportion of saving is being made directly by entrepreneurs (all the more so if money-wage rates, and with them prices, are rising, robbing the rentiers to the benefit of net profit). Thus the pool of potential finance is more likely to be filling up than draining away.²

Financial stringency, indeed, may set in with great violence when profit expectations fail, but that means that finance kicks the boom when it is down, not that it knocks it over.

(b) Expectations.

Another kind of explanation is looked for in the reaction of expectations about the future to current experience. When profits are running round about their average of the past few years, this theory suggests, entrepreneurs have confidence in them, and then investment plans respond to each rise in the rate of profit. But when profits have grown far above the average, they feel it is too good to last. Thus, above a certain level, each increment

¹ Cf. below, p. 157. ² Cf. above, p. 19 note.

in the rate of profit brings a smaller increment of investment plans, until the rate of investment ceases to increase, and the boom collapses.¹

This theory seems plausible. And yet it is not very satisfactory, for if entrepreneurs held these views just a little more strongly, there would be no boom at all. The amplification of the original upswing in investment was due to the fact that entrepreneurs expected the new level of demand to hold for long enough to make it worth their while to enlarge their productive capacity. If each one said to himself: "Don't be had for a mug; this is only a boom", he would enjoy the raised demand while it lasted, but would not lay down new plant. The original rise in investment would not amplify itself, and the boom would be reduced to a ripple. Thus this theory seems to require that entrepreneurs' expectations of the future should react just enough and not too much to improved profits in the present. (It also suggests that the more books they read about the trade cycle, the weaker booms will become.)

(c) Full Employment.

According to another line of argument, the boom ceases to grow (and therefore falls off) when it runs up against full employment. Since full employment is the ultimate bottleneck, and expansion can go no further once it has been reached (or rather cannot then exceed the pace at which output per man increases) it is obvious that something or other is bound to stop expansion if it gets there. But it is by no means obvious through what mechanism full employment can bring a boom to an end, and we must examine the matter more closely.

Let us suppose that fixed equipment is unimportant, and

¹ Kalecki [(6), p. 135.}

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finance no object. Labour is the inner bottleneck. A boom has reached full employment while its impetus is still strong—that is to say the total increment to the stock of capital that entrepreneurs have it in mind to make is large relatively to a year’s national income.

Now if labour is highly mobile between industries, there is no limit to the pace at which investment plans can be carried out (except the mere technical impossibility of doing everything at once).

At first money-wage rates remain unchanged. Prices have risen compared to what they were before full employment was reached, the real purchasing power, and consequently the rate of consumption, of workers and rentiers has been reduced, and the labour so released from consumption-good industries has been absorbed into investment; the shift to profit due to the rise in prices relatively to money wages ensures a rate of saving equivalent to the outlay on investment. (This is the phenomenon sometimes described as “forced saving”.) So long as money wages are held constant there is no limit to this process. But the further it goes (the more rapid the pace at which investment plans are carried out) the lower are real wages, and at some point a rise in money-wage rates will have to be granted. When it is, either prices immediately rise further, so that a new rise in wages has to be granted, or, if wages are allowed to catch up for a moment, consumption recovers; the entrepreneurs in consumption-good industries are then anxious to get their workers back, and begin to bid for them. In either case the vicious spiral sets in, leading to hyper-inflation (unless we call in the financial limit to bring the story to an end). Thus over-all full employment is not so much a bottleneck as a powder barrel.¹

¹ Cf. [35], p. 17.

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But this is the image of war, famine or rearmament. Ordinary booms rarely seem to run into hyper-inflation. The reason is, no doubt, that normally there is enough labour awaiting employment to give a boom all the scope that it can use. Unless industry has been expanding relatively to population for some time past, arrears have silted up and there is a pool of disguised unemployment to draw upon. And while a boom is going on the population is increasing, and labour-saving innovations are reducing the demand for labour relatively to output. Thus a boom would have first to devour the reserve and then to catch up with the growth in supply of labour, before it had absorbed all the unemployment and come to the point where labour in general sets a limit to expansion.

