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ECONOMISTS AND INFLATION

Inaugural Lecture of the
Professor of Applied Economics, delivered at the
University College of Swansea on March 13, 1973

by

PROFESSOR M. J. ARTIS, B.A.

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Introduction

When my distinguished colleague and Head of the Department of Economics, Professor Nevin, gave his inaugural lecture, he entitled it "Waiting for Godot." What he had in mind at the time can no doubt best be understood by reading his text ; but I am somewhat struck by the portentous coincidence of the title of his lecture and my own timely presence here tonight. Plays without ends are endlessly irritating, and so, although I have no ambitions to act the title role in the sequel of any play, I can perhaps turn the coincidence to good account if I say that it adds to my pleasure in having been appointed to the Chair of Applied Economics at the University College of Swansea. I earnestly hope that this feeling is, and will be, shared by those who consume my services.

I pondered for some time upon the appropriate title and content of this lecture. For whether or not the respective designation of Professor Nevin's Chair in Economics and of mine in Applied Economics is designed to imply that Professor Nevin's economics have no application, it is certainly clear that mine must have ; and the field of application of economics is very wide indeed. The main alternatives seemed to be either to provide some general account of what economics is about and show how its general principles can be applied, or to deal with a specific topic which would, by implication, help to define these matters.

In the end I chose the latter course, partly because economics is so difficult to define in general terms. It helps to avoid this problem if one adopts the maxim that 'economics is what economists do' (that is, when they are, so to speak, 'on duty'). As economists, even when 'on duty,' do many things, following this maxim still left me with what is known in the jargon as 'a choice problem.' I did, however, decide that inflation would make a good subject.

The most obvious positive reason for this choice of subject is quite simply its importance, and the fact that it falls at least in part within the sphere of economic analysis. I add immediately, though, that from other points of view the selection of this particular subject is hardly automatic. For example, there is clearly room for argument about the *extent to which* (not, in my opinion, *whether*) inflation, either in its causes, effects or cures, is an economic as opposed to a social and political problem. It is also argued that it is in this very area that economics, and especially applied economics, has suffered its greatest setback in recent years. Parallels have been drawn between the confusion of the profession over the question of unemployment in the 1930s and comparable confusion now over the question of inflation ; and any such parallel naturally leads to the suggestion that we need 'another Keynes.'

These parallels and their extension strike me as somewhat too lurid. In the first place, there is a substantial agreement among economists about the effects of inflation, which is not an unimportant matter ; whilst in the second place, I think it is clearly not the case that economists are bereft of ideas about the causes of (and cures for) inflation. Rather, a number of alternative explanations are now on offer, and these ideas are attracting serious research effort, and have already contributed something towards an understanding of the inflationary process.

In the course of this lecture I hope to be able to explain the nature of the setback to empirical economics provided by recent inflationary experience and the ways in which economists have set about the task of reconstructing their analysis and the applications of economic principles involved. Secondly, as economists show a surprising measure of agreement about the effects of inflation, the general tenor of which is somewhat at variance with general views, I shall also try to say something on this question. Finally, as the question of remedies for inflation and in particular of incomes policy is an urgent topic of

the day, I shall try to say what it is that economists have been able to establish on this question.

I must add one additional point ; although I have entitled this lecture 'Economists and inflation' I have not intended to imply thereby that I would indulge in the so-called 'gladiatorial approach' to the truth. It is not a matter of identifying 'schools' of economists with particular views and pointing out the finer points of their sword-play ; for it is quite likely that as our understanding develops, it will do so by drawing upon elements in quite diverse sets of views.

The current inflation

In the mid-1960s, it seemed that empirical economics had established certain characteristics of the inflationary process which, though not universally accepted and which, more certainly, were subject to alternative interpretations, nevertheless commanded a wide consensus.

First, it seemed to have been shown, fairly conclusively, that in general, prices, or at any rate the prices of manufactured goods, were not subject to any substantial extent to the direct influence of demand. Other things being equal, variations in demand led to variations in output, the level of capacity utilization, the length of order books and delivery dates and employment, but not to any direct variation in prices. On the other hand, prices did respond to changes in costs—in particular to changes in the costs of imported raw materials, indirect taxes and wage costs per unit of output. It was shown, moreover, that the adjustment of prices to changes in unit wage costs was not immediate and did not track the cyclical movement of productivity closely. Rather, the evidence suggested that prices were set on the basis of long run productivity and unit cost trends, something which simultaneously helped to explain the procyclical variations in the share of profits and the corresponding countercyclical behaviour of employment income shares.

