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Conflict, inflation and money

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Conflict is endemic in the capitalist system and concerns all aspects of economic life: the techniques of production to be used, the length and intensity of the working day, and the distribution of income. Naturally, these are all interconnected and what happens in one sphere influences what happens in the rest, and all in some way affect the behaviour of wages and prices. So much is obvious, but, in view of the complexity of the inflationary process, the present article focuses on just one particular area, namely how conflict over the distribution of income affects the general level of prices in advanced capitalist economies. A formal model is constructed in which the following factors are combined in a coherent fashion: taxes, the terms of trade, expectations and money. In writing this article I have drawn on a wide variety of past writing on the subject of inflation, although usually without explicit acknowledgement. Amongst the works which influenced me most were: Marx's writing on the reserve army of labour, Keynes' *How to Pay for the War*, Maynard's *Economic Development and the Price Level*, Phillips' famous article on unemployment and wages, Wilkinson's contribution to *Do Trade Unions Cause Inflation?* and, finally, monetarist writing on expectations.†

The basic model

In a capitalist economy inflation may increase profits by reducing the real purchasing power of other kinds of income. It can only do this, of course, if some of the other parties involved are unable to protect themselves against its effects. We must begin by distinguishing between two concepts which are often confused but which are really quite distinct: expectation and anticipation. The former refers to a state of mind, whereas the latter refers to actual behaviour. To *expect* something means simply to believe with greater or less confidence that it will occur, whereas to *anticipate* something means both to expect it and to act upon this expectation. So inflation has no redistributive effect if it is fully anticipated by all concerned, for then everyone takes advance measures to allow for or anticipate future price increases. To redistribute income, inflation must therefore be *unanticipated*. With this in mind, we shall now construct a simple model in which unanticipated inflation transfers real income from workers to capitalists within the same

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†Keynes (1972), Maynard (1972), Marx (1970), Phillips (1958), Jackson, Turner and Wilkinson (1975).

country. The model also contains a state sector and a foreign sector, but these are fully protected against inflation, so that their real incomes are unaffected by domestic price changes. Thus, capitalists cannot raise their profits at the expense of the state or foreigners, and any redistribution caused by price changes is always at the expense of workers.

Let us make the following assumptions. The economy is divided into two parts: a state sector and a private sector, and the only sources of finance for the state are taxation and borrowing (which includes the creation of money).† The private sector contains two classes—capitalists and workers; goods and services are produced in this sector and output per worker is constant. The private sector also purchases goods and services from foreign suppliers; these are not sold directly to private consumers but are used as inputs in the production of further goods and services for sale at home and abroad. The volume of imports required to produce a unit of private sector output is a given constant which does not vary in response to changes in the terms of trade.

The aspiration gap

In the above economy the gross income of the private sector is subject to four major claims and must be divided amongst the following parties: (1) the state (taxes), (2) foreign suppliers (import costs), (3) workers in the private sector (post-tax wages), and (4) domestic capitalists (post-tax profits). Let T denote the share of private sector income absorbed by taxes levied on workers and capitalists in this sector, and F the share of import costs, and assume that both of these shares are exogenously determined.‡ This means that a proportion $T+F$ of income is pre-empted by taxes and import costs, leaving $1-T-F$ available for distribution to workers and capitalists in the private sector. Now, unless wage and price decisions are centrally co-ordinated, there is no automatic mechanism which ensures that this amount is exactly sufficient to meet the rival claims made upon it. On a firm by firm basis workers may negotiate increases designed to give them a certain standard of living, and individual capitalists, having agreed on these wage payments, may then set prices so as to achieve a certain target rate of profit. For any individual capitalist this need not imply a deliberate atempt to alter the level of real wages and vitiate what has been agreed in the wage bargain. Yet aggregating over the whole economy this may be the objective consequence of their individual and uncoordinated decisions. So the rival claims on income—those negotiated by workers in the wage bargain and those pursued by capitalists in their pricing policy—may exceed or fall

† It is arguable that taxation should include not only taxes in the conventional sense, but also certain kinds of government borrowing. For example, the state can finance part of its activities by issuing money. Legally, this is considered to be a form of borrowing, and money is counted as part of the national debt. But, in fact, when prices are rising, it is a disguised form of taxation, for it involves an *unrequited* transfer of real resources from the private sector to the state. In the text, however, we ignore this 'inflation tax' and consider only taxes as they are conventionally defined.

‡ Let Y be the gross output of the private sector, N the volume of imports and r the ratio of import prices to export prices (the terms of trade). Then F is given by

$$F = \frac{Nr}{Y}.$$

In this essay N/Y is assumed constant and therefore F mirrors the behaviour of r and may be taken as an index of the terms of trade. Since all imports consist entirely of raw materials and intermediate products, and state activities are financed entirely by taxation or borrowing, it follows that

real national income (excluding income from abroad) = gross output of the private sector *minus* cost of imports

$$= Y(1-F).$$

Thus, as we should expect, a deterioration in the terms of trade raises F and reduces national income.

short of what is available after the payment of taxes and import costs. In this case there is a conflict between capitalist pricing policy and what has been agreed in wage negotiations.

Suppose wage settlements make a notional allowance for future inflation, and on this basis the two sides agree on a certain money wage. If prices rise as anticipated, this money wage will provide workers with a certain after-tax real income, and moreover, since productivity is constant, will give the working class as a whole a certain *share*, say W^n, of private sector income. Since taxes and import costs absorb a further amount $T+F$, it follows that capitalists will be left with the residual share Π^n given by

$$\Pi^n = 1-T-F-W^n. \tag{1}$$

Let us call W^n the *negotiated wage share* and Π^n the *negotiated profit share*. These are what workers and capitalists actually receive if prices rise as anticipated in the wage bargain. Next, suppose that, having fixed wages, capitalists follow a pricing policy which is designed to give them a certain *target share* Π^* of private sector income. Then we have two potentially different profit shares, one negotiated in the wage bargain on the assumption that the price level will change a given amount, and another which capitalists seek to achieve through their pricing policy. If these shares are identical there is no conflict between the two levels of decision-making, but if they are different there *is* a conflict and capitalist pricing policy is inconsistent with what has been agreed in the wage bargain. The extent of this conflict can be measured by the quantity $\Pi^*-\Pi^n$ which we shall denote by the symbol A. Thus,

$$A = \Pi^*-\Pi^n \tag{2}$$

which can also be written,

$$A = \Pi^*+W^n+T+F-1. \tag{3}$$

We shall call this quantity the *aspiration gap* because it indicates how far the aims of capitalist pricing policy are inconsistent with other claims on private sector income. Note that A may be positive or negative.

The price equation. To derive an equation for the behaviour of prices let us make the following assumptions. Wages are fixed simultaneously throughout the economy in bargains which take place at discrete intervals, say γ times per year, and once settled do not change until the next general round of bargaining. When negotiations take place, the share $T+F$, absorbed by taxes and import costs, is already known, and the following mechanisms ensure that it is unaffected by domestic inflation: international trade is conducted in foreign currency at world market prices which are fixed in advance of the wage bargain, and the exchange rate is continuously adjusted to compensate for differential rates of inflation at home and abroad; government revenue is raised by means of a uniform proportional tax, announced in advance of the wage bargain and levied on all incomes in the private sector. Under these assumptions tax payments rise in line with the value of private sector output, and so too do import costs.† Thus, capitalists cannot change the share going to the state and foreign suppliers, and any redistribution in their favour must be at the expense of workers.

† Exchange rate flexibility also insulates the domestic economy against certain kinds of inflationary pressure from abroad. A uniform rise in the *absolute* level of world prices, for example, is immediately offset by an appreciation of the local currency and thus has no effect on domestic costs or prices. On the other hand a change in *relative* prices on the world market may alter the terms of trade, causing the real cost of imports, and thus F, to increase. The result—analysed below—may well be domestic inflation (and in consequence depreciation of the local currency) as capitalists try to pass higher costs onto consumers and workers in their turn seek compensatory wage increases.

When defining the aspiration gap, we assumed that wage settlements make an allowance for future inflation, and on this basis workers negotiate for themselves a certain share W^n of private sector income. To specify this more exactly, suppose that settlements are based on the assumption that prices will rise by Θ^a during the coming period. Then, if prices do actually rise by this amount, workers will receive their negotiated share W^n and capitalists will be left with the residual Π^n which is, of course, equal to $1-T-F-W^n$. Now, we also assumed that capitalist pricing policy aims at a certain target share Π^* for profits, so to derive the required price equation, all that remains is to specify the speed with which capitalists respond to cost and tax changes.

