Cost- and Demand-Induced Inflation

The inflationary process which has now been going on for a number of years has given rise to a controversy among economists concerning the origin of the continual rise in the general price level. One group holds that wage increases, because they exceed the increase in productivity per unit of labour, force the entrepreneurs to raise prices — i.e. that what we are witnessing is a cost-induced inflation. Representatives of this group buttress their thesis by pointing to statistical calculations which do indeed seem to show that in the recent past wages in a number of countries rose faster than productivity. A second group asserts that the inflation is " demand-induced "; we are confronted not with a " cost-push " but with a " demand-pull " inflation. They, too, can point to some empirical facts which seem to substantiate their view; in particular, they draw attention in the case of Great Britain to the existence (up to 1957) of what is called " over-full employment ", i.e. the fact that job vacancies exceed job applications, which to them suggests that, if labour markets were truly competitive, wages would be even higher than they actually are, under collective bargaining. To lend further support to their thesis, they point to the fact that the hourly earnings of labour have (owing to the higher proportion of overtime) risen faster than the contractual rates of pay and that the ability of employers to pay these higher rates again seems to suggest that the inflation emanated from the demand side. According to these economists, excessive investments or budget deficits must be the culprit. No agreement has yet been reached between the two groups concerning the nature of the recent inflationary process.

We shall here try to establish theoretically what economic phenomena a cost-induced and demand-induced inflation, respectively, may be expected to produce; this procedure will provide us with criteria which can be used to decide whether the empirical evidence points to the one or the other type of inflation.

1. Conditions for Price Stability

We shall first summarise the conditions for preserving a stable price level in an economy in which there is an increase in productivity per unit of labour. We may assume, to begin with, that the increase in productivity is the same in all branches of economic activity, and also that there is no increase in the working population.

Let P_0 $(=1)$ be the price level, b the relative share of wage income and $1-b$ the relative share of non-wage income (profits including interest) in the value of output in the base period. Let W_1, E_1, and Q_1 represent, respectively, wage income, non-wage income and output per unit of labour (productivity) in period 1 as measured by an index equal to unity in the base period. Assume an elastic money supply. If then in period 1 prices are to remain the same as in the base period the following equation must hold

$$P_1 = P_0 = \frac{bW_1 + (1-b)\,E_1}{Q_1}$$

As a starting point let us take the case in which W_1 and E_1 both equal Q_1. This means that wages and profits rise at the same rate as productivity, the relative shares of wage income and non-wage income in the value of output are unchanged, and the price level remains the same as in the base period. It is this situation which seems generally to be regarded as the "ideal" one.

It must, however, be considered as subject to an important qualification. An increase in productivity per unit of labour is more often than not associated with a greater capital intensity of the productive process, i.e. more capital per unit of labour. If capital per unit of labour increased percentagewise more than productivity, the relative share of profits in the value of output would have to rise if the profit *rate* were to be maintained. In this case an increase in wages fully proportionate to that in productivity would — under the assumption of an elastic money supply — lead to higher prices unless entrepreneurs were content to let the profit *rate* fall. In other words, the increase in wages would here have to lag somewhat behind that in productivity if prices were to remain stable. Nevertheless we shall assume for purposes of the subsequent analysis that entrepreneurs are satisfied so long as the relative share of profits in the value of output is maintained, which is the same as assuming that they always mark up the costs per unit of output by a constant percentage to cover interest and profit. This assumption, while it greatly simplifies the exposition, constitutes a considerable restriction on the generality of the analysis; and many conclusions must be qualified to allow for cases where the assumption would not be valid. It should, however, not be difficult for the reader to do this for himself; and I shall therefore not refer to this restriction at every point.

The condition on the monetary side for the "ideal" situation described above, is that aggregate demand shall increase at the same percentage rate as productivity per unit of labour, or, provided that the velocity of circulation is constant, that the money supply shall increase at this rate. We may suppose that the additional money enters the system via borrowing by the entrepreneurs from the banks *. The amount the entrepreneurs borrow must, however, be greater than the addition to the wage bill, if the price level and the relative share of profits in the value of output are to be maintained. We must therefore suppose that part of the borrowed money is used to finance investment over and above the additional working capital which is the counterpart of the higher wage bill.

