Cambridge Journal of Economics 1979, **3**, 1–14

Stagnation theory and stagnation policy

Josef Steindl*

Following the traditions of Kalecki and Keynes, we are led to believe that a high long-term rate of growth is necessary to establish an adequate use of capacity and full employment, because somehow our economy is rather inflexibly adjusted to such high long-term rates of growth. In this line is Harrod's theory (Harrod, 1939, 1948), as well as my own *Maturity and Stagnation* (Steindl, 1952). Both explain the secular depression of the pre-war decade in these terms: the economy is unable to adjust to low growth rates because its savings propensity is adapted to a high one.

From this point of view it is not, in principle, difficult to understand how the pre-war conditions of under-use of resources were avoided after the last war; a very high long-term rate of growth imposed by certain favourable exogenous conditions on the post-war economy made it work.

In the course of the 1970s we have entered a new era, dominated by the conviction that in the future the long-term rate of growth is going to be much lower—or that it should be lower or *must* be lower—a belief which in the nature of things carries a great deal of self-fulfillment within it. In consequence, under-use of resources already exists on a large scale. Thus the climate has changed twice: from the pre-war depression to the post-war high growth period of the 1950s and 1960s, and from that back again to the period of stunted growth in the 1970s. The two periods—high growth and stunted growth—require an explanation which links one to the other and reconciles them with the model of development before World War II which I used in *Maturity and Stagnation*. Before I try to do that in the second part of the paper, I want to deal with some aspects of my maturity theory which are related to well known ideas in the contemporary literature. Perhaps some of my concepts will become easier to understand in this way, and in any event I shall have a formal apparatus to serve me in dealing with the difficult problems of the post-war scene.

1. The maturity theorem

Harrod's equation of 1939 implies a kind of maturity theorem, although he did not use this word. I shall write his equation in a slightly modified form, putting:

Y = gross product in real terms,

Y^* = capacity production in real terms,

* Honorary Professor, University of Vienna; Consultant, Austrian Institute of Economic Research. This paper is based on a lecture given at the University of Groningen, Holland, in March 1977. I want to thank Professor Amit Bhaduri and Professor K. Laski for criticism and advice in adapting it for publication.

0309-166X/79/010001+14 $02.00/0

I = gross investment in real terms,
S = gross savings in real terms,
u = utilisation of capacity,
v = (marginal) capital–capacity ratio,
$d(r)$ = drop-out rate of capital equipment as a ratio of gross capital,
d' = depreciation rate as a ratio of gross capital,
r = growth rate of capital equipment during the last n years,
n' = expected life-time and
n = actual life-time.

$$Y(t) = u(t)Y^*(t), \tag{1}$$

$$\Delta Y(t) \cong u(t)\Delta Y^*(t) + Y^*(t)\Delta u(t), \tag{1a}$$

$$I(t) = v\Delta Y^*(t) + d(r)vY^*(t). \tag{2}$$

From (1a) and (2):

$$I(t) \cong [v/u(t)]\Delta Y(t) - v[\Delta u(t)/u(t)]Y^*(t) + d(r)vY^*(t), \tag{2a}$$

$$S(t) = sY(t) + d'vY^*(t), \tag{3}$$

$$I(t) = S(t). \tag{3a}$$

From (2a) and (3):

$$\Delta Y(t) \cong \Delta u(t)Y^*(t) + (s/v)u(t)Y(t) + [d' - d(r)]u(t)Y^*(t),$$

$$\Delta Y(t)/Y(t) \cong \Delta u(t)/u(t) + (s/v)u(t) + d' - d(r). \tag{4}$$

From the definition of utilisation, gross investment and gross saving (equations (1), (2) and (3) respectively), we derive the extended Harrod equation (4). It differs from Harrod's equation in so far as he used the capital–output ratio, which can be considered a product of the capital–capacity output ratio and the degree of utilisation of capacity. I introduce these two factors separately, because the capital–capacity ratio is a technological element, whereas the degree of utilisation reflects the state of effective demand.

Another difference is that I formulate the equation in terms of gross investment and saving. Harrod assumed that the drop out of equipment and the depreciation are always equal, and he therefore formulated his equation in terms of net investment and saving. The last term in (4), therefore, does not appear in his formulation. In a later paper (Harrod, 1970), Harrod recognised that linear depreciation will be greater than the drop-out of equipment in a growing economy, and A. Bhaduri has provided an elegant mathematical treatment of these relationships (Bhaduri, 1972). For a uniform expected life-time n' the depreciation ratio d' is the reciprocal of this expected life-time ($d' = 1/n'$) and it is applied to gross capital $vY^*(t)$. (For heterogeneous equipment with different life-times d' will be reciprocal of the weighted harmonious mean of the different life-times.) Drop-out as a proportion of gross capital will depend on the actual life-time n and also on the rate of growth of capital r in the preceding n years. We therefore write the drop-out ratio $d(r)$ as a function of the growth rate r. For steady state growth $d(r)$ will be given by (Bhaduri, 1972)

$$d(r) = re^{-nr}/(1 - e^{-nr}),$$
$$d(r) < 1/n \text{ for } r > 0,$$
$$d(r) = 1/n \text{ for } r = 0.$$