Let us assume that the amount Θ by which they adjust prices immediately after any particular bargain is given by the following rule,

$$\Theta = \beta(\Pi^* - \Pi^n) + \Theta^a \tag{4}$$

where β is a positive constant.†

This rule means that capitalists raise prices by more or less than the anticipated amount, depending on whether their target share is greater or less than what they have achieved in the wage bargain, and they raise prices by exactly the anticipated amount if the wage bargain gives them exactly what they seek.

Since there are γ bargains per year, the annual rate of inflation is given approximately by

$$p = \gamma\,\Theta \tag{5}$$

and price rises anticipated in the wage bargain are equivalent to an annual rate of inflation given by

$$p^a = \gamma\,\Theta^a. \tag{6}$$

Substituting in (4) we get

$$p = \gamma\beta(\Pi^* - \Pi^n) + p^a \tag{7}$$

which can be written as follows;

$$p = \lambda A + p^a \tag{8}$$

where $\lambda = \gamma\beta$.

Since unanticipated inflation is the difference between price rises which actually occur and those anticipated in the wage bargain, the annual rate of *unanticipated* inflation is given by

$$p^u = p - p^a. \tag{9}$$

Substituting in (8) we get

$$p^u = \lambda A. \tag{10}$$

This equation tells us that the rate of unanticipated inflation depends: (1) on the degree to which capitalist pricing policy is in conflict with what has been agreed in wage negotiations, and (2) on the speed with which wage and price adjustments take place. The former is indicated by A and the latter by λ. Since $\lambda > 0$ it follows that *unanticipated*

† This rule means that prices are adjusted with a distributed lag in response to any particular cost or tax increase. Initially prices are adjusted by a fraction of the divergence between Π^* and Π^n. In the absence of any cost or tax changes, this means a different value for Π^n in the following period. In this following period prices will again change by a fraction of the (smaller) divergence between Π^* and Π^n, and so on indefinitely. Eventually, *in the absence of further cost or tax changes*, Π^n will converge to Π^* and so capitalists will in the long run achieve their target; the size of β determines the speed of convergence. However, when costs and taxes are changing this convergence need not occur, and the share of profits may stabilise at a value different from Π^*.

inflation is positive when capitalists seek more than they have negotiated in the wage bargain ($A>0$) and negative when they seek less ($A<0$).

Demand and burden effects

Let us now consider how the aspiration gap is determined. As in any conflict model, the answer is simple enough: it is determined by the market power of workers and capitalists, and by their willingness to use this power. Thus anything which affects the extent or use of power will affect the aspiration gap and, through it, the rate of inflation. For example, a well organised and militant working class may win very big wage increases and place considerable pressure on profits. If, at the same time, product markets are dominated by a few giant firms or cartels, then capitalists may pursue an aggressive pricing policy designed to obtain a high share of income for themselves. Thus, on the one hand workers are strong in the labour market, whilst on the other capitalists are strong in the product market, and as a result there is a major inconsistency between the two levels of decision-making: workers use their power to obtain big wage increases, whilst capitalists respond with price increases. The aspiration gap is in consequence very large and there is a high rate of unanticipated inflation. Or, to take another example, consider the effect of an 'incomes policy' which seeks by force or persuasion to co-ordinate wage and price decisions. If successful, such a policy fixes wages at some predetermined level, consistent with a 'reasonable' rate of profit, and capitalists do not use prices to take back what has been 'conceded' on the wage front. In such a world, wage and price decisions are always perfectly consistent, the aspiration gap is zero, and there is no unanticipated inflation.

Amongst the many different factors of an economic, political or ideological nature which influence the extent of market power and its use by workers and capitalists, one factor is of particular importance, namely *demand*. Demand acts as a regulator of conflict, imposing a *discipline* on the private sector, and making it easier or more difficult for workers to raise wages and capitalists to raise prices.

When there is a large surplus of labour, either visibly unemployed or hidden in rural or other labour reserves, the bargaining position of trade unions is relatively weak, and their members may be demoralised or quiescent. However, as reserves are progressively exhausted or unemployment reduced, their bargaining position becomes stronger and workers become more confident and aggressive. This can be expressed formally by making the negotiated wage share W^n an increasing function of some index D^l of the demand for labour,

$$W^n = W^n(D^l). \tag{11}$$

This tells us that, as demand rises, workers use their greater power to extract higher wages from their employers.

Similar considerations apply to capitalist pricing behaviour. When there is a large surplus of capacity, firms may pursue a cautious pricing policy for fear that other firms, which also have excess capacity, will invade their markets. Conversely, when capacity is more fully utilised, firms can raise their prices more freely, secure in the knowledge that other firms are in a similar position to themselves and unable to launch a major invasion of their markets. So, as the discipline of demand is relaxed, firms become stronger and use their power to force up prices. This can be expressed formally by making the target profit share Π^* an increasing function of some index, D^c, of capacity utilisation,

$$\Pi^* = \Pi^*(D^c). \tag{12}$$

This tells us that, as demand rises, firms seek higher profits and set their prices accordingly.

Note that, although D^l and D^c move together cyclically, they may diverge over longer periods of time, and a high D^l may coexist with a low D^c and vice versa. In Germany during the 1950s, for example, there was a large surplus of labour and yet capacity was fully utilised because of Germany's export-led boom. Labour's 'pretensions' were held in check by the reserve army of labour, whilst capitalists both expected and obtained high profits under favourable demand conditions in the product market.

Taxes and the terms of trade. When taxes or real import costs rise, they reduce the share of income available for post-tax wages and profits, thus imposing a certain burden on the private sector. Now, since workers and capitalists possess a degree of market power, they may try to resist this burden, seeking higher wages or prices to compensate for part or all of the reduction in their real disposable incomes, and the more they resist, the greater is the conflict over distribution and the higher is the rate of unanticipated inflation. Before attempting to formalise this notion within the present framework of analysis, let us consider briefly why anyone should resist the burden of higher taxes or real import costs. This is obvious enough in the case of higher real import costs, because they mean an unrequited transfer from the private sector to foreign suppliers, as more domestic products must be exchanged for a given quantity of imports. In the case of higher taxes, however, the situation is less straightforward, as these are often accompanied by higher government expenditure, the benefits of which may partially compensate for the loss of disposable income caused by higher taxes. But this does not mean that these taxes will be passively accepted by workers or capitalists in the private sector. Government expenditure may be used for a variety of purposes, such as the armed forces, the social services and welfare payments to the aged, the sick, and the poor; and the willingness of capitalists and workers to support this kind of expenditure depends upon their evaluation of its social usefulness. A left-wing worker, for example, is less willing to finance colonial wars than is his right-wing counterpart, and is therefore likely to resist any burdens placed upon him. But, even if government expenditure is regarded as desirable, there may be nobody prepared to pay for it. For example, everyone may think that more hospitals or higher pensions are a good thing, and yet simultaneously believe that someone else should pay for them. The capitalist argues that workers, as the main beneficiaries, should pay, whilst workers may argue that they see state expenditure as a redistributive device which provides them with benefits at the expense of profits. Thus, the capitalist argues that a higher 'social wage' should be matched by a lower 'individual wage', whereas the worker may see it as an additional benefit. The 'social contract' and the propaganda surrounding it spring from just such a conflict—workers are told they must make sacrifices to pay for the welfare state. Or, to take another example, everyone may argue that state research centres are a good thing, but once again, no-one may be willing to pay for them. Workers may argue that they help capitalist industry and should therefore be financed out of profits, whilst capitalists may argue that they cannot afford to pay higher taxes, for they need profits to finance dividend payments and future investments.

So workers and capitalists may be unwilling to accept the burden of higher taxes or import costs and may use their market power to resist this burden and obtain compensatory wage and price increases. We can allow for such resistance within the present model by making the shares W^n and Π^* depend on the variables T and F. Taking account also of the influence of demand on market power, we can write

$$W^n = W^n(D^l, T, F) \text{ and } \Pi^* = \Pi^*(D^c, T, F). \tag{13}$$

Differentiating, we obtain the following *acceptance coefficients*,

$$\begin{aligned} a_T^\ell &= -\frac{\partial W^n}{\partial T},\ a_T^c = -\frac{\partial \Pi^*}{\partial T}, \\ a_F^\ell &= -\frac{\partial W^n}{\partial F},\ a_F^c = -\frac{\partial \Pi^*}{\partial F}. \end{aligned} \tag{14}$$

These tell us how, under given demand conditions, wage and price setting are affected by higher taxes and import costs: how far the two sides are forced or agree to accept the additional burden without receiving a compensatory increase in their money incomes.