We may now drop one of the assumptions made above viz., that productivity increases at the same rate in all branches of the economy. It is then the *average* increase in productivity which decides at what rate the money supply should be increased. The prices of the products of those industries in which the increase in productivity is more than average will fall, whereas the prices of the products of those industries in which the increase in productivity is less than average will rise, the general price level remaining stable. This process of relative changes in the price structure may, of course, temporarily be accompanied by exceptionally low profits or even losses in some branches of activity, and exceptionally high profits in others. Thus, if demand shifts in favour of the industries with a more than average increase in productivity, and away from those with a less than average increase, the prices of the products

* We here disregard the possibility that these additional investments might be made by the government instead of by business; nor do we consider cases in which that part of the additional money which is not required for wage payments enters the system via borrowing for consumption purposes, either by the government or by private individuals.

of the first group will not fall immediately, and exceptionally high profits will result, whereas the second group of industries will not be able to raise prices in line with the increase in their money costs. This group will shrink relatively while the first group expands, but the price level will remain unaffected, and the process of shrinking and expanding will finally draw relative prices back into line with relative costs.

The dropping of another of the assumptions made so far — that there is no increase in the labour force — requires, of course, as a condition for the price level to remain stable, that the proportional increase in the money supply should be greater than the proportional increase in the average productivity of labour. If q is the percentage increase in the productivity of the labour force already employed, and if the addition to the labour force is k per cent, then, assuming constant velocity of circulation, the money supply has to increase by an amount which is $q + k\ (1 + q)$ per cent of the money supply in the preceding period.

We have established as the two conditions for the maintenance of the price level that a) wage increases should reflect the current increase in average productivity, and b) the monetary authorities should expand the money supply (in the case of a stationary working population) at the same percentage rate as the increase in productivity. This goal, *so precisely defined*, is clearly impossible of achievement. Neither labour nor the monetary authorities can know how fast average productivity is currently rising, and it may easily happen that temporarily wage increases run ahead of (or lag behind) the increase in productivity, or that aggregate demand exceeds (or falls short of) what is required to keep the price level stable. The maintenance of rough stability in the price level is, however, not seriously endangered by this lack of perfect day-to-day adjustment, since prices do not react so promptly to changes in costs and in demand.

Thus, if wage increases exceed (or fall short of) increases in productivity only *temporarily*, it is profits that will be squeezed (or inflated) rather than prices that will rise (or fall). Only if wages persistently rise faster than productivity over a prolonged period will the result be *either* wage-induced inflation *or* unemployment; which it is depending on whether the monetary authorities are willing to let aggregate demand expand sufficiently or whether,

despite the danger of unemployment, they restrict the money supply.

If, on the other hand, wages do not rise more than in proportion to average productivity, but the monetary authorities let aggregate demand increase more than in proportion, the excess demand is likely to be satisfied at first from inventories; and, similarly, if the increase in demand temporarily falls short of the increase in productivity, the deficiency is likely to be reflected in inventory accumulation. Only if aggregate demand continually rises more (or less) than productivity will the price level rise (or fall).

In short, *temporary* deviations from the rule that wages and aggregate demand should expand *pari passu* with productivity need not interfere with the maintenance of a roughly stable price level.

2. Cost-Induced Inflation

Let us now consider the case of a wage-induced inflation under the assumption that the monetary authorities are prepared to provide the required increase in the money supply. We shall also assume that entrepreneurs succeed in raising the prices of their products in such a way that the relative share of their profits in the value of output is maintained. This means that in the formula

$$P_1 = \frac{bW_1 + (1 - b)\ E_1}{Q_1}$$

the expression $\frac{W_1}{Q_1}$ must be equal to the expression $\frac{E_1}{Q_1}$. P_1 will then be higher than P_0, provided that $\frac{W_1}{Q_1}$ is greater than unity. The price level will rise to $P_0 \cdot \frac{W_1}{Q_1}$, or simply $\frac{W_1}{Q_1}$, with the result that that part of the money-wage increase which is not based on an increase in productivity will, in real terms, be nullified.