$d(r)$ is a decreasing function of r. Thus, the greater the accumulation during the preceding life-time n of the equipment, the greater will be the discrepancy between depreciation

and drop-out. The two ratios will be equal only in the stationary state, provided that expected and actual (*ex post*) life-times are equal. In the context of this paper interest centres on the premature or delayed withdrawal of equipment which may prevail in different situations; in other words, on (temporary) changes in actual life-times which take place against a background of unchanged depreciation rates. For the moment we shall disregard the question of drop-out and depreciation altogether and return to it later.

In equilibrium utilisation will be constant and the first term on the right of (4) will vanish. Starting from this position, let us suppose that the rate of growth is reduced to a lower level by certain exogenous influences; utilisation will then decline until it reaches a level at which equilibrium is again established. If the lower utilisation, however, reacts unfavourably on investment, the left-hand side of the equation (4) will again decline and a process of continuing decline of growth will be set in motion. The reverse process will take place if the growth rate is lifted from equilibrium to a higher level, subject to the qualification that the ceiling of capacity production cannot be surpassed. Writing in the 1930s Harrod had in mind the downward process. If the system had been adjusted, by its rigid saving ratio, to a high rate of growth, and if at a later date—whether for demographic reasons or because of a slowing of technical progress—a lower growth rate obtained, secular depression would prevail.

Stepping now outside Harrod's text, we may say that the saving ratio, of course, depends on the share of profits in the national income, and its rigidity ultimately reflects the rigidity of the income distribution. How far does this rigidity hold and on what does it depend? The share of profits in the short run (in the course of the cycle) is strongly influenced by utilisation. To separate this influence let me represent, for a closed system, the relation of wages and salaries (W), net profits (P) and income (Y) in a way strongly reminiscent of Kalecki (1954, p. 40):

$$W+P = Y-d'vY^*.$$
$$W = \lambda Y+\mu Y^*,\ Y \leqslant Y^*. \tag{5}$$

The two terms on the right-hand side of (5) represent the contribution of direct labour and overhead labour; the latter is assumed to move in proportion to production capacity.

We are now going to express profits and savings as ratios of capacity production. It would be more in keeping with common usage to express them as ratios of the (net) capital stock, in other words, as profit rate and a corresponding 'saving rate'. However, in order to avoid introducing an additional variable with its own problems, it is preferable to work with the capacity production as a proxy for the capital stock.

We obtain then from (5) the net profit after depreciation

$$P = (1-\lambda)Y-\mu Y^*-d'vY^*,\ (Y \leqslant Y^*), \tag{6}$$
$$P/Y^* = (1-\lambda)u-\mu-d'v = p(u). \tag{7}$$

$p(u)$, an increasing function of utilisation, will be called the profit function. This function plays an essential role in what follows. We need it to distinguish between those shifts to or from profits which are due to effective demand, and those which result from changed price–cost relations independent of demand. The neoclassical tradition now *en vogue* takes great delight in confusing these two cases of a shift in profit. In fact, neoclassicism does not admit of anything but full utilisation in the long run, and even in the short run adopts the same assumption when considering practical problems. For the Keynesian tradition, on the other hand, the concept of utilisation is of central importance.

Kalecki (1954) achieved the above-mentioned distinction by introducing the mark-up of prices on prime cost. A shift to profits could occur through an increase either in mark-up or in demand. The above concept of the profit function is plainly aiming at a more general (less specific) formulation of the same idea.

We now derive gross saving, which consists of the gross savings of capitalists

$$S' = [s_1 p(u) + d'v]\Upsilon^*$$

and the savings of employees

$$S'' = s_2[u - p(u) - d'v]\ \Upsilon^*.$$
$$S = S' + S''.$$

Thus we get gross saving as a ratio of capacity output, which we call the savings function $s(u)$:

$$s(u) = S/\Upsilon^* = (s_1 - s_2)\ p(u) + d'v + s_2(u - d'v) \tag{8}$$

or, alternatively, inserting the expression (7) for $p(u)$:

$$s(u) = [s_1 - (s_1 - s_2)\lambda]u - (s_1 - s_2)\mu + (1 - s_1)d'v. \tag{8a}$$

It can easily be seen that the savings function is an increasing function of $p(u)$, provided that $s_1 > s_2$, i.e. the ratio saved out of profits is larger than the ratio saved out of wages. It is also an increasing function of u, provided

$$(1 - \lambda)s_1 > \lambda s_2.$$

The savings function $s(u)$ might now be inserted in the modified Harrod equation (4) in place of the term $su(t)$ (the constant savings–income ratio). I shall, however, choose a different representation, which permits us to distinguish between exogenous and endogenous influences on the growth rate.

