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FULL EMPLOYMENT BY STIMULATING PRIVATE INVESTMENT?

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I

1. In current discussions the view is frequently advanced that full employment may be maintained by stimulating private investment. The stimuli in question may be 'cheap money'; the reduction of income tax; or subsidies to firms undertaking investment (which may be given, for instance, by deducting from taxable profits the full amount of new investment, or a percentage of it, etc.). The purpose of this paper is to show that to maintain full employment these measures must be applied not once only—as the authors of the proposals in question seem to assume—but cumulatively. That means that the rate of interest must *continuously* fall; the income tax must be *continuously* reduced; or the subsidies to investment must *continuously* rise. This procedure is, moreover, compared in the second part of the paper with that of maintaining full employment by public investment or by subsidizing consumption.

We shall consider throughout the argument a closed economy. This, however, is done only for the sake of simplicity and does not affect our final conclusions.

2. Our subsequent argument will be centred on the consideration of two levels of the rate of private investment. One is the level of gross private investment (net investment + depreciation) which creates effective demand adequate to maintain full employment. We denote it by I_f The second is the level of gross private investment I_c which is just sufficient to expand the stock of capital proportionately to the increase in population and in the productivity of labour. In other words, I_c is the level of gross investment which expands the stock of capital *pari passu* with 'full employment output' which increases in the long run as a result of the rising population and technical progress. It follows that if productive capacity increases proportionately to the stock of capital, I_c expands productive capacity *pari passu* with full employment output; thus if in this case full employment is maintained the utilization of equipment remains constant in time. But if, as may well be the case,

technical progress involves a rise of capital in relation to productive capacity the increase in the latter (with investment I_c) will fall short of 'full employment output'; thus investment at a rate of I_c while full employment is maintained will then involve an increase in the utilization of equipment. Up to the last section we shall consider only the first case, i.e. we shall assume that productive capacity increases proportionately to the stock of capital.

3. Throughout the paper we shall limit our inquiry to the case where $I_f > I_c$. For, as we shall try to show below on the basis of empirical data, it is this case that is relevant to our discussion.

Let us start from the fact that in modern capitalist economies I_f, the gross private investment necessary to maintain full employment, appears to be over 2·5 times as much as depreciation. In the U.S.A. in 1929 net investment was about $7·5 milliards and depreciation about $9·5 milliards (of business assets and residential buildings). Following Professor Hansen we assume that to achieve something like full employment in 1940 it was necessary to have in that year a real national income higher than in 1929 by about $25 milliards at 1929 prices.[1] With a multiplier of 2 to 2·5[2] this means an increase in investment of over $10 milliards. Thus net investment would have to be $17·5 milliards and gross investment $27 milliards, which is more than 2·5 times the depreciation level.

In the U.K. net private investment in 1938 was about £350 million[3] and depreciation about £350 million as well. It may be estimated that investment would have had to be about £200 million higher to establish full employment (on the assumption that the budget was balanced). Net investment would then be £550 million and gross investment about £900 million, which is more than 2·5 times the depreciation level.

4. Let us next consider I_c, the rate of gross private investment just sufficient to expand capital equipment proportionately to the increase in population and productivity of labour. The rise in the total labour power in the U.S.A. in the last 13 years has been

[1] *Fiscal Policy and the Business Cycle.* Professor Hansen estimates the 'full employment national income' in 1940 at $98 milliards at a price level 10 to 15 per cent above the 1940 level. This amounts roughly to $108 milliards at 1929 prices while the national income in 1929 was $83 milliards.

[2] Cf. my *Essays in the Theory of Economic Fluctuations*, pp. 70–3. By multiplier is meant here the ratio of changes in *real* national income to those in *real* investment.

[3] After elimination of the influence of changes in the value of inventories resulting from the fall in prices in that year.

estimated at about 1·5 per cent p.a. and the rise in the overall productivity of labour at 2·5 per cent.[1] These figures will hardly be surpassed in the future in developed capitalist countries and it therefore seems safe to assume that the net investment corresponding to I_c will be not higher than 4 per cent of the stock of fixed and working capital.

Further, according to the U.S.A. statistics of national wealth and depreciation, the ratio of annual depreciation to the total value of fixed and working capital (exclusive of land) was in 1923 about 4 per cent. A similar relation may be assumed for other developed capitalist countries. It follows that I_c may be assumed to be equal to or lower than 8 per cent of capital or 2·0 times depreciation. As it has been shown that I_f is equal to or higher than 2·5 times depreciation it may be assumed in our discussion of the problem of full employment that $I_f > I_c$.