In period 2, when wage earners again try to raise their wages, they will take account of the fact that the price level is now higher. We shall, therefore, assume that they demand money-wage increases which are made up of two components, a cost-of-living adjustment and another part intended to raise the real wage.

The wage level in period 2 will then rise, on account of the increase in the price level in period 1, to $\frac{W_1}{Q_1} \cdot W_1$ and this value will be multiplied by another factor W_2 on account of the demand for an increase in the real wage; so that the money wage rises on the whole to $W_2 \cdot \frac{W_1}{Q_1} \cdot W_1$. The price level in period 2 will consequently be $\frac{W_2}{Q_2} \cdot \frac{W_1}{Q_1} \cdot W_1$, where Q_2 is the index of productivity in period 2 on the base $Q_1 = 1$. Even if $\frac{W_2}{Q_2}$ equals unity, the price level in period 2 still rises to $\frac{W_1}{Q_1} \cdot W_1$ as compared with $\frac{W_1}{Q_1}$ in period 1; i.e. even if in period 2 the new wage increase (excluding the cost-of-living adjustment) no more than corresponds to the increase in productivity, the cost-of-living adjustment necessitated by the price rise in the previous period will lead to a new price rise in the current period.

A numerical example may make this double process of wage raising clearer. If in period 1 a wage increase of 20 per cent is granted (so that W_1 is 1.2), and if productivity rises by 10 per cent ($Q_1 = 1.1$.), the price level will rise to $\frac{1.2}{1.1} = 1.09$. In period 2 wage earners ask for an adjustment of their money wages to this higher price level, and this brings money wages up to $1.2 \times \frac{1.2}{1.1}$ $(= W_1 \cdot \frac{W_1}{Q_1}) = 1.31$. In addition, they ask for an increase intended to raise their *real* wages, say, by 20 per cent ($W_2 = 1.2$), so that their money wages rise on the whole to 1.31×1.2 $(= W_1 \cdot \frac{W_1}{Q_1} \cdot W_2 = 1.57$. Assuming that productivity again rises by 10 per cent ($Q_2 = 1.1$), the price level will rise to 1.43 $(= W_1 \cdot \frac{W_1}{Q_1} \cdot \frac{W_2}{Q_2})$.

There are thus two factors which determine the pace of a cost-induced inflation in the period following a new wage round. The first one is the cost-of-living adjustment, which depends on the ratio

of the preceding wage increase to the preceding productivity increase. The second is the ratio of the intended new real wage increase to the productivity increase of the following period. The inflationary process as so far described causes the real wage always to be brought back into line with the increase in productivity; it means that the wage-earners receive nothing which they would not have got if they had kept their money wage demands in line with productivity instead of pushing them beyond that line.

The adjustment on the monetary side requires that bank credit should, as in the case of the stable price level, expand by an amount sufficient to finance the increased wage bill (or the larger working capital corresponding to it) plus an amount (available for additional investment) sufficient to maintain the relative share of profits in the value of output. Assuming a constant income velocity of money, and a stationary working population, this condition is in the present case fulfilled when the money supply increases by the same percentage as *wages* rather than as productivity.

It should be emphasized that the applicability of the above analysis is strictly limited to the case where wage contracts are made at long (say annual) intervals, and where the cost-of-living adjustments are made at the same intervals, not at shorter ones. Thus it will not apply to situations where the real wage is kept constant between one wage contract and the next by a sliding scale system which adjusts the money wage to changes in the price level at intervals much shorter than the contract period, so that there is no significant interval of time during which the real wage can be adjusted back to the level of productivity by a rise in the price level. We shall deal with this situation in Section 4 below.