Inflation. From equations (3) and (14) the aspiration gap can be written as follows:

$$A = \Pi^*(D^c,T,F) + W^n(D^\ell,T,F) + T + F - 1 \tag{15}$$

and hence the rate of unanticipated inflation can be written as a function of the four variables D^c, D^ℓ, T and F:

$$p^u = \lambda A(D^c,D^\ell,T,F). \tag{16}$$

Any increment in A or p^u can be decomposed into two parts: *demand effects* associated with changes in the demand variables D^c and D^ℓ, and *burden effects* associated with changes in the burden variables T and F.† Thus,

$$\begin{aligned} \Delta A &= \text{demand effects} + \text{burden effects} \\ &= \left[\frac{\partial A}{\partial D^c}\Delta D^c + \frac{\partial A}{\partial D^\ell}\Delta D^\ell\right] + \left[\frac{\partial A}{\partial T}\Delta T + \frac{\partial A}{\partial F}\Delta F\right] \\ &= \left[\frac{\partial \Pi^*}{\partial D^c}\Delta D^c + \frac{\partial W^n}{\partial D^\ell}\Delta D^\ell\right] + \left[(1-a_T^c-a_T^\ell)\Delta T + (1-a_F^c-a_F^\ell)\Delta F\right] \end{aligned} \tag{17}$$

and, since $\Delta p^u = \lambda \Delta A$,

$$\begin{aligned} \Delta p^u &= \text{demand effects} + \text{burden effects} \\ &= \lambda\left[\frac{\partial \Pi^*}{\partial D^c}\Delta D^c + \frac{\partial W^n}{\partial D^\ell}\Delta D\right] + \left[\lambda(1-a_T^c-a_T^\ell)\Delta T + (1-a_F^c-a_F^\ell)\Delta F\right]. \end{aligned} \tag{18}$$

Burden effects have received relatively little attention in the academic literature, so, in order to isolate these effects and consider them in more detail, assume that demand, and therefore the power of the rival parties, remains constant. Then $\Delta D^c = \Delta D^\ell = 0$ and burden effects are given as follows,

$$\Delta A = (1-a_T)\Delta T + (1-a_F)\Delta F$$

and

$$\Delta p^u = \lambda[(1-a_T)\Delta T + (1-a_F)\Delta F] \tag{19}$$

where

$$a_T = a_T^c + a_T^\ell \text{ and } a_F = a_F^c + a_F^\ell.$$

The meaning of equation (19) is very simple. The parameter λ is determined by the mechanism of 'buck-passing' and tells us how quickly each side can pass an unacceptable burden onto the other, and a_T and a_F tell us what proportion of any extra burden the two sides accept without receiving compensatory wage or price increases. When $a_T = 1$ and $a_F = 1$ the burden effect is zero, for the burden is fully accepted by one side or the other and the rate of inflation is unaffected by higher taxes or real import costs. At the

† This decomposition assumes, of course, that the parameter λ and the functional form of A remain unchanged.

other extreme, when $a_T = 0$ and $a_F = 0$, the burden effect is at its maximum, neither side will accept any reduction in its real disposable income, and there may be a fierce inflationary struggle as each side seeks to shift the entire burden onto the other: workers win wage increases designed to compensate them fully for any losses they have suffered, but then, having agreed to these increases, capitalists raise prices by more than the anticipated amount, so that in the event the compensation recovered by the workers turns out to be insufficient. And this process may continue indefinitely, with workers repeatedly demanding and obtaining compensatory wage increases, only to find that part of these are taken back again by unanticipated price increases. So an unaccepted burden leads to greater conflict over income distribution and a permanent rise in the rate of *unanticipated* inflation.

Demand effects may be isolated by assuming that the shares T and F taken by taxes and import costs remain constant. To clarify the discussion, let us consider a special case. Suppose there is a close correlation between conditions in the labour market and in the product market, so that labour becomes less plentiful when capacity utilisation rises, and vice versa. Under these circumstances, the level of unemployment U may provide a good indication of conditions in both markets and may thus be taken as an adequate proxy for both of the variables D^c and D^ℓ. In this case we can write

$$W^n = W^n(U,T,F) \text{ and } \Pi^* = \Pi^*(U,T,F). \tag{20}$$

In general these will be decreasing functions of U, indicating that capitalists and workers become weaker and moderate their claims when demand is reduced. The aspiration gap can be written as

$$A = \Pi^*(U,T,F) + W^n(U,T,F) + T + F - 1 \tag{21}$$

and the rate of unanticipated inflation as

$$p^u = \lambda A(U,T,F). \tag{22}$$

Taking $\Delta T = \Delta F = 0$, we get demand effects given by

$$\begin{aligned} \Delta A &= \left[\frac{\partial \Pi^*}{\partial U} + \frac{\partial W^n}{\partial U}\right]\Delta U, \\ \Delta p^u &= \lambda\left[\frac{\partial \Pi^*}{\partial U} + \frac{\partial W^n}{\partial U}\right]\Delta U. \end{aligned} \tag{23}$$

With T and F constant, equation (22) gives us a 'Phillips curve' relating p to U.† The curve cuts the horizontal axis at a point U^0. With this level of unemployment the

† Strictly speaking, the Phillips curve gives a relationship between unemployment and so-called 'wage inflation'. Throughout this article we shall use the term 'Phillips curve' to describe the relationship between unemployment and price inflation.

The Phillips curve may not be stable in the long run, as the relationship between unemployment U and the demand indices D^ℓ and D^c may shift when structural change takes place. Consider the example of a severe crisis in which unemployment remains at a high level for a long period of time. At first this unemployment is of a Keynesian type, characterised by a general surplus of both labour and capacity. Both workers and capitalists are subject to severe market discipline in such a situation, and inflationary pressures are effectively contained. In time however, structural changes may occur which lead to a re-appearance of inflationary pressures, even though unemployment remains as high as ever: capitalists may reorganise their production methods and scrap equipment, eliminating excess capacity and gradually restoring utilisation to its normal level; the labour market may break up into non-competing segments, so that local shortages develop despite the overall high level of unemployment. Such a transformation of Keynesian into structural unemployment strengthens the market position of capitalists or employed workers, and leads to a more intense struggle over distribution and a faster rate of inflation, even though the overall level of unemployment has not changed. The Phillips curve associated with structural unemployment is thus above that associated with Keynesian unemployment.

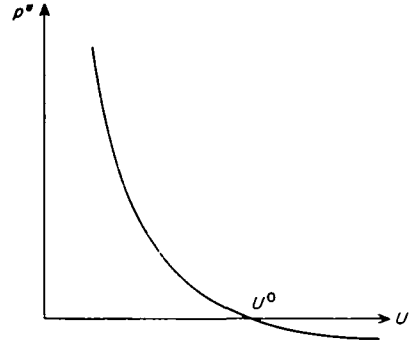


Fig. 1.

aspiration gap is zero, the total claims on private sector income are just compatible with what is available to meet them and the rate of unanticipated inflation is zero (see Fig. 1). As unemployment falls, the level of demand rises in both markets (labour and product), both wages and profits make a greater claim on real income, conflict intensifies, and unanticipated price rises begin to occur. Conversely, when unemployment rises above U^0, wages and profits claim less than the quantity available to meet them and prices rise less than anticipated, or even fall.

The position of the Phillips curve is determined by the level of taxes and import costs. When T or F is raised the curve is shifted upwards by an amount which depends on how far the burden is 'accepted' by the private sector, and how far each side obtains a compensatory increase in money income. Demand effects are thus associated with changes in U [equation (23)] and burden effects with changes in T and F [equation (19)]. The former correspond to movements along the Phillips curve, and the latter to shifts in the curve itself. Various possibilities are illustrated in Fig. 2. In the combination NOP, positive demand and burden effects reinforce each other, so that the rate of inflation rises considerably. As an example of such a combination consider the effect of a rise in taxes matched by an equal rise in government expenditure. Provided it is not counteracted by a compensatory reduction in private expenditure, this leads, via the balanced budget multiplier, to a higher level of economic activity. The rate of inflation is affected in two ways: higher taxes lead to compensatory wage and price rises (positive burden effect), and higher demand leads to more aggressive behaviour by workers and capitalists (positive demand effect).

In the combinations NOQ_1 and NOQ_2 a positive burden effect is partly or completely offset by a negative demand effect. As an example, consider the effect of a rise in taxes

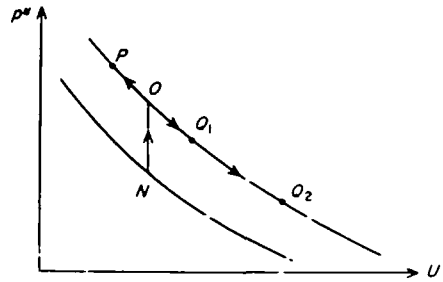


Fig. 2.

unaccompanied by any change in government expenditure. This influences the rate of inflation in two ways. It imposes a new burden on the private sector and it reduces the level of economic activity. In the normal course of events, workers and capitalists might resist this new burden and seek compensatory wage and price increases (positive burden effect). Their capacity to do so, however, is weakened by the adverse market conditions they face as a result of economic contraction (negative demand effect). The final outcome of higher taxes thus depends on which of these effects is the more powerful. The rate of unanticipated inflation may be higher, at Q_1, or lower, at Q_2.