True, where there are certain key men of special skill required for the investments industries, investment reaches its physical maximum when they are all employed. But it could be only by a lucky accident of history that at the level of investment so determined there was general full employment. From an analytical, though not from a human, point of view, the supply of skill is analogous to the supply of fixed equipment, and the limit which it sets to investment works in the same way.¹

(d) Full Capacity.

How does capacity set a limit to the rate of investment? A scheme of investment has three dimensions (this is a point which is not always made clear in trade-cycle theory). A given piece of construction requires a certain rate of investment per week to be carried out, for a certain number of weeks. Once an entrepreneur has decided, say, to lay down a new plant, he would no doubt like the investment to be carried out as fast as possible. The actual

¹ See above, p. 23.
rate at which it will be carried out depends partly on technical considerations and partly upon the state of the order books of the contractors who undertake it. When an entrepreneur in a construction trade is offered orders that more than fill his capacity, he does not choke back the excess demand by raising prices, for if he kills off a lump of demand he has lost it for good. He may raise his prices somewhat, but his chief method of rationing out his limited capacity is to slow down deliveries.

We can see how this affects the rate of investment by means of a stylised example. We call successive periods by the names of the months (giving each four weeks only) though the time periods involved in an actual case may be supposed much longer than literal months. The rate of investment apart from that shown in the example is assumed constant throughout the story.

<table>
<thead>
<tr>
<th>Value of scheme</th>
<th>Investment per week</th>
<th>Period of gestation</th>
</tr>
</thead>
<tbody>
<tr>
<td>A 240</td>
<td>10</td>
<td>24 weeks, Jan.–June</td>
</tr>
<tr>
<td>B 256</td>
<td>8</td>
<td>32 ”               Feb.–Sept.</td>
</tr>
<tr>
<td>C 160</td>
<td>5</td>
<td>32 ”               Mar.–Oct.</td>
</tr>
<tr>
<td>D 72</td>
<td>2</td>
<td>36 ”               Apr.–Dec.</td>
</tr>
<tr>
<td>E 60</td>
<td>Not begun</td>
<td>—</td>
</tr>
</tbody>
</table>

Some initial cause has led to the drawing of a blueprint for scheme A, an installation whose total cost is represented by 240 units. Work begins upon it in January, raising the total rate of investment in the economy by 10 per week above its December value. The consequent increase in effective demand calls into being scheme B, of 256 units. (The value of the schemes is deliberately made arbitrary, for once we have left our mythical steady economy there is no reason to expect any simple relationship between an increase in demand and the value of the capacity designed to meet it.)

This situation is highly “explosive”, for the first scheme of investment has induced a further demand for new equipment greater than itself. But the construction trades were already booming, and they cannot work on scheme B at a greater rate than 8 per week. A rise of 8 in investment, begun in February, calls out a further increase of 5 in March, which leads to 2 more in April. Now, at 25 per week, the construction industries cannot begin on any fresh orders, and scheme E is kept waiting. From the beginning of April till the end of June construction is running at its peak, and general prosperity rules. But at the end of June scheme A is completed. Even if it were feasible to switch all the capacity thereby released immediately to speeding up the completion of the other schemes (or taking E out of the queue) investment would continue at its peak only a few months longer. (Say, B is completed in August.) No rise in income occurs after April, and no new plans are laid. And meanwhile, from July onwards, A is in operation and is competing for demand wherever its market may be, and lowering the average of profits there. The “explosive” upswing has “damped” itself to a standstill.