We now need to modify the above analysis in three respects:

1) The term E in our formula includes all income other than labour income, and therefore includes interest paid out to creditors. The interest paid out on old debts does not rise with the price level, and there is thus a margin here out of which wages can be increased beyond the increase in productivity without causing a corresponding price rise. This means a redistribution of income from property-owners to labour, and probably a diminution in savings.

Presumably, however, this margin would in the longer run — i.e. after a long continued inflationary process — disappear. Investors would sooner or later become wise to the disadvantage attaching to fixed interest securities, and would either concentrate their funds in shares or insist on a purchasing power clause which preserved the real value of debts and interest.

2) The country concerned, by inflating more than other countries while adhering to fixed exchange rates, may force the terms of trade in its own favour. Prices in the home currency of imported raw materials (which enter into domestic production costs) and of imported foodstuffs (which enter into the calculation of the cost-of-living-adjustment) will then lag behind the prices of domestically produced finished goods, and there will thus be created a second margin which allows real wages to move ahead of productivity without entailing a loss of profits for entrepreneurs.

This possibility for labour to reap the benefit of an improvement in the terms of trade procured by inflation cannot, however, last. For it entails a balance of payments deficit which will sooner or later force the country either to devalue or to check the inflation.

3) It follows from the assumption that the relative share of profits is constant that although profits *before* taxes rise in the same proportion as wages (before taxes), profits *after* taxes rise relatively less than wages (after taxes), so long as the tax progression is steeper in the higher brackets than in the lower ones, and so long as taxes are not reduced in response to the rise in government revenue. The distribution of income after taxes will thus change in favour of labour.

Some may regard the budget surplus that is here created as an advantage of the inflationary process on the grounds that, provided the government uses it to finance additional investments, these will lead to a further increase in productivity. The force of this argument is however weakened by two considerations. The first is that those who have to pay the higher real taxation may make up for the difference by saving and investing less, in which case the net addition to investment may be little or none. The second consideration is that the same effect could be achieved without inflation by an appropriate change in the tax structure.

We have so far assumed that the money supply is elastic, i.e. that the monetary authorities provide all the additional money necessary to finance the increased wage bill and the increased profits. This assumption amounts to saying that the causal chain runs from higher costs and prices to a larger money supply and not, as in the quantity theory of money, from the larger money supply to higher prices. The " needs of business " — as the banking school would have expressed it — determine the money supply.

Although this may be a fair description of what happens in many real situations, the monetary authorities are not of course in principle under any compulsion to adapt the money supply to these " needs of business ". And the events of the past year have shown in many countries an increasing unwillingness on the part of the authorities to finance a cost-induced inflation. One aim of a " restrictive " monetary policy in the face of excessive wage demands may be to stiffen the attitude of employers, who may be expected to resist such demands more obstinately if they can no longer so easily obtain the funds with which to finance the higher wage bill and are less sure than previously that they can cover their increased costs by raising the prices of their products. Here, however, we shall look for a moment at what happens when the wage demands, though in excess of productivity increases, are granted, but at the same time the authorities expand the money supply, not in proportion to the wage rise, but only sufficiently to finance the productivity increase at a constant price level.

The effect must in all circumstances be to lower profits and employment. It is conceivable that a new equilibrium situation might be reached in which, though output and employment were both short of full, the price level was higher than previously. There might, that is to say, be a recession accompanied by rising prices. It is, however, also possible that the initial effect on profits, if it were very sharp, might set in motion a cumulative process downwards; and in that case prices might, despite the higher wage costs, drop below the previous level. How likely it is that they will actually fall in such circumstances depends partly on how rapidly the average productivity of labour rises as the level of employment falls.

It is in any case clear that, under this type of " restrictive " monetary policy, a combination of *falling* output and employment and *rising* prices is by no means excluded; and it is also evident that unemployment cannot be avoided even if prices are rising. This may be one of the cases in which unemployment is the price

that has to be paid by one part of labour in order to induce the other part to moderate its wage claims. But this view rests on the perhaps not universally valid supposition that union wage policy is sensitive to the volume of unemployment.