To conclude this discussion let us consider an example drawn from the realm of foreign trade. Suppose that, as a result of an export boom, there is an improvement in the balance of trade. If no offsetting action is taken by the government, the economy may move along the Phillips curve so that inflation accelerates. This is illustrated in Fig. 3 by the movement OP. Suppose the government now decides to offset this expansion by raising taxes so that demand returns to its old level. If these taxes are accepted by the private sector, the Phillips curve is unaffected and the economy ends up back in its original position O, so that the inflationary impact of the export boom is completely neutralised. If however, they are not accepted, there is a spiral of compensatory wage and price increases in the private sector as each side seeks to shift the burden onto the other, and the rate of inflation does not return to its old level. The Phillips curve is shifted upwards and the economy ends up at the point Q. Higher taxes have eliminated the demand effect, but only to replace it by a burden effect!

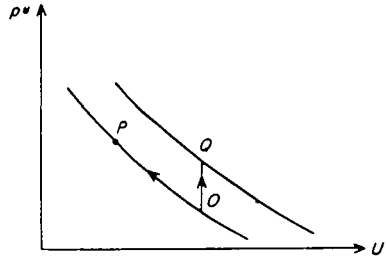


Fig. 3.

Distribution and inflation

In the present model the distribution of income is determined by conflict between the two sides in the private sector. The working class can shift distribution in its favour by fighting more vigorously for higher wages, although the cost of such militancy is a faster rate of inflation, as capitalists try, with only partial success, to protect themselves by raising prices. Likewise, capitalists can shift distribution in their favour by pursuing a more aggressive profits policy, but workers fight back, so that once again the rate of inflation rises. Thus wage militancy and an aggressive profits policy are both inflationary, but their effects on distribution are different. The former shifts distribution in favour of wages and the latter in favour of profits.

Demand can affect distribution through its influence on the extent and exercise of market power. When labour is scarce workers seek and obtain bigger wage increases which, as we have just seen, lead to a faster rate of unanticipated inflation and a larger share of wages in private sector income. Similar changes occur when capacity is more fully utilised. The target share of capitalists rises and, once again, the result is faster

inflation, although in this case distribution shifts in favour of capital and the share of wages falls. Thus, the two kinds of demand have similar effects on inflation but opposite effects on distribution. As we have already mentioned, the ideal position from a capitalist point of view is a combination of surplus labour and fully utilised capacity, which enables them to combine high profits with stable prices.

In the present model the share of taxes and import costs is exogenously determined, so that the private sector as a whole must always shoulder the given burden, and compensatory wage or price increases cannot protect both workers and capitalists, for one of them must in the end pay. Acceptance coefficients do not therefore determine how much of the given burden is borne by the private sector as a whole, but rather how this burden is shared between workers and capitalists, and what impact it has on prices. The ultimate incidence of taxes and import costs is settled dynamically by an inflationary conflict in which each side seeks to shift part or all of the burden onto the other.

Adaptation

Inflation performs a redistributive function only to the extent that it has not already been anticipated in the wage bargain. To achieve a given redistribution in favour of profits, prices must always keep a certain distance ahead of their anticipated value, which under certain conditions may be possible only at the expense of an explosive and ultimately unsustainable rate of inflation. So there are inherent limits to the effectiveness of inflation as a redistributive device. In this section we shall examine the nature of these limits and how they affect the present analysis. It is important at this stage of the argument to recall the distinction made above between expectation and anticipation. The former, it will be remembered, refers to a state of mind, whereas the latter refers to actual behaviour. For example, workers may expect prices to rise but, for a variety of reasons, may do nothing about it—they may have little faith in their own predictions, or may consider it easier to seek compensation in the future, if and when prices actually do rise. In this case the wage bargain makes no allowance for future price rises, even though they are expected to occur. Such a divorce between expectations and behaviour is most likely when prices are rising slowly, for under these conditions neither side may think it worthwhile to make specific allowance for the small price changes which are expected. Moreover, in any real situation, prices do not rise steadily, and an era of slow inflation is likely to contain short spells in which prices are stable or even falling, so that at any time no-one can be very sure that prices are going to rise in the immediate future. Thus, in an era of slow inflation, expectations about future price changes may not be held with any great certainty and, even if they are, it is not particularly important to act on them. By contrast, in an era of fast inflation, the cost of inactivity may be high and workers must do something to protect themselves against the effects of future price changes. Moreover, even though there may be uncertainty about exactly how much prices will rise, everyone can be sure they will rise by a considerable amount. Under these circumstances, wage settlements are likely to contain some provision against future inflation. In practice, this can take a variety of forms, such as tying wages to the cost of living or shortening the period covered by the wage contract, but in line with our original model we shall continue to assume that the only provision against inflation is an advance payment to workers in anticipation of future price increases.

The transition from one kind of behaviour to another may be rather abrupt. At low rates of inflation there may be little or no anticipatory behaviour, but then suddenly,

when inflation passes a certain critical point, qualitative changes may occur in the whole mechanism of wage bargaining and it may become a standard practice to make provision against future price rises. Moreover, this transition may be irreversible, so that anticipatory behaviour continues even when the rate of inflation falls again, but we shall ignore this possibility and assume that the transition is reversible.

Suppose there is a threshold p^{th} below which expected inflation is ignored completely, and above which it is fully taken into account by all concerned. Then the anticipated rate of inflation p^a is related to the *expected* rate of inflation p^e as follows,

$$\begin{aligned} p^a &= 0 \qquad && \text{for } p^e < p^{th} \\ \text{and} & && \\ p^a &= p^e \qquad && \text{for } p^e \geqq p^{th}. \end{aligned} \tag{24}$$

This is, of course, an extremely crude formalisation of a rather subtle relationship, and its faults are only too obvious: it makes no allowance for the certainty with which expectations are held, the transition from one kind of behaviour to another is too abrupt and is assumed to be reversible, and no allowance is made for anticipatory behaviour when prices are falling. Nonetheless, equation (24) captures the essence of the problem.

Since $p = \lambda A + p^a$, we obtain the following relationship between expectations and inflation,

$$\begin{aligned} p &= \lambda A \qquad && \text{for } p^e < p^{th} \\ \text{and} & && \\ p &= \lambda A + p^e \qquad && \text{for } p^e \geqq p^{th}. \end{aligned} \tag{25}$$

This still leaves open the question of how expectations are formed. The simplest assumption is that they adapt in the light of past experience, although with a certain lag. To formalise this let us use the conventional schema,

$$p^e_t - p^e_{t-1/\gamma} = \delta[p_{t-1/\gamma} - p^e_{t-1/\gamma}]. \tag{26}$$

Remember that wages and prices are adjusted γ times per year, so the above schema means that expectations change by an amount which depends upon how wrong they were on the previous occasion. Equation (26) ensures that expectations follow price movements with a lag and that, provided inflation is non-explosive, expectations are on average fulfilled. In particular, if the rate of inflation stabilises at a certain value (or fluctuates around it) then the expected rate of inflation will also stabilise at this value (or fluctuate around it).

Steady state

Provided the behaviour of A is known, then, beginning from an arbitrary starting point, equations (25) and (26) determine the behaviour of prices through time. Assume now that A is constant and let us see what happens to prices. Various possibilities are shown in Fig. 4, whose horizontal axis measures the aspiration gap, and whose vertical axis measures the actual rate of inflation. The economy can remain indefinitely anywhere on the heavily drawn curve where actual and expected inflation coincide. Below the threshold, along the lower, sloping part of this curve, expectations exert no influence on behaviour, so that inflation, although expected, is unanticipated, and wage bargaining does not adapt to take account of rising prices. For this reason inflation is able to redistribute income in favour of profits. However, along the vertical part of the curve, above

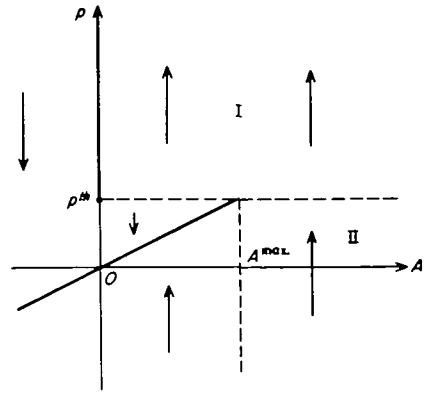


Fig. 4.

the threshold, expectations do influence behaviour and the adaptive mechanism ensures that inflation is fully taken into account in the wage bargain. As a result, inflation is fully anticipated and exercises no redistributive effect. This only occurs, of course, where the various claims on private sector income are mutually consistent, and the aspiration gap is zero.