We have tacitly assumed that although the capital-good entrepreneurs are enjoying a seller's market, there are not enough orders in sight to justify them in enlarging their own capacity. If they were doing so, the boom might take on a second lease of life. Suppose that scheme A is providing capacity to meet the needs of E, now waiting in the queue (say, E is a fleet of ships and A a shipyard). Then in July, when A is ready to begin work, investment in E (combined, perhaps with a speeding up of B, C and
D) raises the rate of investment by more than the amount lost through the completion of A. (The economy has now broken through to a higher level of constructional activity than any known, at least in the recent past, for the capacity of the capital-good industries registers the rate of investment that they have formerly catered for.) The increase in income from June to July calls still more schemes into being. But (except in a freakishly “explosive” case) the new schemes are not sufficient both to keep the now enlarged investment capacity running, and to replace E in the queue. It follows that if the same process were gone through again, and investment capacity increased a second or a third time, there would not be enough uncompleted schemes to make use of it, and no further rise in the rate of investment would occur. Thus, if not sooner then later, a moment comes when the completion of a batch of schemes reduces the current rate of investment by more than the commencement of work on new schemes makes good.

When the rate of investment falls, the rate of profit falls, and expectations suffer a shock. Outstanding orders may then be cancelled, so that the rate of investment drops abruptly, or they may be worked off so that the rate of investment moves down step by step as it rose. Abruptly or gradually, income falls with investment, leaving surplus capacity high and dry as it ebbs.

The causation of fluctuations is infinitely complex, and no doubt there is room in attempting to explain it for elements of all the theories mentioned above (and more as well) but I want to suggest that the explanation of the upper turning point of a boom which is both the simplest and the most in accord with experience is to be found in the limited capacity (at any given moment of time) of the capital-goods industries, and that its simple essence is shown in the above example, however intricate its detailed manifestations may be.

II. A SCARCITY OF LABOUR

We have argued that full employment is likely to be an uncommon state of affairs, but clearly it is not impossible in principle. Let us examine a situation where population is constant and where there is no reserve army in disguised unemployment and no surplus agricultural labour awaiting a chance to get into industry; it so happens (as a result of past development) that the number of workers and the capacity of capital just about coincide. Now a boom occurs; output rises from somewhere below capacity to just above it. This is made possible by overtime working and by scraping the barrel for “unemployables” to take into service. After a short time, capacity is increased (as completed investment schemes come off the stocks) but we will suppose that the queue of uncompleted constructional projects is still large, so that the boom is continuing. Now in this situation entrepreneurs find themselves in a seller’s market, and they have capacity to produce, but they cannot find hands. There is not the perfect mobility of labour and indefinite investment demand that was described above where labour was the only bottleneck, and it is not inevitable that a vicious spiral should set in. Wages may be raised, but let us suppose there are sufficient frictions and stickiness in the system to save it from plunging into hyper-inflation. Yet there is excess demand for labour. The entrepreneurs cannot get all the output for which they see demand clamouring around them. It would be very unnatural to suppose that they just lie down and leave these excellent profit opportunities to run to waste. Rather they take great pains to increase output per man. New labour-
saving devices are sought for, devices already known are introduced into formerly “backward” plants, and the slack which exists in even the best ones in normal times is pulled in. This experience may give a permanent twist to technical progress, and set competition between firms going on a permanently higher level, so that even when the boom is over technical progress continues at a faster pace than formerly.

It will be recalled that we examined an economy where growth of population had recently come to an end, and found it to fall into a slump. The reason was that its former rate of rise in output per head was not sufficient to maintain its former rate of accumulation, so that it needed ever more consumers to keep its growing stock of capital profitably employed. When population growth ceased a slump set in, there was unemployment and no special reason to save labour.

It now seems that if the economy had ridden into this situation on the back of a strong boom (that is, with effective demand straining the limits of capacity) instead of reaching it when only a mild “normal” impulse to accumulate (with output at best keeping up with capacity) had been ruling over the past few years, the whole situation would be completely different. The prospective fall in demand, due to the cessation of population growth, has no effect, for it is swamped by the existing boom conditions, but the scarcity of hands makes itself felt immediately, and sets productivity rising at a faster pace than formerly prevailed. Thus it depends upon an historical accident whether the cessation of population growth is a misfortune or a blessing to a private enterprise economy.

“This was sometime a paradox, but now the time gives it proof.”