II

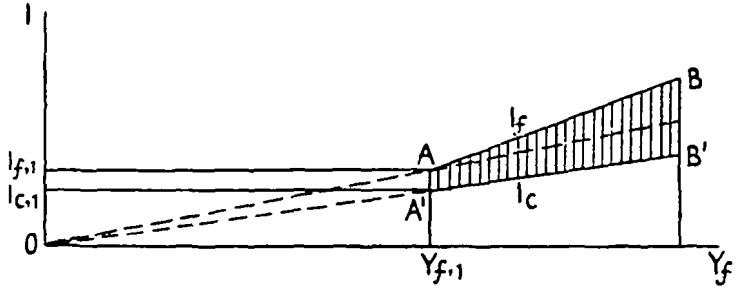
1. Imagine now that the policy of maintaining full employment by stimulating private investment has been put into operation by, say, a sufficient reduction of the rate of interest. Thus the rate of investment has been pushed to the level I_f which leads to full employment. The corresponding gross national income we denote by Y_f. The position in this initial period is represented on the diagram by point A with the abscissa $Y_{f,1}$ and the ordinate $I_{f,1}$. As time goes by the 'full employment gross national income' Y_f increases as a result of the rise in population and in productivity of labour. (By Y_f we understand here the 'real' gross national income, i.e. gross national income expressed in prices of the initial period.) The gross private investment I_f necessary to establish full employment must thus increase as well. (The value of I_f is also understood to be expressed in prices of the initial period.) And indeed it will probably rise more than proportionately to the national income Y_f, for the national income per head increases as a result of rising productivity and thus saving is likely to increase more than in proportion to income; and the investment necessary for this national income to be achieved must be equal to the corresponding saving. Or, to put it in other words, the higher the national income Y_f the higher is

[1] Cf. S. Morris Livingston: 'Post-War Manpower and Its Capacity to Produce', *Survey of Current Business*, April 1943.

likely to be the proportion of saving out of this income, and thus the higher in proportion to Y_f the level of investment I_f necessary to maintain it. Thus the curve AB representing the rise of I_f necessary as a result of the rise in population and in productivity of labour lies above the straight line OA connecting the point A with the zero point.

There now arises the question whether the initial reduction of the rate of interest is adequate not only to reach the level $I_{f,1}$ in the initial period, but also to secure the rise of I_f along the curve AB. We shall argue that this is not the case by comparing I_f with I_c.

3. Point A' on our diagram shows the level of I_c in the initial period, i.e. the level of investment necessary to expand the stock



of capital proportionately to 'full employment output', i.e. proportionately to Y_f. According to the assumption made in section I I_c is taken to be lower than I_f. It is easy to see that if investment followed the line $A'B'$ the capital stock would increase proportionately to Y_f. Indeed in the first short period the rate of investment is equal to I_c, and thus according to the above it expands the capital stock proportionately to the 'full employment national income' Y_f. In the second short period the rate of investment would be higher in the same proportion in which Y_f and the capital stock have risen and thus would be again equal to I_c; (we assume here a uniform increase in population and productivity of labour). Thus the capital stock would again rise proportionately to Y_f and so on.

As, further, we assume up to the last section that productive capacity increases proportionately to capital it follows that productive capacity would rise proportionately to Y_f. In other words, a uniform trend in Y_f, capital stock, productive capacity and I_c would ensue. Thus, if investment followed the line $A'B'$ and full

employment were maintained at the same time, the degree of utilization of equipment and the distribution of gross national income would remain constant. Thus, profits and capital would change proportionately to Y_f and consequently the rate of profit would be constant.

But the actual private investment necessary to secure full employment follows the line AB, which lies above $A'B'$. Thus capital will accumulate at a higher (and even increasingly higher) rate than that which corresponds to the line $A'B'$. Consequently, the rate of profit must fall rather rapidly and therefore a continuous (and rather rapid) reduction of the rate of interest will be necessary to make investment follow the line AB.[1]

4. It should perhaps be added that if private investment is stimulated not by a 'cheap money policy' but by other devices, for instance, by the reduction of income tax the issue is a little more complicated. For if the reduction in income tax is financed by incurring a budget deficit, consumption—mainly that of the rich—will also be stimulated, and this will contribute to the rise in employment. This effect, however, has nothing to do with the policy of securing full employment by stimulating private investment as such. And if it has been decided to achieve full employment by increasing consumption, this may be done in a more direct way, and it is not the consumption of the rich that should be increased. We shall deal with this problem in the next section.