The diagram also shows what happens when the economy begins from an arbitrary starting point. If it begins in region I, above the expectations threshold, then a positive aspiration gap, however small, leads via the adaptive mechanism to an explosive inflation; and if it begins in region II, with an initially low rate of inflation but with an intense conflict over distribution, then inflation will accelerate, and the economy will cross the threshold into region I, where the adaptive mechanism comes into play and prices explode. And, finally, if it begins outside these two regions, the economy will eventually converge to a stable rate of inflation on the sloping part of the curve. Now, no economy can withstand an explosive inflation indefinitely, so we can summarise the above discussion as follows. Inflation can only *permanently* raise profits at the expense of wages if (a) the conflict is not very great ($A<A^{max}$), and (b) the economy begins below the expectations threshold ($p<p^{th}$). If either of these conditions is not satisfied prices eventually get completely out of control and hyperinflation sets in.

The special case

To illustrate how anticipatory behaviour can affect the relationship between inflation and demand, let us consider the special case in which unemployment U is a proxy for demand in general, in which case the aspiration gap A is a function of the form $A(U,T,F)$. With given T and F, only certain combinations of unemployment and inflation can be permanently sustained, and these are shown in Fig. 5 by the heavily drawn 'long-term Phillips curve'. Mathematically they are given by

$$\lambda A(U,T,F) = p \qquad \text{for } p<p^{th}$$

and (27)

$$A(U,T,F) = 0 \qquad \text{for } p \geqq p^{th}.$$

Along the lower section of the curve expectations are fulfilled ($p^e = p$), but the wage bargain takes no account of future rises in the general price level ($p^a = 0$), so that inflation

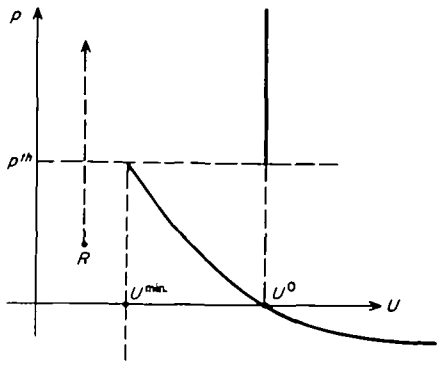


Fig. 5.

is expected but not anticipated. Over the range concerned, inflation acts as a redistributive device and there is a trade-off between inflation and unemployment. Along the vertical section of the curve expectations are again fulfilled, but this time wage bargains take full account of future price rises ($\dot{p}^a = \dot{p}$), so inflation is both expected and anticipated. The aspiration gap is zero, inflation performs no redistributive function, and there is no trade-off between unemployment and inflation. Note that the vertical section of the curve lies directly above the point where the lower section cuts the axis, and unemployment is equal to U^0. This is, of course, just the amount of unemployment required to reconcile the various claims on income and ensure that capitalist pricing policy is consistent with what has been agreed in the wage bargain.

The diagram illustrates clearly the way in which adaptive behaviour may impose severe constraints on economic policy. With given T and F it is impossible to maintain a level of unemployment less than some minimum value U^{min}. Any attempt to do so will lead to intense conflict over the distribution of income, and will eventually push the economy over the expectations threshold and initiate an explosive inflation, in which each side seeks to protect itself against future price changes. Such a situation is illustrated by the dotted line starting at the point R in Fig. 5. To stabilise the rate of inflation once the economy has passed the threshold may be very difficult, and the economy may eventually end up on the vertical section of the curve with both faster inflation and more unemployment than it had originally.

To see how the burden effect operates in a threshold model, consider what happens when there is an increase in the burden of taxes or real import costs. If the private sector does not 'accept' this additional burden the long-run Phillips curve is shifted bodily to the right, with BC going to $B'C'$ and DE going to $D'E'$ in Fig. 6. This shift may have quite dramatic affects on inflation and unemployment. Suppose the economy is initially below the expectations threshold at the point O in Fig. 6, where prices are rising steadily. When the curve shifts to the right, inflation accelerates and the economy moves to the point P. If this new position is below the threshold, the economy can remain there indefinitely, for prices are not rising fast enough to cause any fundamental change in decision-making and expectations still exert no influence on actual wages or prices. On the other hand, if P is above the threshold, expectations begin to influence wages and prices, and decision-making is radically altered. When the economy reaches P it does not stop, inflation continues to accelerate and the economy moves upward along the dotted line. But this cannot go on for ever and eventually, spontaneously or by design, the economy moves into crisis, demand falls and unemployment rises until inflation is

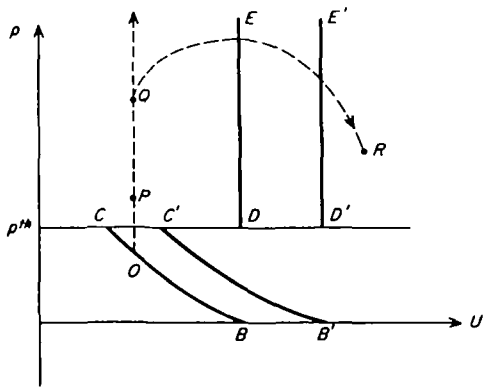


Fig. 6.

brought under control again. The economy follows a path illustrated in Fig. 6 by the broken line QR and ends up with both faster inflation and more unemployment than it had originally. In this example, a greater burden of taxes and import costs leads to a severe economic crisis because it pushes the economy over the expectations threshold and alters the way in which decisions are made. Something of the kind seems to have occurred in the advanced capitalist world during the years 1964–76. Over this period, higher taxes and, later, worse terms of trade led to a big reduction in the share of private sector output available for wages and profits. This reduction was widely resisted by capitalists and workers and the result was faster inflation as each side tried to maintain its share. Countries were pushed over the expectations threshold and inflationary expectations were built into the whole system of decision-making. Eventually there was an economic crisis characterised by a combination of high unemployment and fast inflation.†

The role of money

Within our analytical framework inflation is caused by conflict over the distribution of income, and money can influence prices only through its effect on this conflict. There is no room for a monetary theory which postulates a direct causal link from money to prices, for this would provide a second and independent explanation of inflation, in addition to the original conflict theory.

How can monetary factors influence conflict over income distribution? One obvious way is through their effect on demand. As we have previously seen, conflict depends on level of demand, so, if monetary factors can alter this level, they can influence the degree of conflict and, through it, the rate of inflation. Thus, within the present analytical framework, monetary factors may influence prices through the following causal chain:

$$\text{money} \rightarrow \text{demand} \rightarrow \text{conflict} \rightarrow \text{prices}.$$

The discussion contained in previous sections of this paper has been concerned with the middle and final links of the above chain, from demand to conflict, and from conflict to prices. Let us now extend this discussion by considering the link between money and demand.

† This crisis is discussed at greater length in my review of Ernest Mandel's *Late Capitalism* (Rowthorn, 1976).

Opinions differ widely on this subject. Some argue that money plays a purely passive role and that the private sector is never seriously affected by a shortage or surplus of money, whilst others argue that money plays a more active role and monetary factors may exert an independent influence on economic activity. In the author's opinion the latter position is correct and it is the one we shall adopt throughout this section. This view does *not* imply that money is the *only* factor which can exert an independent influence on activity. Monetary control is but one of the weapons of 'demand management'. For the moment it is considered on its own; but fiscal policy is also considered below.

The link between money and demand is in practice very complex, but the basic principle is quite simple: a change in the supply of money leads to a change in expenditure. To explore the implications of this basic principle there is no need for sophistication, so let us simplify drastically and make some assumptions which, although not very realistic, enable us to grasp the essence of the problem. Moreover, we shall only consider the special case in which the two demand variables D^{ℓ} and D^{c} can be replaced by the single proxy variable U.

Let us begin with the familiar identity

$$MV \equiv P\Upsilon \tag{28}$$

where M is the stock of money (cash plus bank deposits) held by the private sector, Υ is the gross output of this sector, P is the average price of this output, and V is the 'income velocity' of money. Expressed dynamically, this identity can be written,

$$m+v \equiv p+y \tag{29}$$

where lower case letters denote annual rates of growth.

To convert this identity into a simple causal relationship, let us make the following assumptions.