Let us simply put saving (equation (3)) equal to investment (equation (2)). Investment consists of a part which generates new capacity—call it $I'(t)$—and a part which merely replaces equipment which drops out. This replacement is equal to $I(t-n)$, where n is the life-time. The life-time is, however, not given beforehand, since obsolescence is not 'technological', but varies according to the state of business. I prefer for this reason to denote the replacement demand, as before, by $vd(r)\Upsilon^*(t)$, i.e. as a function of past accumulation r which may vary according to the scarcity or abundance of equipment in relation to demand.

We have, therefore, for the gross investment in terms of capacity output:

$$I(t)/\Upsilon^*(t) = I'(t)/\Upsilon^*(t) + vd(r). \tag{9}$$

Let us now suppose that the capacity-generating investment is determined by investment decisions taken a certain time τ previously, and that these decisions depend *inter alia* on the degree of utilisation, as well as on the internal saving of the enterprises S'. We thus write:

$$\varphi[u(t-\tau), S'(t-\tau)] = I'(t)/\Upsilon^*(t)$$

expressing the capacity-generating investment as an increasing function φ of past utilisation and entrepreneurial saving. Inserting into (9) and putting investment equal to saving (8), we can write:

$$\begin{aligned}\varphi[u(t-\tau), S'(t-\tau)] &= (s_1 - s_2)\ p[u(t)] + s_2[u(t) - d'v] + d'v - d(r)\ v \\ &= [s_1 - (s_1 - s_2)\ \lambda]\ u(t) - (s_1 - s_2)\ \mu + (1 - s_1)\ vd' - vd(r).\end{aligned} \tag{10}$$

We can now represent exogenous influences by shifts in the function φ. If there is, for example, a drying up of the sources of innovation or a general decline in confidence, then φ will shift downwards. The equation tells us, supposing that $(1-\lambda)s_1 > \lambda s_2$, that this will lead to a decline in utilisation, and this in turn will act on the investment decisions (left side of (10)), leading after a certain time to a further decline in investment and again to reduced utilisation and so on. This downward movement may be braked by increased drop-outs of equipment and, if government is introduced into the model, by automatically increasing budget deficits.

A digression on tax-financed spending

For the purposes of later arguments the effects of a budget expansion financed by increased taxation will now be discussed, before we return again to the main thread of the argument. Let us assume for this purpose that the budget is automatically balanced, the receipts of new or increased taxation being spent immediately.

If a uniform and proportionate tax θ is levied on profits and if profits are positive, the profits after tax will be (from (7))

$$[(1-\lambda)\, u(t) - (\mu + vd')]\,(1-\theta);$$

wages may be similarily taxed at a rate θ' and equation (10) will then be modified as follows:

$$\varphi[u(t-\tau), S'(t-\tau)] = s_1[(1-\lambda)\, u(t) - (\mu + vd')]\,(1-\theta) + s_2[\lambda u(t) + \mu - vd']\,(1-\theta') + vd' - vd(r). \qquad (11)$$

If a profit tax θ is newly introduced this would appear to reduce disposable income and saving. In view of the predetermined investment (left-hand side of (10)), however, saving cannot decline. If, in the simplest case, workers' saving s_2 is zero, then the utilisation will increase just enough to restore the profit after tax and the saving out of it to its former level. The profits tax will be paid out of the increase in profits before taxation due to the higher utilisation.

If workers do save but are not taxed, their savings may increase with increased employment, and that means that profits after tax will not remain at their former level but will decrease. The effect is, however, doubtful because the increased employment may increase consumers' credit and spending on durables.

If wages, however, are taxed too, this counteracts the decline of profits after tax. In fact, if the tax on wages is sufficiently high, profits after tax may even increase. In practice, since the saving of employed people is very unequally distributed, the tax on wages will reduce it less than proportionately and will fall more on consumption, while the profit tax will fall largely on savings. A profits tax is therefore far more likely to stimulate demand and increase utilisation than a tax on wages. (We assume always that tax receipts are spent simultaneously).

Distribution and growth

While, in my interpretation of Harrod's world, income distribution is rigidly given and does not change, except to the extent to which it depends on u, we get a quite different picture from Kaldor's model of distribution. Here the rate of growth of capital and of

capacity (the left-hand side of (10)) is somehow given exogenously, and the profit function is a variable which adjusts to it so as to produce just enough saving for the predetermined investment.