So, although direct demand influences on prices did not seem very important, an indirect route whereby demand influences might prove significant was left open, to the extent that it could be shown that elements of the cost calculus underlying price-setting behaviour should themselves prove to vary with the state of demand. This side of the inflationary process, the price-setting behaviour of firms, seems to have been quite widely accepted and indeed has not been significantly undermined by more recent research work, so that it remains one of the constants in the economic approach to inflation.

The second strand in the received view of the inflationary process was, however, never so widely accepted. This second strand was provided by the work of Professor Phillips, whose research provided economics with the Phillips curve. Phillips showed that over long periods of time the rate of change of wage rates was quite closely linked with the level of unemployment. Later refinements of this relationship retained this essential link but added additional factors, including most typically the recent rate of rise of prices. In this way, as demand variations apparently were reflected first in variations in output and employment, and hence in unemployment, and as unemployment in turn was linked to the rate of wage increase which in turn affected unit wage costs and hence prices, a powerful—albeit indirect—link was established between the state of demand and the rate of price inflation. It was also to be taken as read that insofar as world demand affected the level of prices of imported raw materials, then world demand would affect domestic prices via the ' cost plus ' price-setting behaviour of industry.

So granted any level of indirect taxes, import prices and a productivity trend, the rate of domestic price inflation could be directly related to unemployment. The higher was unemployment, other things being equal, the lower the rate of price inflation. In this reduced form these discoveries of empirical economics entered the textbooks

on public policy, where they fitted neatly into the framework of public policy choice. Governments, in aiming for low unemployment ran a risk of high inflation ; in aiming for low inflation they risked high unemployment. Nor was it merely matter for the textbooks ; in refined—and, some would say, not-so-refined—forms it also affected actual government policy.

It was hardly surprising, then, that the combination of high and rising enemployment with high and rising price inflation which emerged clearly from 1969 on, should have put the cat among the pigeons in so many quarters, not restricted to the writers of obsolete textbooks.

The problem did not seem to lie with the received view of price-setting behaviour, but with the Phillips curve. Equations of this type produced ludicrously large errors in predicting the rate of wage inflation in 1970 ; of the actual rate of rise in wages in that year, according to definition, of between 12½—13½ per cent, these relationships succeeding in explaining only about one half ; and subsequent experience showed that so far from constituting an isolated ' outrider ' observation, similar errors were to be repeated in 1971 and 1972. This is the content of the claim noted earlier that the recent inflation has, among its other achievements, set back empirical economics. This destruction of intellectual capital has not, one notes, been listed by economists as a cost of inflation. This is presumably a reflection of their regard for higher matters, rather than a result of mis-placed enthusiasm for the employment-creating effects of the need to replace a depreciated asset.

However, the activity produced by this latter exercise is certainly considerable, and I want now to indicate what kind of work is being undertaken. I think it is fair to say that there are three main lines of argument receiving attention. Of these, one at least is fairly generally accepted. This is that in previous analysis of price inflation inadequate attention was paid to the fact that the UK is a small open economy in a world system which has

also, as it happens, been suffering from an inflationary condition. A second line of argument stresses the extent to which inflation hangs by its own bootstraps ; that is, inflation is brought about by reason of being expected. A third line of argument, which contains numerous sub-species, might be summarized as stressing the role of social conflict and union militancy. This third line of argument most clearly makes inflation an 'only partly' economic problem and there are interesting parallels here between a debate in empirical economics in which one side leans towards what might best be described as a political economy approach and a debate which is currently being conducted at a theoretical level in which, again, one side leans heavily in the direction of the methods of political economy, and explicitly Marxist approaches.

The open economy

Turning to the first line of argument I have mentioned, it certainly seems that the recent inflation has prompted a clearer realization of what it means to live in a comparatively small open economy, that is an economy which trades extensively with other countries, where trade is important in relation to total economic activity, though not itself dominant in relation to the world total of trade. It had of course, long been recognized that import prices were important ; this was clearly understood in the standard explanation of price setting behaviour as I have already indicated. From this source alone, it can be estimated that over the years from 1967 to 1972, consumer prices would have risen by something like 1 per cent per annum. (And it is certainly significant that together with increases in indirect taxes, import prices accounted for well over half of the admittedly modest, by present standards, 4 to 5 per cent rates of increase in consumer prices in 1968 and 1969).