1. The velocity of money is constant, so that $v = 0$, and the stock of money held by the private sector is always equal to the supply, which is exogenously given and grows at a rate $\bar{m}$. Thus

$$y = \bar{m}-p. \tag{30}$$

2. The supply of labour to the private sector grows at an exogenously given and constant rate $\bar{q}$. Since output per worker is by assumption constant, $\bar{q}$ is also the rate at which full employment output grows (Harrod's 'natural' rate of growth). Let E be the proportion of the private sector labour force which is currently employed $(= 1-V)$. Then it is easy to show that

$$e = y-\bar{q} \tag{31}$$

where e is the growth rate of E.†

Bringing together (30) and (31) we get

$$e = \bar{m}-\bar{q}-p. \tag{32}$$

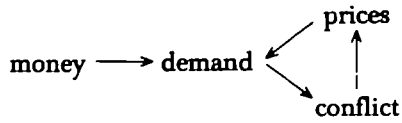
where causality runs from $\bar{m}$ to e. A more plentiful supply of money means a higher value of $\bar{m}$, which, other things being equal, means a higher e and a faster growth of employment. Conversely, a less plentiful supply of money means a lower value of $\bar{m}$ and a slower growth of employment.

† If Q is full employment output, then, since productivity is independent of the level of employment, $\Upsilon = EQ$. In growth rate form this can be written $y = e+\bar{q}$.

Equation (32) may be written in the following alternative form.

$$e = p^{\bar{m}} - p \tag{33}$$

where $p^{\bar{m}} = \bar{m} - \bar{q}$. We shall refer to $p^{\bar{m}}$ as the *inflation ceiling*. It is positive when the supply of money is growing faster than full employment output and is negative when the opposite is true. From equation (33) it follows that $e<0$ when $p>p^{\bar{m}}$. This means that when the economy is above the inflation ceiling, as determined by monetary factors, employment grows more slowly than the supply of labour and unemployment U rises. Conversely, $e>0$ when $p<p^{\bar{m}}$, and thus, when the economy is below the inflation ceiling, private sector employment grows more rapidly than the available labour supply and unemployment falls.† So there is a feedback from prices to demand: unemployment rises when the economy is above the inflation ceiling and falls when it is below this ceiling. Prices are in their turn influenced by demand, through its effect on conflict in the private sector, so that the complete system of causality can be described by means of the following diagram:



Every link in this diagram is fully specified; thus, starting from an arbitrary initial position, the behaviour of demand, conflict and prices is determined *ceteris paribus* by what happens to the money supply.‡ If this supply is under government control, it can thus be used to influence the evolution of output and prices.

Using the simple monetary theory just described, let us now analyse the long-term effects of monetary policy. The discussion will rely mainly on the method of comparative statics and the dynamic properties of the system will be described in a rather impressionistic fashion.

Steady state

Let us say that the economy is in a 'steady state' if both the rate of unemployment U and the rate of inflation p are constant. Suppose, for the moment, that there is a given long-run Phillips curve and that the supply of money grows at a constant rate $\bar{m}$. Then there is a unique steady state solution, situated where the Phillips curve intersects the line $p = p^{\bar{m}}$. Two cases can be distinguished. If the inflation ceiling $p^{\bar{m}}$ is below the expectations threshold p^{th}, the intersection point Q is on the sloping part of the Phillips curve [see Fig. 7(a)]. Along this part of the curve, a higher value of $\bar{m}$, and thus of $p^{\bar{m}}$, is associated with a lower value of U. Within limits, therefore, a more plentiful supply of money is associated with a higher level of economic activity. But this is only true as long as the economy remains below the expectations threshold and thus on the sloping part of the

† The inflation ceiling and the expectations threshold coincide when $p^{\bar{m}} = p^{th}$. This happens when $\bar{m} = m^{th}$, where

$$m^{th} = p^{th} + \bar{q}.$$

So $p^{\bar{m}} \gtreqless p^{th}$ according as $\bar{m} \gtreqless m^{th}$.

‡ This statement assumes that the following items are given: the tax rate, the terms of trade, the mechanism by which expectations are determined, and the functional form of $\lambda A(U, TF)$.

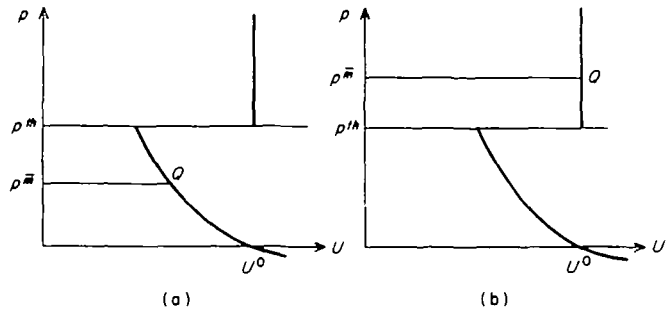


Fig. 7.

curve. When $\bar{m}$ reaches a certain value, $p^{\bar{m}}$ crosses the threshold p^{th}, and expectations begin to influence decision-making. This causes the point of intersection to shift sharply to the right, to a point on the vertical part of the Phillips curve [see Fig. 7(b)]. Thus a more plentiful supply of money, which pushes inflation over the threshold p^{th}, leads eventually to more unemployment than a less plentiful supply, which keeps inflation below this threshold.

Structural shifts

The discussion so far has assumed a given long-run Phillips curve. Now, as we have seen earlier, there are many different factors which may cause this curve to shift. Higher taxes, worse terms of trade, greater working-class militancy, or a capitalist drive for higher profits may shift it to the right; and, conversely, lower taxes, better terms of trade, or an incomes policy may shift it to the left. Let us consider how these shifts affect prices and employment, assuming that official monetary policy prevents any change in the rate $\bar{m}$ at which the supply of money is growing. Because the money supply continues to grow at its old rate, the inflation ceiling $p^{\bar{m}}$ remains unchanged and there is no permanent change in the actual rate of inflation. Thus the economy will settle down with a different amount of unemployment, but with prices rising at the same rate as before. Two possible cases can be distinguished, and are illustrated in Figs 8(a) and 8(b): in the former, the economy is below the expectations threshold and in the latter it is above. Suppose the economy is initially at the point Q_1 and the curve is shifted to the right. The intersection point shifts to the point Q_2 where p is the same as before and U is higher.

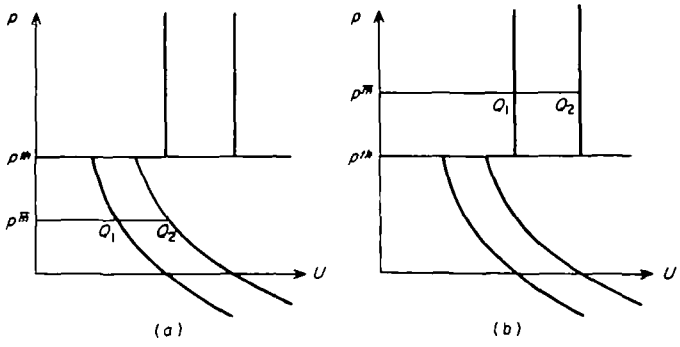


Fig. 8.

This has an intuitive meaning which can best be understood by means of an example.

Suppose the terms of trade deteriorate and neither side, capitalists or workers, is prepared to accept the additional burden of higher import costs. In the normal course of events, this would lead to faster inflation, as each side tried to pass the burden onto the other, but official monetary policy prevents such an outcome. By refusing to provide the additional money required for faster inflation, it reduces the level of real expenditure, forcing down the level of activity and undermining the market position of the contending parties. The system stabilises when workers and/or capitalists have become so weak that they can no longer resist the additional burden and are unable to gain compensatory increases in their money incomes. Thus, through its influence on demand, a tight monetary policy exerts a discipline on the private sector and contains the inflationary impact of worse terms of trade.

Conversely, suppose the economy is at Q_2 and the curve shifts to the left. The new intersection point is at Q_1, where prices are rising at the same rate as before but unemployment is lower than it was originally. To take an example, consider the effect of an incomes policy. In the normal course of events this might reduce the rate of inflation, but suppose official monetary policy ensures that prices continue to rise at their old rate $p^{\bar{m}}$. It does this by causing the level of activity to rise, which has the effect of weakening market discipline on the private sector. Then, on the one hand, incomes policy imposes a new institutional discipline on the private sector, but on the other hand official monetary policy leads to a reduction in market discipline. Between them, these two changes cancel out and there is no net change in the degree of discipline under which the private sector operates: the indirect discipline of demand is partially replaced by the direct discipline of an incomes policy, but that is all. The aspiration gap remains unchanged, conflict continues as before, and the rate of inflation remains at its old level. The only permanent change is a rise in the level of economic activity. Thus, a liberal monetary policy which stimulates demand may convert the price effects of an incomes policy into quantity effects, so that the system operates with less unemployment but the same rate of inflation as before.