What is the mechanism underlying this idea? It will only apply, says Kaldor, if full employment is established. Here Kaldor refers explicitly to Keynes's 'How to Pay for the War'. The Kaldor distribution theory differs from Keynes's theory of the inflationary gap only in so far as the former presupposes that the workers (trade unions) put up with the shift in distribution so that no inflationary spiral arises. This is due to the long-run nature of this process, in which the distributional shift proceeds only slowly. Limits, both upwards and downwards, to the possible adjustment of the profit shares are recognised by Kaldor. His model today appears as a rather optimistic picture of the possible working of full employment, written at an early stage of the period of full employment (1955). (A surprising feature of the theory is that full employment—or overfull employment—is supposed to favour a shift to profits.)

In a somewhat formal way the idea of Kaldor's distribution theory runs parallel to the picture of distribution which I gave (in *Maturity and Stagnation*, chs. 5 and 9) for a competitive economy, which I suppose might have corresponded to historical reality in the US before the emergence of oligopolistic structures. In such an economy there would be a great number of producers, many of them near the margin of existence. If any of them acquired differential advantages by means of new methods, they would expand quickly and gain room by pushing out high cost producers. Any appearance of exceptional profits, a very likely concomitant of technical innovation, would soon lead to an expansion of capacity of the favoured firms, and from there to an attempt to capture markets from the high cost producers by cutting prices. In the long run this mechanism would at the same time re-establish a 'normal' (desired) degree of utilisation, and reduce the profit margins to a 'normal' level. What is 'normal' in this context depends, however, on the rate of growth of capital. Referring to equation (10) we can see that if utilisation is to be kept at a certain level in the long run, then an increase (decrease) of the left-hand side of the equation requires a shift upwards (downwards) of the profit function $p(u)$.

This argument is formally analogous to Kaldor's equation, but the mechanism behind it is quite different. I assume that a low growth rate, since it tends to lead to excess capacity, sets up an increase in competitive pressure. To re-establish a normal desired degree of utilisation, high cost producers have to be driven out, which requires a cut in the industry's average profit margins. A high growth rate of capital, on the contrary, will lead to high utilisation and therefore a lessening of competitive pressure. There is less need to fight for markets by pushing out high cost producers and the average profit margins will therefore increase.

In the process of adjustment to a change in the growth rate of capital, the variation in life-time of equipment plays a role. High growth rate and high utilisation will tend to retard withdrawal of equipment, thus lengthen actual life-time and shift the drop-out function $d(r)$ downwards, so that the difference $d'-d(r)$ will rise above its average long-term level. A low growth rate and utilisation will lead to some premature withdrawal of equipment, and therefore to a decrease of $d'-d(r)$ below its long-term average. Clearly these movements, in so far as they are operative, serve to accommodate the increased or decreased growth rate. The change in the difference $d'-d(r)$ acts, however, only as long as the transition to a new equilibrium proceeds. This equilibrium will be established by a shift of the profit function $p(u)$, and the consequent shift in the saving function $s(u)$, such as to permit the re-establishment of a normal degree of utilisation at

the given growth rate. This is a long-run process. In the course of the trade cycle, the adjustment of utilisation prevails.

The adjustment of the profit function to the growth rate must be seen against the background of a dynamic economy in which there is always a balance of two opposing forces. Owing to innovations, etc., there emerge again and again exceptional profits, which tend to push the profit function upwards. At the same time, owing to the aggressiveness of expanding firms and the diffusion of previous innovations, there is a pressure which at the same time drives out high cost producers and lowers the profit function. According to whether growth is fast or slow, one or the other of the two tendencies will be strengthened, and the balance will shift in one or the other direction.

It should be noted that, while Kaldor is really interested mainly in the case of an upward pressure of growth rates, which maintains full employment, my own treatment of distribution only considers the effects of a declining growth rate, simply because this was the problem posed by the mature economy of pre-war times.

Although I devoted much effort to the description of distribution in a competitive economy, my chief point was really that this mechanism no longer works very well when an economy with many producers is superseded by an oligopolistic economy. Here aggressive price strategies become very risky, because the few main producers all have substantial margins, and to drive out one of them would require a ruinous price war. If the growth rate declines, the oligopolists are therefore more prepared in most cases to accept low long-term rates of utilisation than to engage in cut-throat competition. That means that the profit function becomes fairly rigid, and the weight of adjustment is thrown on utilisation, with adverse effects on investment and further growth. We are back to Harrod's model. We might define maturity as the state in which the economy and its profit function are adjusted to the high growth rates of earlier stages of capitalist development, while those high growth rates no longer obtain.