III

1. We have shown in the preceding section that if effective demand adequate to secure full employment is created by stimulating

[1] The following complication has not yet been taken into account. If investment follows the line AB the productive capacity of equipment increases relatively to the national income, i.e. the degree of utilization of equipment falls. This may result in a 'shift from profits' which will increase the propensity to consume and thus cause a shifting downwards of the line AB. There will be, however, a limit to this movement; for after all firms reach the position where they are working below their full capacity a further fall in the degree of utilization is unlikely to cause any significant shift from profits (the influence of diminishing returns being no longer important). Thus AB will reach a position where the shifting down will cease. Now it may be shown that this position will, on our assumptions, still be above $A'B'$ and thus our preceding argument remains valid.

Indeed, the lowest position of the line AB is such as would prevail if, in the initial period, bottlenecks in equipment were of no importance. Now our estimate of I_f in section II was based on extrapolation from the range of real national income where bottlenecks in equipment are of no great importance. It follows that A in the lowest position of the line AB is still above A'.

private investment the devices which we use for it must cumulatively increase to offset the influence of the falling rate of profit. We shall now examine what is the position, if, in solving the problem of full employment, we do not rely upon encouraging private investment, but upon the direct creation of effective demand by the Government through public investment or through subsidizing mass consumption. In this case the Government would undertake construction of objects which do not fall into the sphere of private enterprise, and thus do not compete with private capital equipment (otherwise public investment would tend to reduce the rate of profit on this equipment and thus involve the same difficulties as are involved in the policy of stimulating private investment). Or, alternatively, the Government would increase mass consumption by granting family allowances, old-age pensions, etc., by reducing indirect taxation, and by subsidizing the prices of necessities. In either case the additional expenditure (or the fall in revenue) would be financed without increasing the existing taxes so that the rise in public investment and subsidized consumption would not be offset by the fall in private investment and unsubsidized consumption; the resulting budget deficit will have the same repercussions upon employment as a rise in private investment with a balanced budget.

2. Imagine that by any method we establish such conditions in the initial period that, with profits corresponding to full employment, the entrepreneurs invest at a rate I_c (denoted in the diagram by the point A'). Further, the budget deficit incurred for the sake of public investment or increasing private consumption is fixed at the level $I_f - I_c$ (i.e. AA'). In this way full employment is achieved because the budget deficit makes good the amount by which I_c falls short of I_f. (To achieve such a position may require, of course, some measure of trial and error.) In the subsequent period the same policy is pursued. The budget deficit (in real terms) always covers the difference of the ordinates of the line AB and $A'B'$. In this way, continuous full employment is assured, and private investment follows automatically the line $A'B'$ because this is the line of the constant rate of profit. This secures an increase in the productive capacity proportionate to the rise of 'full employment national income' Y_f.[1]

[1] If the rate of risk falls as time goes by the rate of interest or income tax has to be increased in order to prevent private investment from rising over the line $A'B'$.

3. If this method of maintaining full employment is adopted, no cumulative stimulation of private investment is necessary.[1] The productive resources are fully used, but private investment is limited to the level necessary to increase the capacity of equipment proportionately to the national income. The rest of the resources is devoted to consumption and public investment. A few words must be added on the subject of their distribution as between these two uses.

If public investment, i.e. construction of objects which do not compete with private capital equipment, is carried out on an excessive scale a point will be reached where further public investment will be nearly useless. Two bridges over a short stretch of a river may be useful, but to construct a third, fourth, and fifth merely to provide employment is absurd. The problem involved is in a way analogous to the difficulties of maintaining full employment by stimulating private investment. Public investment should be undertaken only to the extent to which it serves a reasonable purpose, and the excess of Government expenditure necessary to maintain full employment over this reasonable level of public investment must be devoted to consumption.

Thus what seems to be a rational way of achieving full employment should be based on the following principles: (i) The Government spends so much on public investment and subsidizing consumption of the poorer sections of the population that this secures full employment in combination with that private investment which is necessary to increase the productive capacity of equipment proportionately to the rise in the 'full employment national income'. (ii) Public investment is carried on at the rate actually required for satisfying the needs of the community, while all Government spending above this level is devoted to subsidizing mass consumption.[2]

[1] The budget deficit required to finance public investment or 'additional' personal consumption is increasing as time goes by, but only in conjunction with the increase of the gap between the lines AB and $A'B'$. The subsidies to private investment necessary to achieve full employment must rise cumulatively, if there is *any* discrepancy between AB and $A'B'$. The increasing discrepancy between the two lines means an *accelerated* increase in the size of these subsidies.