III. BOOM AND TREND

When, owing to general uncertainty, present experience is heavily weighted in the formation of expectations about the future, any of the vicissitudes which we found to accelerate accumulation in a developing economy gives rise to a boom. The boom may be of any magnitude, and prolonged to any length of time, according to the strength of the initial impulse and the extent of its repercussions in inducing further accumulation to be planned.

One of the great boosts which we referred to above (such as occurs when railway building opens up a new territory) may give rise to a linked series of booms. Accumulation, rushing at the investment opportunities offered, overshoots the expansion of demand and the first boom is checked; but the existence of the capacity created in the first boom opens up fresh investment opportunities (say, farmers have settled in the hinterland on each side of the trunk line and it soon seems profitable to build branch lines out of them). After a pause for digestion the boom starts up again.1

However a boom may develop, it can never find a steady path to follow, for it is based upon self-contradictory assumptions. The essence of a boom is that output is high relatively to capacity, and investment schemes are being planned in the hope of enjoying the high profits of a seller’s market which they are themselves bound to destroy.

While a boom goes on, the long-period forces are at work, increasing productivity. Provided that long-period thriftiness is not increasing, total consumption is creeping up as output per man-hour and the real purchasing power of an hour’s labour are rising. Thus a permanent increase

1 Cf. Keirstead [18], p. 143.
in the rate of consumption is going on, in the sense that the rate of consumption corresponding to a given rate of investment is greater at a later date than at an earlier one. This provides a permanent use for a part of the capacity created during the boom. Thus, the boom is partly justified by the trend. Or rather the boom is part of the trend. A lump of accumulation, which, if it had been made at a steady pace, would have taken longer, but could have been continued, is crammed into a short space of time and then interrupted.

In the “under-consumptionist” case, when long-run thriftiness is rising as time goes by (owing, say, to a falling share of labour in product) so that the passage of time reduces consumption corresponding to a given rate of investment, or when there has been a cessation of population growth, or a slowing down in the rate of technical progress, the breakdown of a boom leaves capacity which cannot ever find a profitable market for its product. Thus a downturn in the trend shows itself in a deepening and prolongation of the first slump that happens after it has occurred.

Our argument is conducted in terms of output as a whole, without regard to the effects of different rates of development in different lines of production. In reality each industry is subject to its own vicissitudes, and each boom is coloured by the character of the particular industries whose development dominates it. This is of great importance and cannot be neglected in historical analysis. But our argument is designed to show that the basic mechanism of economic fluctuations does not depend upon disproportionalities in the development of different industries, and would be at work even in an economy

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where all lines of production were affected in the same proportion.

IV. THE END OF A SLUMP

A slump is a situation in which output has fallen sharply below capacity. Depression then lasts until the surplus capacity disappears and investment can revive. The General Theory was developed in terms of this situation, and there is no need to dwell upon its characteristics here, but we must link it to our long-term analysis by inquiring how it comes to an end.

We will not consider a slump which is a mere hiccup between linked booms, nor one which marks the onset of secular stagnation, but consider a depression of an intermediate type, which consists in a fall in the rate of accumulation below the average experienced for some time past, with a constant long-run average propensity to consume. How does such a slump come to an end?

It would be begging the question to say that the trend lifts the economy out of depression a certain time after a slump has occurred, for the trend is accumulation, and the question is how accumulation starts going again.

Growing population is one source of expanding demand, for we found that, to a small extent at least, unemployed workers do eat themselves into jobs. And we found that a growth in demand from agriculture (whether it is part of the capitalist system or the output of pioneers from the reserve army opening up new territory for themselves) keeps industry expanding. Changes in relative demands (particularly a change in favour of housing) gives rise to investment opportunities even when total consumption is constant.

When none of these forces is at work, where can we look for hope of a revival? The mere fact that the run down

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in output must stop somewhere causes a bounce back from the bottom of a downswing, for when output ceases to fall, secondary disinvestment in work-in-progress comes to an end. Where the stock of capital is mainly working capital (plant is unimportant) this might be sufficient by itself to start a revival. But where long-lived equipment is a great proportion of capital and construction the main ingredient in investment, this is not enough, for the kickback still leaves idle industrial capacity, which undermines the inducement to invest in more.