But why did the growth rate ever start to decline? What is the reason for the initial decline (which, as we can see from equation (10), will initiate a cumulative further decline)? I also tried to answer this more difficult question, although I cannot find parallels or support for this answer in contemporary literature. I assumed that with the transition to an oligopolistic structure the big firms must have increased their profit margins (mark-up); in other words, the profit function must have shifted upwards. This could not increase the profits for the economy as a whole, since they are determined by investments, which in turn are governed by past decisions (see equation (10)). Therefore the oligopolists' attempt to increase profits could (apart from a redistribution of profits between different sectors of business) lead only to a decline in utilisation. This, on my assumptions, will have an adverse effect on investment decisions, because the firms will be fearful of increasing excess capacity, even if their total profits have not declined. Consequently, investment will decrease in the following period. The primary setback to the growth rate will have occurred.

An alternative explanation is based on the idea of a 'technological wave' engendered by a particularly fertile innovation, like the railway, which is followed by a string of after-effects (building of new towns, opening up the West) and further innovations, effects which, however, weaken and exhaust themselves after a time (Baran and Sweezy, 1966, ch. 8). When I wrote *Maturity and Stagnation*, I wanted to deny all influence of innovations on the accumulation of capital. I think now that this was foolish and I subscribe to Kalecki's view that innovations are capable of generating a trend. A stream of innovations would be expressed as a shift of the function φ in equation (10).

On the other hand, this does not mean that I am convinced that the technological wave explanation is an adequate substitute for my own explanation. The timing of the exhaustion of this wave remains rather indeterminate: could it not have lasted longer? It seems that the timing must be strongly influenced by effective demand, so that in default of other explanations there is still room for my own theory.

II. Two phases in the development of post-war history

The contrast between the post-war full employment era and the pre-war stagnation must be viewed against the background of great institutional changes. The post-war economy has been transformed by the unprecedented role which government, public policy and politics have played. Governments have become more conscious of their role in the economy and of their responsibilities, and to this extent the influence of Keynesian economics on post-war history is undeniable ('full employment as an innovation').

In view of the large role of governments, the dominant attitudes and beliefs of public men are of some importance for the trend of events. The full employment period was dominated by growth optimism and by a certain recognition of government responsibility for full employment. The subsequent period of stunted growth has been dominated by a readiness to accept high unemployment and low growth rates. I shall argue that, to a very large extent, the driving force underlying the growth period was the contribution of two very distinct elements. First, there was a conscious political and moral reaction against pre-war conditions, particularly in certain European countries. Second, there was the tension between the superpowers which led to large armament spending and technological competition, as well as to the economic co-operation of the western industrial countries under the leadership of the US.

In Europe a strong impulse was created by the import of American technology, which acted like a stream of innovations drawn from the available stock of accumulated know-how in the US. To the extent to which this was helped by the Marshall plan and technical assistance, it also comes under the heading of international co-operation.

In the subsequent period of stunted growth, the driving forces of expansion weakened with the relaxation of tension between the superpowers. This is at any rate evident in the field of international co-operation, currency and trade. At the same time the sustained growth of the previous period had itself produced a reaction which undermined it. The long period of accumulation had created a large gap between ordinary replacement of equipment and depreciation (see Harrod, 1970; Bhaduri, 1972). The increased standard of living and extension of social insurance produced a growth of personal savings, with adverse effects on the rate of profit. The opportunities for introducing new technology in Europe from a ready stock of accumulated know-how in the US began to dwindle. The traumatic entry of the environmental and energy problems onto the scene threw an embarrassing burden on industry and government.

Finally, full employment and social reform policies led to a growing resentment of workers' claims and trade union power. It also led to complaints about work discipline and to the emergence of stiffer opposition to economic intervention.

In fact, the business opposition to full employment policies, which Kalecki had so vividly described in his analysis of the 'political business cycle' (1972), gathered more and more strength towards the end of the growth period. It seems to have now, however, a more persistent and lasting character than in Kalecki's political cycle, so that we might

rather speak of a 'political trend'. This policy of stagnation is likely to continue, since governments are preoccupied with inflation and the public debt. Budget deficits can only disappear if private investment soars again. This is unlikely in view of excess capacity, which would only disappear if there were fiscal expansion.

The full employment era

The arguments will now be spelt out in detail, first for the growth period.