Monetary and fiscal policies

Let us now consider the joint operation of monetary and fiscal policies. Compare the effects of two distinct fiscal policies, of which each assumes that savings and investment propensities remain constant in the non-governmental sector, and each is *designed* to produce a given rise in economic activity. 'Fiscal policy I' cuts taxes but leaves government expenditure unchanged, and 'fiscal policy II' raises taxes and government expenditure by an equal amount.

Consider first of all an economy in equilibrium below the expectations threshold. In Fig. 9(a) this is shown by the point Q. Suppose that official monetary policy keeps the money supply growing at a steady rate $\bar{m}$, which is set independently of the particular fiscal policy chosen. Then eventually the rate of inflation must return to its original value $p^{\bar{m}}$. Fiscal policy I reduces the burden of taxes on the private sector and shifts the Phillips curve to the left. This is its 'negative burden effect'. If savings and investment propensities remained constant, fiscal policy I would reduce unemployment by a given amount and the economy would move to the point R_1. But such a move might require a rate of monetary expansion greater than that permitted by official policy, in which case the economy would be forced to converge to another point Q_1, to the right of R_1. The path it would take is shown by the broken line in Fig. 9(a). In this case a tight monetary policy

partially offsets the expansionary effect of fiscal policy. It drives up the rate of interest, and thereby alters the savings and investment propensities of the non-governmental sector (domestic and foreign).

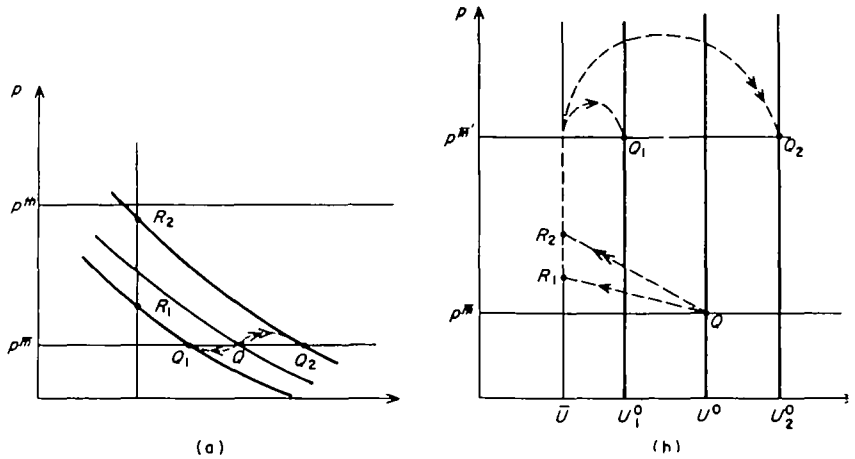


Fig. 9.

Fiscal policy II, which implies a greater tax burden, may shift the Phillips curve to the right. This is its 'positive burden effect'. As before, if there were no monetary constraint on expansion, savings and investment propensities would not change and the economy would end up at a point R_2. But the government refuses to create the additional money such a move would require, so instead the economy converges to a new point Q_2, where prices are rising at their long-term rate $\dot{p}^{\bar{m}}$. In this case monetary policy not only works against fiscal policy, but actually reverses its effect, so that the economy ends up with more rather than less unemployment! Because of the 'burden effect', which shifts the Phillips curve to the right, the 'balanced budget multiplier' is negative!

Let us now consider a rather different situation, in which the economy starts off well above the expectations threshold, at a point Q on the vertical section of the Phillips curve. This is shown in Fig. 9(b). For clarity the diagram omits the sloping part of the Phillips curve which lies below the expectations threshold. Fiscal policy I, because it reduces the tax burden on the private sector, may shift the Phillips curve to the left and reduce the sustainable rate of unemployment to some new value U_1^0; and fiscal policy II, because it raises taxes, may shift this curve to the right and raise the sustainable rate of unemployment to new value U_2^0.

Consider fiscal policy I. Suppose that, at first, the government creates sufficient money to ensure that this policy achieves its intended effect, and unemployment falls to the desired level $\bar{U}$. This takes the economy to a point R_1 in Fig. 9(b). Now, it may happen that $\bar{U}$ is less than U_1, in which case there is a positive aspiration gap and inflation begins to accelerate as each side tries to shift the tax burden onto the other. The economy moves up the vertical line through R_1 and prices rise even faster. To accommodate this accelerating inflation the government must allow the money supply to increase at an even faster rate. But this will eventually lead to hyperinflation, so after a time the government may adopt a less permissive attitude towards the creation of money and impose a definite limit on monetary expansion. Suppose the supply of money grows at a

new and constant rate $\bar{m}'$. This determines a new inflation ceiling $\dot{p}^{\bar{m}'}$, above which unemployment rises and below which it falls. When the economy breaks through this ceiling, unemployment begins to rise and inflation is gradually brought under control by falling demand. Eventually, the economy will converge to a new position Q_1 on the vertical section of the Phillips curve corresponding to fiscal policy I. In this example, monetary policy weakens the expansionary impact of fiscal policy, by making the non-governmental sector save more or invest less.

Fiscal policy II is also designed to reduce unemployment to the lower level $\bar{U}$, and if this policy is successful the economy will move to the point R_2 in Fig. 9(b). As in the previous example, this shift can only occur if the government creates the required amount of money, and inflation will continue to accelerate so long as unemployment remains at $\bar{U}$. Once again, suppose that the government finally decides to curb prices by fixing a new rate $\bar{m}'$ of monetary expansion. Then inflation will eventually stabilise at the rate $\dot{p}^{\bar{m}'}$ and the economy will converge to a point Q_2 on the Phillips curve corresponding to fiscal policy II. In this example, monetary policy reverses the effect of fiscal policy, so that the economy ends up with more unemployment than it had originally.

Note that, above the expectations threshold, the final level of unemployment does not depend on the exact value of $\dot{p}^{\bar{m}'}$. Above this threshold, any monetary policy which stabilises the inflation rate will bring the economy back to the long-run Phillips curve and produce the same effect on demand. Indeed, the cost of keeping unemployment below the sustainable level is hyperinflation, and monetary policy forces the economy back to a sustainable position, not because it stabilises the inflation rate at any particular level, but because it prevents an indefinite acceleration.

The counterproductive effect of fiscal policy II may seem strange, but it derives from the burden effect of increased taxation. The Phillips curve shifts to the right because capitalists and workers resist additional taxes, and seek compensatory wage and price increases. Monetary policy overcomes or weakens this resistance by creating a greater margin of excess labour or capacity. The extent to which demand must be reduced depends, of course, on the response of the private sector to higher taxes, and this in turn depends on how taxes are used. If they are spent on items of immediate use, such as housing or roads, they are more likely to be acceptable than if they are spent on administration or armaments, whose benefits are at best indirect and may even be negative to some sections of the population.† For this reason, armaments may be a more inflationary form of expenditure than social services, for the former involve a reduction in living standards or in the resources available for investment, whereas the latter may be of direct benefit to those who pay the taxes.‡

Comparison with monetarism

Superficially, the present analysis looks rather like that of the 'monetarists'. The money

† These observations on government expenditure have a counterpart in the Marxist literature on productive and unproductive labour. Certain costs of production, which were previously paid directly by the capitalist class, may be 'socialised' and provided by the state. Amongst these are technical education, health services for employed workers and their dependents, roads, etc. Such 'indirectly productive' expenditures are often considered by Marxists to be less inflationary than 'unproductive' state expenditures.

‡ This is not a hard-and-fast rule. Social services often involve a transfer element and the beneficiaries are not always those who provide the finance. Strongly organised workers, for example, may be taxed to support underprivileged sections of the society, such as single parent families or the chronically unemployed. Such taxes may meet with more resistance from right-wing trade unionists than taxes to support a military or imperialist programme with which they agree. In this case social service expenditure will be more inflationary than armaments expenditure.

supply, through its effect on expenditure, influences demand, and demand influences prices. Moreover, the mechanism of adaptive expectations ensures that the scope for demand management is limited by the possibility of explosive inflation. But this is as far as the similarity goes. The two approaches are based on different theories of wages and prices, and yield different practical implications.