3. Demand-Induced Inflation

For purposes of the present section we shall take it that the essence of a demand-induced inflation is that it pulls prices up faster than costs, thus raising the relative share of profits; it contrasts with a cost-induced inflation of which the distinguishing characteristic is that of pushing prices up just in step with costs.

If, though wages increase only exactly in proportion to productivity, and there is thus no inflation from the cost side, entrepreneurs seek and receive from the banks more new funds for investment purposes than are necessary to keep the price level stable, the consequences will be the following: the demand for investment goods will go up, prices will rise faster than wages, job vacancies will exceed job applications, and the average hourly earnings of labour will rise (because of the increasing proportion of overtime pay) faster than wage rates. It is these last two phenomena which, as I pointed out earlier, are often taken to be the symptoms of a demand-induced inflation.

It would, however, be wrong to conclude that whenever they are present, no contribution to the inflationary process is being made from the side of costs (wages).

We saw in Section 2 that, when excessive money wage increases cause a cost inflation, the additional credit required to maintain full employment is composed of two elements. The first consists of an amount that is just sufficient to finance the additional investment in working capital which reflects the increase in the wage bill. The second element, which also goes to finance additional investment, consists of the amount that is required to maintain the relative share of profits in the value of output.

The total amount of bank credit actually made available by the banking system for additional investment purposes *of all kinds* may, of course, be greater than the sum of these two components. And in that case the total expansion of bank credit contains a third component which constitutes an element of demand inflation; and

the usual symptoms of such an inflation (an excess of job vacancies over job applications, and hourly earnings rising faster than wage rates) will then appear. The rise in the price level which ensues will represent the cumulative effect of the two sources of inflation combined, and will be greater than it would have been if only one of the two sources had existed. In such circumstances the excessive wage increases clearly bear part of the responsibility for the rise in the price level, and the fact that the symptoms of a demand inflation are present cannot be interpreted to mean that this is alone responsible for that rise.

Thus we cannot avoid the conclusion that whenever wages rise faster than productivity (we abstract here from the "margins" described previously) the inflation that occurs has a cost-induced component. If at the same time the additional finance made available for investment purposes exceeds what is required to cover the higher wage bill and to maintain the relative share of profits in output, investments are an additional source of inflation; and the symptoms of a demand inflation will develop. We then clearly have a combination of "cost-push" and "demand-pull" inflation.

A few words are in order here concerning the way in which rising profits shown by the national income statistics during a period of price inflation are to be interpreted. Even in the case of a pure cost inflation, profits, if they are just maintaining their relative share in the value of output, will rise in absolute terms. If the *relative* share of profits rises, this must mean either that a demand inflation has been super-imposed on a cost inflation, or that the demand inflation has been proceeding at an increasing pace.

There can hardly be any doubt that in the United Kingdom, where over the last few years — at least up to 1956 — wage increases have, according to all the available evidence, exceeded productivity increases, and at the same time job vacancies have been greater than job applications, and the rise in earnings higher than that in wage rates, there has been a combination of both types of inflation; and a policy which aims at checking wage increases at the same time as it cuts down investments is the appropriate one.

It is particularly important in connection with the conclusion that if wages are rising no faster than productivity they cannot be a factor contributing to an inflationary process, and that if such a process is under way it must be ascribed exclusively to "demand-pull" factors, to recall the restrictive assumption under which our

entire analysis has, for the sake of simplicity, been conducted. That assumption, namely, that the rate of profit (including interest) on capital remains constant so long as the relative share of profits in the total value of output is unchanged, would not be valid if a sharp rise in the capital-labour ratio was taking place. In such circumstances wages, though rising even less fast than productivity, might still be rising too fast to allow the price level to remain stable. Similarly, a decline in the degree of competition, while wages were again rising no faster than productivity, might lead to a price rise reflecting the pushing up of monopoly profits.