Table 1. *Taxation, government spending and capacity utilisation in the USA (% of private gross national product at factor cost)*

	1929–38	1951–57	1958–68	1969–73	1974–77
Corporate tax liability	1·4	6·6	5·5	4·7	4·6
Personal taxation, non-wage	1·7	3·6	3·3	3·3	—
Profit taxes	3·2	10·2	8·8	8·0	—
Government dissaving	2·1	0·2	0·7	0·5	2·4
Foreign balance	0·5	0·9	0·4	−0·3	0·5
Gross private domestic investment	11·0	19·3	18·4	18·7	18·2
Government spending on goods and services	15·5	24·5	26·3	27·5	27·0
of which: federal government	4·4	15·4	13·6	11·5	9·9
of which: military	—	13·4	10·7	8·5	6·6
Personal saving	3·0	5·4	5·2	6·2	5·5
Corporate profit before tax	4·4	14·0	12·4	10·5	11·2
Corporate profit after tax	3·0	7·3	6·9	5·8	6·6
Corporate tax as % of profits before tax	33	48	44	45	41
Utilisation of capacity in manufacturing, %	—	90	84	80	—
Ditto, new series	—	—	—	83	80
Increase in labour force, %	1·2	1·3	1·3	2·4	2·3

Sources: US Department of Commerce, *Survey of Current Business*, National Income Supplement; Federal Reserve *Bulletin*.

First, there was an increase in government spending, financed in part by taxation on profits. As shown above (p. 5), this spending increases capacity utilisation and thus stimulates private investment, as is evident from equation (11). Adverse effects of taxation were avoided by tax allowances for investing firms.

The case of the US may be taken as an illustration (see Table 1). Profit taxes as a percentage of national product were much higher after the war, especially in the 1950s, than before. Budget deficits were lower than before the war, but not so much as to compensate for the increased taxation of profits. On balance, therefore, the budget was expansionist and increased utilisation in industry. This, I maintain, has contributed to the high post-war investment activity.

The bulk of the additional spending in the 1950s was for military purposes. This, in fact, was a political pre-condition for the imposition of high profits taxes. Later, military spending declined while civilian spending by states and local governments increased. Taxation on profits also declined somewhat (see table).

In Europe, in the early stages of post-war growth civilian expenditure, especially public investment, already played a much larger role in the expansion of government

spending In fact, military spending in some countries actually overstrained their already fully employed economies, instead of serving, as it had in the US, to prop up full employment.

Secondly, tension between the superpowers led to an intensive technological competition between east and west, having its strongest effects in the decade 1957–68 which opened with Sputnik and ended with student unrest. The so-called 'competition of systems' was responsible for a great acceleration in spending on research and development in the west. Moreover, it set in motion a major educational effort in both the US and western Europe. Although the R & D expenditure (of which half to two-thirds was financed by governments in the US, Britain and France) was to a great extent for military and space research, its indirect effects on the pace of technological progress in general, and therefore on private investment activity, were considerable. The aftermath of wartime innovation itself provided a great stimulus to industry in the post-war period. This was possible only because of the nature of modern war and the attitude of today's military men. There is hardly an activity in our society which is as thoroughly based on science as warfare.

Third, the *post-war* tension brought about a close co-operation between the western countries under the leadership of the United States. This meant freer trade and a workable international currency arrangement. Although Bretton Woods (which was a symbol of American dominance) did not really provide that (as Balogh (1973) argued, it had already virtually broken down by 1947), the Marshall Plan and American lending made the post-war currency arrangements work up to a point.

Successful international co-operation under the Marshall Plan and the OEEC, later the OECD, resulted in a vast increase in international trade. It can hardly be stressed enough that this co-operation was a necessary condition for the establishment of high levels of employment in Europe.

Fourth, in Europe a special growth factor was at work, which was only indirectly linked to the development of international co-operation. After the war many European countries were behind the US in technology. In catching up they were drawing on a readymade stock of know-how, which explains why technological progress and productivity growth were so rapid, much more so than they ever could have been, if the skills had had to be developed from current expenditure on R & D. The process of importing technology was much furthered by the Marshall Plan and by technical assistance, but even more by the general intensification of trade and communications.

The spurt of what for Europe were innovations, but in America was common practice, involved a strong stimulus to investment. This stimulus shifted the function φ in equation (10) upwards. The gradual drying up of opportunities for imitation, i.e. the exhaustion of the stock of old skills, meant that the function φ was bound to shift gradually downwards again.

Stunted growth

In the course of the growth period the tension between the superpowers declined. At the same time there has been a certain shift of economic weight and power away from the US to other industrial countries and from the industrial to the Third World. As a result, economic co-operation declined. As long as the western countries were dominated by the fear of a common danger, they were prepared to overlook their differences and rally round a common leader. With the decline of this fear the centrifugal forces in the west

gained strength. The leading position of the US was impaired by the challenge from Europe and Japan to its technological supremacy, and by its increasing dependence on foreign energy and materials. A symptom of the decay of US leadership was the formal dismantling of Bretton Woods and the suspension of dollar convertibility.

The old world order has really come to an end with the breakdown of unquestioned confidence in the dollar. Yet there is nothing else taking its place. One is reminded of the situation at the start of the world depression in the 1930s when, as Kindleberger (1973) notes, Britain ceased to play its role as stabiliser of the economic world system, and nobody else took her place. The stabilising function, according to Kindleberger, was exercised by counter-cyclical long-term lending, by discounting in times of crisis and by keeping an open market for distress goods.