But there is something more to be said. Rising world prices permit rising export prices and rising export prices permit increased profits in export industries, which in

turn permit rising money wages. The same thing applies to import-competing industries, and in both cases the wage increases so generated are likely to be transmitted throughout the rest of the economy by the application, through persuasion or otherwise, of well-worn comparability principles. This effect is to be added to the direct rise in prices brought about by increased import costs and any further wage pressure so stimulated.

In this way, a world inflation is likely to be transmitted to the domestic economy. The resultant domestic price inflation may indeed exceed the world inflation if the productivity performance of the sheltered sectors of the economy is inferior to that of the sectors engaged in the open sector. Thus, the fact that there has been a significant world inflation in recent years is a factor of considerable relevance to our own experience.

It is, however, clearly not the case that the world inflation accounts, by itself, for the scale of inflation which we have recently experienced. Nor has research yet established the detail of the mechanism that link world inflation to our own.

Expectations

The apparent collapse of the empirical Phillips curve has prompted re-evaluations of several kinds. It is possible, for example, to argue that the Phillips relationship should be re-evaluated in terms of a mechanism which helps to explain the excess or deficiency of domestic inflation above or below the trend of world inflation. More radical suggestions have stemmed from the idea that inflationary *expectations* themselves contribute to the inflation process. Thus, the mistake committed in the use of the simple Phillips curve lies in ignoring expectations, or effectively assuming them to be constant. This assumption may have been reasonable in past periods and would account for the observations which enabled Phillips and those who worked on the subject after him to discern a stable statistical relationship between the

level of unemployment and the rate of change of money wages.

The positive suggestion is that wage bargaining is conducted with the determination of the *real wage*, i.e. the money wage after allowing for changes in the price level, in view. The higher the price rises expected by workers the stronger their bid for money wage increases ; and the faster the general rate of rise of prices expected by employers the more easily will they concede rising money wage claims. Thus, as expectations of rising inflation take hold, the relationship between unemployment and money wage increases will tend to move so that the same level of unemployment will now be associated with a higher wage rate increase than before. As this will feed through into prices eventually, it is more than likely that the original inflationary expectations will be substantiated ; in fact, these expectations are likely to get stronger, so setting the scene for another shift in the Phillips curve. And so, quite possibly, *ad infinitum.*

The extreme version of this radical 'amendment' to the Phillips curve effectively removes the curve altogether: governments, in the long run, may no longer have a choice to make between a bit more unemployment and a bit less inflation. More realistically, they may have a more favourable choice between these two goals in the short run than they have in the longer run.

An important difficulty with this approach lies in its empirical implementation. How do we know what expectations are ? And if we don't know what they are, are we not in danger of making the theory compatible with any (or almost any) set of observations by tautologically asserting that expectations "must have been" such as to bring about the situation actually observed ? Empirical economists have fallen back on the appealing, if not wholly convincing idea, that in forming their ideas of what will happen in the future people rely exclusively on their experience of the past. If so, then it is possible to see that the combination of high inflation and unemployment

can easily come about. For example, if unemployment first falls, in association with a rise in the rate of wage and price inflation, expectations of further price rises will be stimulated, and these may be quite sufficient to sustain further wage and price rises even as unemployment subsequently increases. This kind of approach has been statistically estimated, by myself and others for the U.K., and it does not seem to provide any kind of answer to the problem raised by the explosion of wages in 1970 or subsequent years. The difficulty is that there is no reason to think that people form their expectations of future price rises solely on the basis of their recent inflation experience. Those expectations may be formed quite independently, for example in response to devaluation.

Thus, although the "expectations" approach has considerable theoretical appeal, at the level of application it has the great weakness that independent information on expectations is not generally available. A possible line of approach, however, is to use the information contained in survey data as, for example, those collected by market research organizations.

Despite difficulty in its empirical implementation, and despite the fact than on any plausible account of expectations it does not seem that the wage explosion of 1969/70 could be predicted, this approach has clearly much to offer. Expectations on inflation clearly are formed, and do influence the resultant actual inflation.

Militancy

A quite different approach is represented by those who stress the role of trade union militancy. The Phillips curve was a statistical, empirical relationship and one which did not, in principle, commit an economist to any particular interpretation of the forces underlying the observations summed up in the curve.