Where the slump so much discourages entrepreneurs that they fail to make good wear and tear, the stock of capital gradually shrinks. Here we find another of the paradoxes of expectations, for if the entrepreneurs believe that the depression is going to be long, they cut renewals further, or cease them altogether, and so shorten the slump by making it deeper for a time, while if they believe it will be short, they prolong it. A slump which everyone kept on expecting to end next year, might go on for ever.

Given that renewals fall off, the time which it takes for the stock of capital to shrink partly depends upon its age composition. If it happened that a large proportion of plant was reaching the end of its usable life when the slump set in, there would be a drastic fall in capacity, and therefore a rise in prospective profits, at an early stage in the depression. This is the way in which a former boom echoes itself in a revival of gross investment.\(^1\) In the contrary case, where the bulk of plant was created in the recent past, the depression must continue for a long time before shrinkage begins to be appreciable.

Where the age distribution of plant is uniform, so that when capital is being worked to capacity a regular proportion is renewed every year, the proportion of renewals is a function of the length of life of plant. Thus if the length of life is ten years, ten per cent. is replaced every year. It does not follow, however, that in such a case capacity would shrink by ten per cent. per annum when renewals ceased, for the shrinkage of capacity is slowed down by slump conditions (unless monopolistic machine-smashing is organised). Plant is worked less intensively so that wear and tear is reduced; in general the older plant will be put into store and the newest kept running; and there is a tendency when the future is doubtful to "make do" with old plant, which in prosperous conditions would have been scrapped and superseded. Thus, even if renewals cease altogether, the rate at which the stock of capital shrinks is likely to be very slow.

Meanwhile demand, at a given level of income, may be rising. There is ground for dispute whether the genial atmosphere of a boom or the desperate competition of a slump is the more conducive to innovations (though there can be little doubt that a slump combined with agreements to restrict competition is uncondusive to progress). However that may be, some technical progress goes on during the depression. Let us suppose that money-wage rates are constant throughout the story. Prices fell when the slump set in, raising real-wage rates (this was one of the factors which brought the downswinging to a halt). From now on, prices fall further as technical progress goes on (unless this tendency is fully offset by growing monopoly). The consequent rise in the real wage per man-hour, from the point of view of the workers, is partly or wholly offset by technological unemployment, so that real earnings do not rise correspondingly. But the real purchasing power of rentier incomes is increased by it (provided that their money incomes have not been too much cut by bankruptcies and "axing" of salaries) and so the level of

\(^1\) See above, p. 58.
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consumption corresponding to a given level of investment is gradually raised.

Thus consumption creeps in this petty pace to meet a slowly shrinking capacity. Somewhere the two movements cross, surplus capacity disappears, the rate of profit returns to its normal level, and the stage is set for a revival of investment.

But after this bad experience, the mechanism by which a revival of investment induces further schemes of investment must be supposed to be enfeebled. Certainly it will be a long time before the investment industries want to enlarge their capacity. If the system has nothing but its own inherent buoyancy to rely upon, it seems as though the revival, when at last it comes, will be much weaker than the boom which preceded it.

In those theories which purport to find a cyclical mechanism in a private enterprise economy, I have the impression that the weakest chapter is always the one which treats of revival from a depression. And it seems to me that this is no accident. I take leave to doubt (though with all due hesitation and reserve) whether there ever has been a trade cycle—that is, a self-perpetuating cyclical movement, as opposed to a series of fluctuations due to the propensity of a private enterprise economy to exaggerate its response, either way, to the chances and changes of history as it meets them.

It seems to me that the most plausible theory of the revival is Mr. Micawber’s: given time, something will turn up. That is to say that a depression will not last for ever because some fresh opportunity for investment is bound to present itself sooner or later.

Or if it does not, policy takes a hand. But then the General Theory becomes a part of the subject matter that it has to investigate, and the argument moves on to a different plane.

NOTES ON THE ECONOMICS OF TECHNICAL PROGRESS

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