4. Chronic Inflation

In recent years a perhaps growing number of economists have advocated a mild chronic inflation as a means of maintaining full employment. The inflation here envisaged is obviously of the " demand-pull " type. It implies that the monetary authorities see that a constant pressure of aggregate demand against the supply of commodities is maintained, and that prices are thus always running a little ahead of costs. This policy is supposed to ensure that entrepreneurs have the incentive to keep investments high so that full employment is continuously preserved. It has often been suggested that a constant rate of rise in the price level of 2-3 per cent might be sufficient for this purpose.

It may be questioned whether an upward movement in the price level which was continual could actually be kept down to a constant pace. And a second objection to the chronic inflation thesis is perhaps still more damaging: situations undoubtedly can arise, as a consequence of the inflation itself, where no matter how fast the inflation is proceeding it cannot provide the stimulus which helps to guarantee full employment.

Suppose that in a system in which new wage claims are made at fairly long (say annual) intervals, the workers keep their claims exactly in line with the movement in productivity, so that no inflationary tendency emanates from the cost side. But the monetary authorities, following the advice of the advocates of chronic inflation, set a demand inflation going, so that the real wage increase just granted is now reduced, by the price rise, *below* the increase in productivity; real profits rise, and a stimulus is thus provided for entrepreneurs to keep investments high.

If this process continues wage-round after wage-round, organised labour will sooner or later make an attempt to keep real wages intact by following one or the other of two procedures. Either it will ask, at each new contract date, for a money wage rise which, besides allowing for the increase in productivity, makes up for anticipated future price rises as well as past ones; or it will impose a sliding scale system which adjusts money wages to changes in the cost of living continually, rather than at the discontinuous intervals corresponding to the contract dates. It makes a good deal of difference to the final outcome which of these two procedures is adopted.

The first one has been incorporated in some recent wage contracts in the United States. The second has been in operation for a number of years in France and Italy.

If the first procedure is adopted money wages will rise at an ever faster rate as time goes on; and so will the price level. Thus, if wage-earners aim at a current rise in real wages of, say, 10 per cent and expect a price rise before the next wage-round of 5 per cent, they will ask for a money wage increase now of roughly 15 per cent. This procedure will in turn produce a cost inflation, which will be the source of a further price rise since the money (though not the real) wage will now rise faster than productivity. To this cost-induced inflation a further dose of demand inflation will then have to be added if the increase in the real wage is again to be reduced below the increase in productivity. In this way the pace of inflation, required to give the stimulus which is supposed to guarantee full employment, will necessarily accelerate.

It is when the second procedure is followed, however, i.e. when a sliding scale is imposed and serves to keep the real wage intact even during the intervals between wage contracts, that a situation is reached in which inflation cannot help to maintain full employment. For in this case, a demand inflation in the sense in which we have so far been using the term is excluded, since prices cannot move ahead of money wages to any significant extent. If the authorities inflate nonetheless, the result will of course be a price-wage spiral just as under the first procedure, but the stimulus which is supposed to help keep the employment level high is lacking. By the same token it is not possible, in the presence of the sliding scale, to use the inflationary process to " correct " wage bargains which raise real wages more than in proportion to productivity.

No amount of inflation — at least once the two " margins " due to the fixity of interest payments and the lag in the prices of imports have been exhausted — can in this case prevent a decline in real profits and/or in employment.

It is obvious, in general, that once all cost items are continuously adjusted to the price level, a demand inflation, in the sense of an inflation which causes a divergence between price and cost movements (or reduces the real burden of wage and interest payments), is no longer possible. If we still want to draw a distinction, in the case of the sliding scale, between a cost- and a demand-induced inflation, we must make it dependent on what has heretofore been treated as a secondary aspect, namely the identity of the immediate source of the addition to aggregate spending. We must make it dependent, that is to say, on whether the inflation is initiated by " excessive " business investments or by a budget deficit, on the one side, or whether it is initiated by " excessive " increases in the wage bill, on the other. In all cases where the sliding scale of wages does not apply, the demand inflation as defined by this secondary characteristic coincides with the demand inflation as defined by the primary and more substantial aspect of its effect in drawing up prices faster than costs. When, however, the sliding scale prevails, the demand inflation merges with the cost inflation, in the sense that both now draw up costs as fast as prices, and are therefore indistinguishable from this point of view.