Several such interpretations were in fact offered, some of which did indeed appear to ignore the presence of trade unions, but some of which did not. Nevertheless, whilst

the Phillips curve, and its expectations-amended version can be interpreted in terms of a bargaining model, the role of union militancy on such interpretations is primarily that of a reflective influence. Manifestations of militancy are the surface show of underlying economic forces rather than the autonomous driving force of the wage-price process. Some effort was indeed expended, with varying success, on an attempt to incorporate autonomous variations in union militancy along with the Phillips curve, and these efforts have recently been redoubled. But, like the attempt to incorporate the expectations amendment, a basic problem has proved to be the representation of union militancy. The most typical measures used have been the rate of change of union membership and the frequency of strikes. It is not clear that either of these measures is very satisfactory, the first because its connection with militancy *per se* is somewhat tenuous, the second because strikes themselves have in part an economic explanation and may in principle testify as much to employer as to worker militancy. To a degree this kind of approach partakes of the Phillips approach, and merges with it as further amendment.

There has always been, however, a stronger movement of dissent from the Phillips approach—one which sees inflation as the outcome of a struggle by various groups in society to claim shares in total output, the sum of which exceeds what is available. On this view, indeed, it is arguable that a modicum of inflation at least acts as a palliative ; it disguises the irreconcileability of the claims and permits the participants each to feel more satisfied than they should about the outcome of their own struggle. When this illusion is stripped away, of course, the struggle over the distribution of income becomes more naked and is more bitter. This view clearly envisages the possibility that the actual inflation rate is indeterminate ; and dispenses with the suggestion that variations in demand will necessarily have much to do with what emerges. The more extreme versions of this viewpoint presumably have

against them the fact that for a time at least the statistical refinements of the Phillips curve appeared to work. Whether a reason can be offered for the wage explosion of 1969/70 is, however, the big test.

One hypothesis is that the bargaining of unions has been strengthened as a result of the increasing introduction of capital-intensive process industries ; and another that the ' demonstration effects ' of union militancy overseas (the May 1968 events in France) have been important. It is a bit difficult to see that either of these plays more than a subsidiary role. It is certainly not the case that British industry suddenly converted its methods of production overnight in 1969 and so set the seeds for the wage ' explosion.' But it may well be that consciousness of the extra bargaining power entailed in these trends towards intensive process systems of production first lagged behind and then rapidly caught up with the technology. It was, at any rate, waiting to be used. It is, again, possible, but surely not likely that we import our strikes as we do our wines from France ; rather, such examples as these are the incidentals.

A more constructive approach, which shares something with the expectations amendment to the Phillips curve, emphasizes the idea that what counts for employees is not merely their money wage, nor even their gross real wages after allowing for inflation, but rather their *net* real wages, that is, allowing for both prices and taxation. The point is, that in the second half of the 1960s, the distribution of national resources was subjected to two major shifts ; first, in the direction of the public sector, and then in the direction of the balance of payments. Personal consumption expenditure was severely squeezed and its share expressed as a proportion of total national expenditures, fell. Thus the interpretation is that a social contract wherein expectations of real personal income and consumption advance were satisfied was arbitrarily renegotiated : with the result that a further renegotiation was precipitated by way of increased demands for money wage

increases. This account of the matter is certainly an appealing one, though hardly yet conclusive. It can be argued, for example, that the expenditures of the public sector made for increases in the standard of living just as much as rising private consumption would have done and that this element requires some recognition. The empirical implementation of this approach is also rendered difficult because of various data deficiencies and—as is the case with any explanation offered—because the acute inflationary problem from which we suffer is comparatively recent and comparatively short. There are not many observations to use, and we have little perspective on the problem.

If a summary of the state of knowledge can be delivered, it is a rather provisional one, for, as I have tried to show, the collapse of received views has stimulated work on a number of diverse alternative approaches. These range from perhaps rather minor amendments to what was received doctrine to methods of approach which partake in the nature of political economy. If any summary can be attempted at the present time it would be, I think, as follows:

1. The course of inflation since 1968 indicates that the wages 'explosion' of 1970 was preceded by relatively unusual rates of price increase (about 5 per cent as compared with a previous trend of about 3 per cent), mainly accountable to import prices and indirect tax increases. These were associated with the 1967 devaluation.

2. Throughout the period of the late 60s to the present, world inflationary trends have been pronounced. The linkage of the domestic economy to the world is greater than is indicated by the share of imports in national output.

3. The 1970 wage explosion cannot be accounted for by the pressure of demand alone.

4. There is little doubt that expectations have played an important part in sustaining and accelerating the inflation ; but it is difficult to account for 1970 in these terms.

Table 1

Prices, Earnings and Unemployment 1963—1972

First two columns : percentage rates of increase per annum, quarterly or average of quarters ; computed as first central differences.