We are really back in the period before Bretton Woods, when Keynes, Kalecki and Schumacher formulated their international currency plans for a system which would not favour onesidedly the surplus countries and would not have a deflationary bias (Kalecki and Schumacher, 1943). The problems are all there and the solutions have been suggested. The surpluses of the OPEC countries and others ought to be channelled into investment in the poor developing countries by an international bank (Balogh, 1973). The same institution ought to be equipped and prepared to step in whenever trouble develops in the eurodollar market. Stabilisation by buffer stocks ought to be undertaken in commodity markets, in order to eliminate an important source of instability (Kaldor, 1976). The fact that no serious steps are taken in these directions reflects the absence of any adequate international co-operation. The present situation directly and indirectly produces a restrictive climate. The deficit countries are forced into drastic restrictions and unemployment, while the surplus countries refuse to expand. Protectionism develops quietly but irresistibly. The existence of hundreds of billions of dollars of 'speculative' funds in the world carries with it the danger of snowballing financial collapse. It is too much to expect business confidence to thrive on this ground. I now turn to various negative feedbacks produced by growth over a fairly long period:

(1) There is the factor treated by Harrod and Bhaduri—the difference between ordinary replacement demand (drop-out of equipment) and depreciation. This difference has increased over the growth period. It means that a lot of new production capacity can be created by investing depreciation funds alone. The paradox, observed in Germany, of low net investment in the 1970s and considerable excess capacity might be explained in this way. Inflation serves to counteract this tendency in so far as it increases the current value of the replacement demand. The balance of the two factors is different in different countries.

(2) Many countries show an increasing trend of personal savings as a proportion of disposable income. One hesitates to touch this subject on account of the uncertainties of the data. How much of personal saving is really saving of business? Can one trust the data, given that saving is a residual? Also consumers' debt is included in savings as a negative term. Yet the impression is that there is really an increase in genuine household saving, and that it results from growing prosperity. If so, then it should depress the profit rate and undistributed profits (*via* a reduction in utilisation), as can be seen immediately from equation (10), if we assume the growth rate of capital as given. Since it is unlikely that business will increase its indebtedness very much, the increased personal saving would have to be borrowed by the government if restrictive effects were to be avoided.

(3) Since the prosperity of Europe was probably to quite a large extent based on

catching up technologically with the US, the gradual dwindling of opportunities to draw on this readymade stock of proven and common skills is bound to have strong effects. The rate of growth of output per head cannot remain at its former level in many European countries. Equally the stimulus for investment emanating from this relatively easy and convenient method of technical progress, which is open only to those who are backward, is bound to decline. In abstract terms we may say that the function φ of equation (10) has shifted downwards.

(4) Environmental and energy problems have come into the consciousness of government, businessmen and public very abruptly in the late 1960s. One would think that a serious effort to tackle them would require large investment and therefore stimulate growth of capital, though not of productivity or capacity. It may also be surmised that the obligation to find solutions for certain environmental problems in the long run will have a beneficial effect on technical progress, and 'spin-off' also here, as in military research. What happens directly, however, is that business, especially in some industries (paper, steel, motorcars), is faced with increasing burdens, although in many cases these can be passed on to the consumer.

The question of the effects of environment and energy on investment and effective demand is highly ambiguous. Whether they will be stimulating or restrictive really depends on the wider context of the situation. If a number of other elements favour pessimism and shaken confidence, then so will these factors. Restriction of growth will appear as a method of stemming the tide of increasing energy requirements, and of ever-increasing environmental difficulties. This is how some governments see it, but since the argument has gained wide currency it may have contributed its share to the erosion of business confidence.

(5) The most striking feature of the new economic climate is no doubt the changed attitude of governments towards full employment and growth. The US and Germany were the first to display this change, but it has gradually spread to other countries as well. The argument of these governments, or their economists, is that the objective circumstances have changed, and that they are constrained to give up policies which do not work in the new circumstances. What are these objective changes? In economists' terms they can be easily described as a shift in the Phillips curve, but what this means in fact is not exactly easy to understand, since the Phillips relation is primarily a statistical relationship which broke down with the 'wage explosion' of 1969–71. The explanation given for this breakdown, or shift, is that trade unions and workers have become more conscious of price changes and inclined to anticipate them; and that workers as a result of increased social benefits are less willing to work, consequently voluntary unemployment has increased. (A curious footnote to this phenomenon is that the supply of female and juvenile labour has increased strongly. Unemployment is concentrated in these groups, where the new entrants into the labour market do not qualify for assistance.) Thus, it is concluded that higher unemployment is necessary to contain the rise in wages within reasonable limits.