We may summarise the main consequences of the two procedures by which organised labour may seek to keep real wages intact as follows: the first procedure — that of discontinuous (say annual) adjustments of money wages to the rise in prices — does not prevent the real wage from being periodically forced down by the inflation, and hence the stimulus which is supposed to help maintain the employment level is at work; but the pace of the inflation required to keep this stimulus alive is a continually accelerating one. The second procedure — under which adjustments of money wages to prices are made at such short intervals as to be practically continuous — leads to the result that, although again the pace of inflation may increase as time goes on, the real wage cannot be perceptibly lowered by the inflation, and the stimulus to the maintenance of a high level of employment is not therefore present.

5. Conclusion

We may now summarise some of the more important conclusions to which the preceding analysis leads.

1) There are at least two sets of circumstances in which unemployment cannot be avoided even with a rising price level. The first is the case of excessive wage increases combined with a " restrictive " monetary policy; and the second is the case of excessive wage increases combined with sliding scale adjustments to the cost of living.

2) The magnitude of the rise in productivity sets a limit to the real wage increase that is compatible with the maintenance of full employment. If money wages are pushed ahead of productivity, the ensuing cost inflation will — in the absence of a sliding scale — adjust real wages back into line with productivity, except in so far as, and so long as, the fixity of interest payments and the lag of import prices create a margin out of which a real wage increase exceeding the productivity increase can be covered without loss of profits to the entrepreneurs.

3) If money wages are raised faster than productivity, and the sliding scale is operative, the ensuing cost inflation cannot " correct " the real wage, and unemployment will result. Provided the average product per unit of labour is, over the relevant range, a decreasing function of employment, it will rise as employment falls; and the part of the labour force which remains in employment will enjoy a real wage higher than that which the increase in productivity would allow were full employment to be maintained. But, once employment is reduced, this wage is again in line with productivity.

4) A demand inflation, if it means an inflation which pulls prices up faster than costs, is by definition possible only so long as not all cost items move up *pari passu* with prices. A demand inflation of this kind will, if it continues for any considerable length of time, necessarily accelerate. So long as it continues it creates a stimulus for entrepreneurs to keep investments high. The same stimulus could, however, be produced just as well without inflation, were labour to follow a wage policy designed to keep wages always lagging a little behind productivity. For it is by creating such a

lag that a demand inflation is supposed to give support to the employment level. Many economists would perhaps argue that this type of wage policy would be no guarantee against unemployment; but they would then logically also have to admit that a chronic demand inflation does not offer any such guarantee either.

5) A basic theme of this article has been that inflation affects the total volume of employment and output only so long as it changes some *real* relationship in the economic system, and that the power of continuous inflation to do this will be progressively weakened as devices are increasingly adopted by the public to protect the real values of earnings and of property against the effects of inflation. Once these devices have been perfected to the point where inflation can no longer affect the real share of wages in output, monetary manipulation can no longer act as an instrument helping to maintain full employment.

This is not to say that the economic process, once this stage has been reached, and although inflation continues, will run its course, in real terms, in exactly the same way as it would have done without inflation. A properly functioning monetary system makes its own contribution to productivity. The fact that the functions of money have to be partly taken over by indexing and other devices, or that money no longer performs its function as a unit of account, imposes on the economic system an extra real cost, in the shape of tasks that would not need to be performed at all if the price level were reasonably stable. The amount of " unproductive " work necessitated by this partial abdication of money from its natural role is probably underestimated in much of the current discussion of the pros and cons of inflation. In other words, inflation would need to have counted against it its effect in reducing the average productivity per unit of labour below the level that would be reached with a stable monetary system.

Thus we may conclude, finally, that continuous inflation, while it will not have a permanent effect in the positive direction of preventing unemployment, may have a permanent effect in the negative direction of slowing down the rate of growth in aggregate output.

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