		Consumer prices (a)	*Average earnings* (b)	*Rate of unemployment* (c)
1963—1965		3.4	7.2	1.8
1965—1967		3.4	5.7	1.7
1968—1969		5.3	8.0	2.4
1970	I	5.5	13.0	2.7
	II	6.0	13.1	2.5
	III	6.4	12.7	2.5
	IV	7.8	10.7	2.6
1971	I	9.4	9.3	3.1
	II	8.1	10.4	3.2
	III	4.3	9.0	3.4
	IV	3.6	7.8	3.7
1972	I	5.4	12.6	4.1
	II	5.6	15.0	3.7
	III	6.6 (d)	17.4 (d)	3.6

(a) Implicit deflator of the constant price consumers' expenditure series
(b) All employees, Great Britain
(c) Not seasonally adjusted
(d) Provisional estimate

5. By default, an explanation based on what we may loosely call 'union militancy' has much to be said for it. It is not, however, an exclusive claim. Nor are the sources of added militancy apparent, although the view that they are related to a preceding period of slow advance in net real wages is plausible.

Evidently, we still have some way to go in understanding the causes of inflation ; just as clearly, it may not be economists who should make all the mileage. Certain—hopefully unrepresentative—fellow social scientists are reported to have welcomed our inflation for its effect in reducing the arrogance of economists ; but perhaps another effect will be to increase their own work-load.

I want now to turn to the question of the effects of inflation.

The effects of inflation

Their analysis of the economic effects of inflation tends generally to bless economists with an image of insouciance which contrasts somewhat luridly with the impassioned visions of those effects as perceived by politicians and members of society generally. This contrast is in large degree an artificial construct, built up of an incomplete understanding of the basis of the economists' argument.

A fundamental issue for the economist is whether inflation has been accurately anticipated or not. If it has, then it may be assumed that quite a few, though not quite all, of the unwanted effects of inflation will be avoided. Since it is a fair assumption that an inflation which has proceeded at a certain rate for a long time will have come to be anticipated, economists are more ready to concede that a *change* in the rate of inflation will have disturbing consequences than they are to credit inflation *per se* with deleterious consequences.

Before we enter further into this field, it is worth recalling two points. First, that the indicators at our disposal may to a small degree misestimate the true degree of inflation. Most likely, official price indices tend to overstate the inflation rate by taking inadequate account of quality improvements (though the reverse is possibly true of inflation under regimes of prices and incomes policy due to the fact the rigours of such a regime can be mitigated by the dilution of quality). No study of

this has been carried out for the U.K., but research in the United States has indicated a possible degree of exaggeration of the order of 1—1½ per cent, and perhaps something of this kind holds for the U.K. Secondly, our post-war history up to the late 1960s suggests that we may in that period have become ' used to ' a rate of inflation of the order of 2½—3 per cent. It is only quite recently that inflation rates have moved up. Thus, the idea that some major costs of inflation are costs of a change in the rate of inflation is of relevance to our present tribulations.

Most of these difficulties are in fact problems about the distribution of resources. When the inflation rate has been settled for some time, its expected continuation may be assumed to underwrite the forms of bargaining and compensation in existence, not excluding for example, the system of review, and amounts of increase of the old age pension and other social security payments, and the level of interest rates on holdings of financial assets. And this is true regardless of whether the arrangements referred to make any explicit reference to the rate of inflation ; it is a matter of society becoming adjusted to a certain rate of inflation. A change in the rate of inflation is unlikely, however, to be immediately and fully anticipated by all parties. So, in some sectors, lags in adjustment will contribute to a relative if not an absolute immiseration of the people concerned. Moreover, if periods of review, or the intervals between wage settlements do not change, the increasingly large size of the money settlements granted as claims catch up on inflation gives rise to widespread jealousy and resentment, whether or not in some slightly long-term perspective social injustice has been perpetrated. Some contractual arrangements are much more difficult than others to adjust ; pension schemes are an obvious case in point ; it is probably for this reason that cynical observers might suggest that the attitude to inflation of professional economists would show an interesting correlation with the nearness to retiring age of the person concerned.

It is, though, worth noting that in so far as these side-effects of inflation are unwanted, many of them can be adjusted by conscious government action to speed up the necessary adjustment. It may not do to leave it to individuals, many of whom have for years collected their 2½ per cent from the Post Office Savings Bank and must be deemed to find some implausibly large advantage in the Saturday opening hours to justify the real cost (of late of the order of 5 per cent) in doing so, if it is not that they are the victim of government inaction. Unfortunately virtually no attention has been paid to the details of what would be involved in a programme of conscious inflation-proofing, although it is true that piecemeal adjustments have taken place, e.g. in increasing the frequency of review of pension payments, and so on, as well as by self help and the action of market forces (to a debateable extent) in pushing up nominal interest rates. Only a partial exception to this statement is provided by the attention paid to the question of introducing threshold agreements, whereby wage earners would receive some automatic compensation for the excess of inflation over an agreed norm.