There are those—like myself—who cannot agree with these arguments. They find that the wage 'explosion' is more plausibly explained by the increasing burden of income tax and other deductions from wages (see Turner *et al.*, 1972; King, 1975). They are under the impression that it is not so much objective circumstances which have changed as political attitudes. This can be explained as a reaction against the long period of full employment and growth which has strengthened the economic position of workers and the power of the trade unions, and has led to demands for workers' partici-

pation. It has also led to mass migration (of blacks in the US, of foreign workers in Europe), which has caused turmoil or apprehension of it (in US the race riots of the middle 1960s, in Europe political resentment and a fear of introducing a new proletariat). This migration has contributed to urban hypertrophy and the crisis of the cities.

The political reaction against growth (for which the Club of Rome and Professor Forrester have written the Bible) has not been confined to sections of big business, and the banks in particular, but also finds support among large strata of the middle classes (professional people, managers, etc.). This explains why Gerald Ford nearly won the 1976 election and why Helmut Schmidt has considerable support for his phlegmatic attitude towards unemployment.

The attitudes and policies of governments in turn react on business, including those sections of it which are not happy with the current trend. Formerly there was a general conviction in most countries that the government would intervene to prevent a prolonged depression; this reduced uncertainty and therefore made for higher and more stable private investment. This confidence has been shattered. Here is another reason why the function φ has shifted downwards.

If the reasons 1 to 5 are correct, we must expect low growth for some time to come. Can the economic system adjust itself to a low growth rate? The upshot of my arguments in Part I is that it would require a downward shift of the profit function, in other words a long-term change in distribution, to get a smooth adjustment to a lower growth rate. But my observations on the oligopolistic structure of our economy still hold. Apart from short periods, companies do not engage in cut-throat competition, and they protect their high mark-ups. It is therefore likely that the profit function will not shift downwards and that the weight of the adjustment will be thrown on the degree of utilisation. This will tend to create stagnation.

Some observers, such as the European Economic Commission, see the outlook in quite a different light. They anticipate increasing capital coefficients and low profit margins. The reasons for the expected increase in capital coefficients are environmental protection, energy conservation, development of new energy sources and increases in service outputs where high capital coefficients prevail. The arguments are correct, but they do not carry much weight if governments are slow in acting on the energy question and if, because of a reluctance to incur debt or to tax profits, they refrain from building as many hospitals, schools, etc., as they should.

The argument about profits is based on a downward trend of the share of profits before tax in many countries since the 1960s. It has been shown for England and other countries that this downward trend does not apply to profits after tax (Turner *et al.*, 1972; King, 1975).

Of course, profits have been low since the onset of the recession on account of excess capacity. There is also another long-run influence, namely the increase in non-enterprise savings, which must tend to depress profits and the degree of utilisation. This can be remedied only by government deficits, unless there is some institutional reform by which the outside savings are channelled into the enterprises as 'risk-capital'. As long as such institutions are not created and as long as governments are scared of the increase in public debt, the increase in outside savings does provide a reason for falling profits. But this is not a question of a downward shift of the profit function which would ease the situation. In fact, it only reinforces the tendencies for a decline in utilisation which flow from the low growth rate and therefore does not contradict my own description.

Bibliography

Balogh, T. 1973. *Fact and Fancy in International Relations*, London, Pergamon
Baran, P. and Sweezy, P. 1966. *Monopoly Capital*, New York, Monthly Review Press
Bhaduri, A. 1972. Unwanted amortisation funds, *Economic Journal*, June
Harrod, R. F. 1939. An essay in dynamic theory, *Economic Journal*, March
Harrod, R. F. 1948. *Towards a Dynamic Economics*, London, Macmillan
Harrod, R. F. 1970. Replacements, net investment, amortisation funds, *Economic Journal*, March
Kaldor, N. 1956. Alternative theories of distribution, *Review of Economic Studies*, February
Kaldor, N. 1976. Inflation and recession in the world economy, *Economic Journal*, December
Kalecki, M. 1954. *Theory of Economic Dynamics*, London, Allen and Unwin
Kalecki, M. 1972. *Essays in the Theory of Capitalist Economies*, Cambridge, CUP
Kalecki, M. and Schumacher, E. F. 1943. International clearing and long-term lending, in New plans for international trade, *Bulletin of the Oxford Institute of Statistics*, vol. 5, supplement, August
Kindleberger, C. P. 1973. *The World in Depression 1929–1939*, London, Allen Lane
King, M. A. 1975. The UK profits crisis, *Economic Journal*, March
Steindl, J. 1952. *Maturity and Stagnation in American Capitalism*, Oxford, Basil Blackwell (reprinted by Monthly Review Press, New York, 1976)
Turner, H. A., Jackson, D. and Wilkinson, F. 1972. *Do Trade Unions Cause Inflation?* Cambridge, CUP