As a body of doctrine, 'monetarism' should really be called '*neoclassical* monetarism', for it is based on the assumption that capitalism still functions in a largely atomistic fashion: unions and firms are small by comparison with the whole economy; each union or firm acts independently of the others, making no attempt to act in co-operation with others or to imitate their behaviour. Moreover, unions and firms are assumed to act as calculating individuals, seeking to gain maximum advantage for themselves or their members, uninfluenced by political or ideological factors. Given these assumptions, it follows that organised power plays at most a secondary role in determining wages and prices, and politics and ideology are quite simply irrelevant. Wage and price movements are determined largely by the atomistic process of supply and demand, with monopolies and unions exercising a marginal influence on their overall movement.

The atomistic nature of conventional theory can be seen most clearly in the labour market. Wages rise primarily because they are bid up by employers seeking to attract new workers and to retain their existing work-force, and unions can have little effect on the overall wage level, although by restricting entry they can alter the pattern of differentials. This theory has several important implications for anti-inflationary policy. The trade-off between unanticipated inflation and unemployment can be best altered by measures which reduce the need for employers to bid up wages. Of these the most important are those which (1) reduce the turnover of labour and (2) reduce the length of time spent by the unemployed searching for an acceptable job. Incomes policies and changes in the terms of trade or taxation are of secondary importance in this theory because they cannot significantly shift the trade-off curve. This surprising conclusion about taxes and the terms of trade follows from the assumption that the economy consists of 'rationally' calculating units, isolated from each other and acting independently. In such an economy, under given demand conditions, individual units are relatively powerless and an additional terms-of-trade or tax burden will not lead to a continuous inflationary spiral. At most there will be a once-and-for-all rise in wages or prices, as the burden is redistributed and a new set of marginal equalities is established.

Both the assumptions and conclusions of the present analysis are quite different from those just described. Power plays a central role in the determination of wages and prices. Individual units are not isolated from each other, as in conventional monetarism, but act in an interdependent fashion. This interdependence may be explicit, as in the case of a nationwide strike by millions of workers or an explicit price agreement between a number of large firms, or else it may be implicit, as in the case of a series of imitative strikes or price increases. Moreover, political and ideological factors are extremely important. For example, capitalists may combine to restrain (or raise) prices to achieve some political objective, or workers may accept taxes for ends which they think are legitimate. The model is not, however, of the 'old' cost-push variety, because it recognises that the exercise of power is conditioned by demand, and it postulates a trade-off between demand and unanticipated inflation. Like the cost-push models, however, it assumes that inflation can be affected by such things as the terms of trade, taxes or incomes policy, which can shift the trade-off curve up or down.

The contrasts and similarities of the two approaches are particularly clear if one considers what happens to the level of unemployment when the mechanism of adaptive expectations is in operation. Both theories predict that the rate of inflation can only be stabilised permanently at a unique level of unemployment U^0, determined by the position of the short-run trade-off curve. In conventional monetarism U^0 is the 'natural' rate of unemployment, which is primarily determined by the competitive and informational structure of the labour market. Trade unions can alter the natural rate, but only through their influence on information and job mobility, not through their combativity and fighting strength. Likewise, the influence of monopolies is marginal and they cannot significantly affect the natural rate by following an aggressive pricing policy. In the present theory, however, U^0 is the level of unemployment at which the claims of the rival parties become mutually consistent. Demand functions as a regulator of class conflict. On the workers' side a low level of demand isolates militants from the mass of workers and strengthens the hand of 'moderate' leaders against dissenting elements. On the employers' side it reduces their ability to raise prices and may force them to revise downwards their target profit margins. So demand exerts a *discipline* which undermines the power of organised labour and big capital, and prevents them pressing home their rival claims. If the two sides are really powerful and determined it may require a severe economic crisis to bring prices under control, resulting in huge surpluses of labour and capacity. In the longer run, however, capitalists can escape from this situation by scrapping equipment and rationalising their production methods so that excess capacity is eventually eliminated. This throws the full cost of adjustment onto the working class, and involves the creation of a permanent reserve of unemployed labour, sufficiently large to cow workers into submission and force them both to accept the burden of taxes and import costs, and provide a substantial surplus for profits. The required amount of unemployment may be much higher than the frictional rate envisaged by the monetarists.

Concluding comments

To conclude this paper, let me stress once again some of the limitations of the foregoing analysis. Firstly, in assuming that techniques and output per worker remain constant, it ignores the effect of changing production on the movement of prices. This is clearly a serious weakness, some of whose implications are considered briefly in an appendix. Secondly, it assumes that official monetary policy has a simple and unambiguous effect on expenditure, and that demand exercises a direct influence on the market power of workers and capitalists, and thus upon their ability to raise wages and prices. In reality, of course, things are neither so simple nor so direct. Indeed, under certain circumstances monetary policy may be completely frustrated by changes in the velocity of money, and the behaviour of wages and prices may be quite unaffected by variations in demand. However, in my opinion, these are rather exceptional circumstances. In general, monetary policy does influence expenditure and demand does influence wages and prices, although rarely in quite the simple fashion which has been assumed for analytical purposes.

Appendix

This appendix discusses how the preceding analysis might be modified or extended.

Production

Throughout this paper, production is hardly mentioned; it leads a subterranean existence, influencing some of the variables but receiving no explicit recognition. For example, the relationship

between the demand variables D^l and D^c depends very much on the production techniques used, and may be radically altered by the reorganisation of production and the introduction of labour-saving techniques. Indeed, the historic problem of late 20th-century capitalism is how to recreate the internal reserve of labour (low D^l) whilst maintaining a high degree of capacity utilisation (high D^c). To make specific provision for this aspect of production would not require any change in the basic equations of this article, and it would complement rather than modify the present analysis.

Production may also influence inflation through its effect on productivity and the rate at which living standards rise. Workers may be prepared to trade a lower share of output in return for a faster rise in real wages. In this case a faster rate of productivity growth leads to a reduction in working-class militancy, a smaller aspiration gap and slower inflation. Alternatively, the wage bargain may be based on *expected* productivity growth in the future, in which case capitalists can increase profits by raising productivity more than the anticipated amount. This reduces their need for higher prices and may thereby slow down the inflationary process. Naturally, if wage bargains adapt in the light of experience, this anti-inflationary aspect of productivity growth will soon disappear, bargaining will adapt to faster productivity growth and wages will rise to allow for it. Thus higher productivity can reduce the rate of inflation (a) if it has not already been anticipated in the wage bargain, or (b) if it makes workers less militant by providing them with a higher standard of living.

Exchange rates

Exchange rates were assumed to adjust automatically so as to insulate the economy against changes in the general level of world prices. This assumption can be modified by reducing exchange rate flexibility, so that a rise in the general level of world prices leads to a rise in domestic prices, even when there is no change in the terms of trade.

The terms of trade

The terms of trade were taken in our analysis as exogenously given, and thus unaffected by changes in the level of domestic demand. This may be an adequate assumption in the case of a small economy which must take world prices as given, but it is hardly adequate if one is considering a large country, like the United States, whose internal state of demand exerts a major influence on the terms of trade; nor is it adequate if one is considering inflation in the world economy as a whole. To allow for this kind of interdependence the analysis can be modified as follows. Suppose trade takes place between two countries or blocs, one of which produces services and manufactured goods and the other primary products, and that the terms of trade are determined by the state of demand in the primary producing sector, which is measured by an index of capacity utilisation D^f. Then the real cost of imports F is a function of D^f given by

$$F = F(D^f). \tag{A1}$$

Combining this with our earlier analysis we find that inflation in the advanced industrial country or bloc is determined by four variables: D^c, D^l, D^f and T,

$$\begin{aligned} p^* &= \lambda[\Pi^*(D^c) + W^*(D^l) + F(D^f) + T] \\ &= \lambda A(D^c, D^l, D^f, T). \end{aligned} \tag{A2}$$

It is beyond the scope of this paper to discuss the details or implications of this modification, but one comment is worth making.

In the course of a cycle all three demand variables move up or down together, and as a result the distinction between demand and burden effects becomes more subtle. Consider, for example, a boom in the world economy. This leads to a universally higher level of demand, so that D^c, D^l and D^f all rise. This has a direct impact on the rate of inflation in the advanced countries because it strengthens the market position of capitalists and workers in these countries (higher D^c, D^l), and it has an indirect impact on the rate of inflation because it makes the terms of trade worse (higher D^f) and raises the real burden of import costs which must be borne by the private sector. The former, direct, impact is what we have called a 'demand effect' in our earlier analysis, and the latter is what we have called a 'burden effect'. Thus, through its influence on the terms of trade with primary producers, a change in domestic demand has an indirect burden effect in the

industrial countries. This indirect burden effect depends, of course, on how the private sector responds to changes in the terms of trade. If it is prepared to absorb higher real import costs, the indirect burden effect will be zero, but if it is not prepared to absorb these costs this indirect effect may be substantial.

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