[2] This régime involves a rising National Debt. If its rate of increase is not higher than that of national income no difficulty arises in financing interest on it. If the National Debt does increase more quickly than the national income, taxes may easily be constructed which finance the additional burden of the interest on it without causing any disturbance

It follows clearly from the above argument that under such a régime there is no reason for *cyclical* fluctuations of the rate of private investment because the factors determining private investment activity—mainly the rate of profit—are *grosso modo* stable. *Minor* fluctuations in private investment which may arise for all sorts of reasons can be best neutralized by an appropriate distribution of public investment over time.

IV

1. So far we have made the assumption that productive capacity increases in the long run proportionately to the stock of capital. We must still consider the more complicated case mentioned on p. 84, where technical progress involves a rise in capital in relation to productive capacity.

If private investment follows in this case the line $A'B'$, i.e. if it expands the stock of capital proportionately to full employment output Y_f and full employment is maintained, the utilization of equipment must increase, because productive capacity expands more slowly than capital. This causes—from a certain point onwards—a 'shift to profits' which thus increase more quickly than Y_f. And as the stock of capital rises *pari passu* with Y_f the rate of profit tends to rise. As a result private investment at full employment maintained by Government spending will be above the level set up by the line $A'B'$.

Private investment, however, will be below *that* level which would increase the productive capacity proportionately to 'full employment national output' Y_f. For if productive capacity *did* increase proportionately to Y_f the utilization of equipment would be constant while the capital stock would expand more quickly than productive capacity; thus Y_f would fall relative to the capital stock while there would be no reason for a 'shift to profits' and consequently the rate of profit would fall as well, and this would depress investment.

It follows that in the case considered the maintenance of the rate of profit must be accompanied by a rise in the utilization of equipment. But this must lead finally to a situation where equipment is

in output and employment (cf. M. Kalecki, 'The Burden of the National Debt', *Bulletin of the Oxford Institute of Statistics*, Vol. 5, No. 5).

Full employment may be maintained without resorting to Budget deficits by redistributive taxation. In this article we confine ourselves for the sake of simplicity to the consideration of 'loan expenditure' policy as a means to full employment.

short as compared with the available labour. Thus unemployment will arise, not as a result of insufficient effective demand, but owing to the shortage of productive capacity.

If this state of affairs is to be avoided a cumulative stimulation of private investment (by reduction of interest, etc.) becomes necessary to maintain private investment at the level required to increase productive capacity *pari passu* with the population and productivity of labour, i.e. with 'full employment output' Y_f. This stimulus to private investment is required here *not* to produce effective demand adequate for maintaining full employment, but to prevent the shortage of productive capacity which would otherwise arise.

2. It has been tacitly assumed above that the degree of market imperfection and oligopoly remains constant and therefore a 'shift to profits' must involve a rise in the utilization of equipment. If, however, the degree of market imperfection and oligopoly increases sufficiently to offset the influence of the rise in capital relative to productive capacity upon the rate of profit, the latter may remain constant with constant utilization of equipment. But the continuous 'shift to profit' (caused by a continuous increase in market imperfection or oligopoly) will continuously reduce the population's propensity to consume; thus to maintain full employment the Government will have to increase cumulatively the subsidizing of mass consumption. And this will in fact amount here to an indirect cumulative stimulation of investment.

3. It is interesting to consider the difficulties arising here from a general point of view. The Government spending policy—as described in section III—permits the overcoming of one contradiction in the capitalist system: that of insufficient effective demand. But if technical progress causes productive capacity to increase more slowly than the accumulation of capital, i.e. if the capital intensity of production increases, there comes into the picture another contradiction of the capitalist system formulated by Marx in his law of the falling rate of profit. It is this second contradiction which—even though the problem of effective demand has been solved—makes it still necessary to grant cumulative subsidies to private enterprise in order to induce it to expand its productive capacity to keep pace with the increase in population and productivity of labour.

The logical solution of this problem is that the function of private enterprise should be in this case partly taken over by the Government. If private enterprise—even after the Government intervention has guaranteed to it markets sufficient to cause full utilization of its resources—is unable to fulfil the task of supplying new equipment at the rate required by the increase in population and productivity of labour, then State-owned factories should be built to fill the deficiency in private investment. Thus investment in what has been the sphere of activity of private enterprise will increase proportionately to full employment output in spite of the falling rate of profit. And because of this fall the share of private enterprise in this investment will continuously diminish and that of the Government continually increase. Thus State-owned factories will constitute an ever-increasing share of industrial equipment which will be a symptom of the inability of private enterprise to fulfil its part in the régime of full employment.

It should be stressed that throughout the argument account has been taken only of the *economics* of full employment. The *political* problems involved in achieving full employment under a capitalist system fall outside the scope of this paper.