Another problem concerns the taxation system, where once again government action is possible, and has in fact taken place on a piecemeal basis. An effect of inflation, and particularly of accelerating inflation is to bring into the net of income tax many people whose relative levels of pay at the time of settlement of the tax structure were thought so low as to justify their exclusion. Others move up into higher tax brackets. This has two consequences ; the after-tax distribution of income is changed in an unintended manner and the total tax take is increased, in a progressive system, by more than incomes. Built-in ' fiscal drag ' of this latter type permits the government to appear as the bestower of largesse at budget time, an act of false generosity which in itself may not matter, so long as the deflationary effects of the system are recognized by the policy makers, and if such action is appropriate, offset

by them. The measurement of fiscal drag in this country has, in all normal times, been of relative unimportance. The relatively low level of inflation plus the offsets to the progressive income tax system exemplified in the various specific duties and poll taxes saw to it that net fiscal drag was comparatively insignificant. It has, however, been calculated that at the time of the last (1972/73) budget, a tax reduction of some £400 million was called for merely in order to neutralize fiscal drag.

I have already noted, earlier, the importance of recognizing that the UK is an open economy. Inflation may, or may not, depending on the rates of inflation prevailing overseas, necessitate a change in the exchange rate. A devaluation will not, of course, help remove the inflation (on the contrary) ; but it should, given time, remove one of the consequences of an excessive inflation—namely, balance of payments deficits and/or unemployment. Exchange rate depreciation is no magic wand, however. Our experience of the 1967 devaluation has still to be fully absorbed by economic analysis, but it is clear that the effects of such an act take much longer to become apparent than economists previously assumed. More problematic is the positive proposition which emerged from that experience that the recovery of the trade balance following devaluation appears to follow a J-shape ; that is to say, in the short run there is a further deterioration, and only after the bottom of the ' J ' has been passed does the balance start on a path of continuous improvement. This raises awkward questions about the wisdom of free floating, since it signifies the possibility of the exchange rate taking a trip in the direction of a bottomless pit. On the other hand it seems safe to say that exchange rate adjustments are best handled in small doses ; large adjustments are capable of giving rise to much bigger problems than an equivalent series of smaller ones.

On the showing so far, the main contribution of the economist on the question of the effects of inflation is to

drive home the important distinction between anticipated and unanticipated inflation. Operationally, the suggestion is that most of the costs of inflation arise from inadequate adjustment to it and take the form of a redistribution of resources. On the whole, it is very probable that this redistribution favours the spiv and the smart alec. But at least a portion of this problem is amenable to solution by government action, and such action is an alternative to dealing with the inflation itself. This raises the question why governments are reluctant to take such action, and in particular to commit themselves to explicit inflation-proofing measures. In part the problem may be one of a misplaced sense of self-regard, a feeling that to recognize the inevitability of inflation is to confess to a weakness, and one morover that may only encourage the inflation itself.

There is, though, even for economists a generally accepted cost of inflation arising from the decline in the use of money which takes place at high rates of inflation. This is most easily appreciated in the context of a hyper-inflation when the use of money may be all but suspended. As alternative arrangements, individuals resort to barter or to forms of money which have a value in use ; in either case, costs arise from the lack of use of the socially beneficial invention of otherwise worthless ' money.' The question whether there are measurable and significant inflation costs deriving from decreased holdings of money at lower rates of inflation—costs arising from the loss of leisure or production of goods and services involved when individuals cut down the amount of money (in real terms) they wish to hold—is one of the most vexed in the realm of monetary theory today. However, no one has succeeded in suggesting that at rates of inflation of 5—10 per cent, this cost is what might motivate a policy to remove inflation, with all the problems this entails.

Rather, it seems, the main costs of inflation are those perceived to arise from a change in the distribution of income and wealth, and these in turn arise from a change in the rate of inflation rather from inflation *per se.*

In any event, the failure of the inflation trend to stabilize, and forecasts of a further rise have motivated the present government to alter its policies drastically in the search for a new solution. It is to the question of remedies to the problem that I now want to turn.

What can economists say about remedies for inflation ?

I have just tried to argue that economists view the main effects of inflation as those of unanticipated inflation and as consisting primarily in changes in the distribution of real resources. There is little evidence that, provided the exchange rate is not fixed, employment and real output need suffer, except to the extent that these may be influenced by government policy actions (actual or anticipated) taken in order to reduce the inflation rate. There is some consolation to be had in this view, no doubt, and it is important to stress that our tolerance of inflation has risen perceptibly. In the early period of macro-economic policy management price stability (i.e. zero inflation) used to be quoted as an important policy goal. By the early 1960s, a steady 2½ per cent rate of inflation seemed quite tolerable. Current government policy, after the freeze, is consistent with a target of 5 per cent inflation.

But the tolerance level has not risen as fast as actual inflation ; and the redistributive consequences of the 8—10 per cent rate of inflation emerging in 1971-72, the social conflict accompanying it, and the feeling that such rates could only accelerate still further have resulted in a new phase of incomes policy.

I do not intend to investigate in detail the character and potential for survival of this particular phase of policy, though I do want to indicate the methods of research into the performance of past incomes policies. Before so doing, though, it is important to notice that the recent adoption, or re-adoption, of incomes policy followed the demonstration of the limits to the main alternative policy of deflation. There is no real doubt that if deflation could be pursued for long enough inflation could be brought

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down ; but there is equally no doubt that the degree of deflation required, in the context of 1971, went well beyond the limits tolerated by society. It is perhaps just as important to note that even after the massive fiscal and monetary expansion of 1972, the resultant strong rise in personal disposable incomes (in real terms, as much as 9 per cent between the third quarters of 1971 and 1972, or more than 3 times the trend), in no way served to allay public concern about inflation and apparently did not contribute to any strong feeling of wellbeing.

We have had incomes policies before, and it is a natural starting place to ask what verdict has been reached on them. This is particularly so, as the potential contribution of incomes policy is viewed in rather different ways by those who hold differing views on the genesis of the recent inflation.

It is natural enough that those who view the genesis of inflation as lying primarily with autonomous union militancy should conclude that a direct means to restrain the rate of rise of money incomes—i.e. an incomes policy—is what is needed. It is, though, also the case that those who view the role of inflationary expectations as the primary factor may consistently support an incomes policy on the grounds that this may be effective in reducing those expectations. According to this second view, however, incomes policy works because it is believed to work and functions effectively only by sleight of hand, at any rate over any period but the very short run. Since the expectations-demand analysis does not put autonomous militancy at the centre of the stage, it cannot sustain an incomes policy solution as anything other than a short-term aid. The sleight of hand cannot be perpetrated many more times than once.

This brings us to the question of what effects incomes policies have had in the past, a question which has been the centre of a good deal of applied economic research in recent years. In approaching the question whether an incomes policy has, in any particular period, exerted a

significant effect it is not of course good enough to compare rates of wage and price inflation before, after and during the period of the policy. The comparison called for is between what actually did happen and what would have happened had there been no policy. This necessitates a clear view of the way in which prices and wages are determined in the absence of an incomes policy.

The most favoured procedure has been in fact to seek, first, a statistical formulation of the relationship between prices, or their rate of change, and cost factors such as the level of import prices, indirect taxes and unit wage costs (or *their* rate of change), and, second, a relationship between wage increases and such factors as the level of unemployment, and cost of living increases. These relationships can then be used to determine the effectiveness of policy ; the exact procedure varies at this point. One approach is to assume that policy simply reduced the rate of wage and price inflation by a given amount in the periods when policy applied. So that if, for example, the level of unemployment and recent price changes would jointly have delivered a wage inflation of 5 per cent, the policy effect to be tested is whether the actual rate was less or not, and by how much. *En route*, this approach has the disadvantage that only a limited degree of distinction can be made as between policy strength in different periods, and arguments can arise between researchers about the exact time when policy was ' on ' and when it was ' off.' This is no small matter. A White Paper may be in force over a particular period, but it may be judged that the policy was not really being enforced. But how do we know this ? If we go by the results there is a clear danger that policy is only called policy when it is effective ; whereas the object of the exercise is precisely to discover whether it *is* effective.

Another approach has been used, which, though not different in this last respect, is more sophisticated in another. Where the first approach seeks to discern the effect of policy in a change in the overall level of wage

and price inflation which would have been delivered by the underlying statistical relationships given the state of the factors considered to determine it, the second approach attempts to go further by asking whether the relationship itself is changed by policy. For example, policy might not be effective in suppressing wage increases due to cost of living rises, but it might be effective in insulating wages from the pressure of demand.

Apart from the methodological difference, the two approaches differ, both in the results which actually have been obtained, and in the results which could in any event be obtained. Within its own lights the first approach produces unambiguous results ; the results of applying it tell us by how much inflation was reduced (or indeed, possibly increased), and whether it was affected at all. The second approach delivers a more conditional answer : it tells us that the relationship which held in ' policy off ' periods was changed in a certain way by policy, i.e. was in fact different in ' policy on ' periods. This is the effect of policy. The effect on inflation is then the joint result of this effect of incomes policy plus the effect of other policies pursued at the same time which may have affected, e.g., the level of unemployment or some other strategic variable. Thus it may happen, with this second approach (and this is what actually has been maintained) that the relationship *was* altered, but that the setting of the strategic variables was such as to yield a higher rate of price inflation with the new relationship than would have been obtained had the old relationship applied. So, at the time the policy was mis-handled. But on another occasion the policy could be properly handled, given this information.

Approaches to the measurement of incomes policy of this type employ the standard tools of modern econometrics ; but their scope is restricted in a number of ways. The method relies implicitly on the idea of an underlying relationship which is both statistically robust and soundly based in economic theory. Recent experience suggests

we should be cautious in relying upon relationships of the "Phillips curve" type, though this is the basic type of equation used in these studies. Another difficulty is the problem, already mentioned, of identifying periods of policy successfully. Supporting evidence can be derived, of course, from overseas experience, and by using a variety of alternative approaches.

What can be said, in the upshot, about the effects of incomes policies ? There does seem to be agreement that for short periods incomes policies can be effective, particularly if they are of the outright ' freeze ' variety, and particularly if the enforcement is carried out through the medium of strongly centralized bargaining power. For the rest, it emerges that little positive can be said. Incomes policies sometimes work, and quite often do not. A reduction in the rate of inflation of 1 per cent per annum is a big number to turn up. On the other hand there is no clear evidence that incomes policies really make things worse. They may break down after a while, and their previous effects may be negated, but it has not been shown that the end position is of greater inflation than would otherwise be likely to come about. This result is consistent with every position except that incomes policies are a magic wand. It suggests that the current initiatives may very well not work out, but not that the idea of an incomes policy is in principle unworkable, still less that the necessary efforts should not be made.

The difficulties in the way of securing a successful incomes policy are perhaps still sufficiently great as to obscure some interesting questions that will arise in the event of success. One kind of success would of course be to bring the inflation rate down to an acceptable level and then to abandon the policy until the need for renewing it again becomes obvious. This would not be novel ; on the contrary it would only repeat the past, which is quite a fashionable thing to do. An alternative form of success would be obtained in the context of a permanent incomes policy system. It is worth noting in such a context the

necessary consequences of living in an open economy. If the exchange rate is to be fixed, then a successful incomes policy of this kind could not, in general, mean a zero rate of inflation if good neighbourly policies vis-à-vis the balance of payments are to be maintained. Rather, the domestic rate of inflation compatible with balance of payments balance would inevitably be linked to the world rate of inflation (though not necessarily equal to it), and could be expected to vary with it. This point though unfamiliar to the British stituation seems to have been recognized in Sweden, where for some time incomes policy has—or had, until recently—formed a central part of society's apparatus of economic control.

A permanent incomes policy also raises all manner of difficult questions about the working of the economic system in the sense not only of questions concerning the distribution of rewards (a point which is readily taken) but also of questions concerning the allocative functions of the price mechanism. The operation of a permanent system thus raises many problems which have not yet been dealt with, yet research indicates clearly that while the short 'one-off' policy works, the problem lies in managing the 'thaw' after the 'freeze' and somehow the idea that short 'one-off' policies will continue to work if they become more frequent and the need for them is increasingly anticipated is not appealing. In those circumstances the hypothesis that inflation is caused by anticipation of the next freeze would surely become a front-runner.

Conclusions

To pursue these matters any further would clearly take us increasingly far away from the realm of applied economics. One of my conclusions would be though, that valuable as the contribution of economics is, it is not the only social science committed in this area, or should not be. And this again infringes an area of current debate among economists. How far—if at all—should they

pursue the problem no matter where it leads ; or should the cobbler stick to his last (conveniently defined for him by somebody), and hope the problem does not escape the attention of others with the appropriate skills ?

That this question should be put at all no doubt underlines the points I made to begin with, when I introduced the subject of this lecture. Our recent inflation has proved quite a problem for economists, perhaps because it is not wholly an economic problem, in the received meaning of that term.

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