The discussion of the Phillips curve started with truth in 1926, proceeded through error some 30 years later, and by now has returned back to 1926 and to the original truth. That is about 50 years for a complete circuit. You can see how technological development has speeded up the process of both producing and dissipating ignorance.

I. Fisher and Phillips

I choose the year 1926 not at random but because in that year Irving Fisher published an article in the *International Labour Review* under the title “A Statistical Relation between Unemployment and Price Changes.”

The Fisher Approach

Fisher’s article dealt with precisely the same empirical phenomenon that Professor A. W. Phillips analysed in his celebrated article in *Economica* some 32 years later. Both were impressed with the empirical observation that inflation tended to be associated with low levels of unemployment and deflation with high levels. One amusing item in Fisher’s article from a very different point of view is that he starts out by saying that he has been so deeply interested in this subject that “during the last three years in particular I have had at least one computer in my office almost constantly at work on this project.” Of course what he meant was a human being operating a calculating machine.

There was, however, a crucial difference between Fisher’s analysis and Phillips’, between the truth of 1926 and the error of 1958, which had to do with the direction of causation. Fisher took the rate of change of prices to be the independent variable that set the process going. In his words,

> When the dollar is losing value, or in other words when the price level is rising, a business man finds his receipts rising as fast, on the average, as this general rise of prices, but not his expenses, because his expenses consist, to a large extent, of things which are contractually fixed … Employment is then stimulated — for a time at least.

To elaborate his analysis and express it in more modern terms, let anything occur that produces a higher level of spending — or, more precisely, a higher rate of increase in spending than was anticipated. Producers would at first interpret the faster rate of increase in spending as an increase in real demand for their product. The producers of shoes, hats, or coats would discover that apparently there was an increase in the amount of goods they could sell at pre-existing prices. No one of them would know at first whether the change was affecting him in particular or whether it was general. In the first instance, each producer would be tempted to expand output, as Fisher states, and also to allow prices to rise. But at first much or most of the unanticipated increase in nominal demand (i.e. demand expressed in £s) would be absorbed by increases (or
faster increases) in employment and output rather than by increases (or faster increases) in prices. Conversely, for whatever reason, let the rate of spending slow down, or rise less rapidly than was anticipated, and each individual producer would in the first instance interpret the slow-down at least partly as reflecting something peculiar to him. The result would be partly a slow-down in output and a rise in unemployment and partly a slow-down in prices.

Fisher was describing a dynamic process arising out of fluctuations in the rate of spending about some average trend or norm. He went out of his way to emphasise the importance of distinguishing between “high and low prices on the one hand and the rise and fall of prices on the other.” He put it that way because he was writing at a time when a stable level of prices was taken to be the norm. Were he writing today, he would emphasise the distinction between the rate of inflation and changes in the rate of inflation. (And perhaps some future writer will have to emphasise the difference between the second and the third derivatives!) The important distinction — and it is quite clear that this is what Fisher had in mind — is between anticipated and unanticipated changes.

The Phillips Approach

Professor Phillips’ approach was from exactly the opposite direction. He took the level of employment to be the independent variable that set the process going. He treated the rate of change of wages as the dependent variable. His argument was a very simple analysis — I hesitate to say simple-minded, but so it has proved — in terms of static supply and demand conditions. He said:

When the demand for a commodity or service is high relatively to the supply of it we expect the price to rise, the rate of rise being greater the greater the excess demand … It seems plausible that this principle should operate as one of the factors determining the rate of change of money wage rates, which are the price of labour services.
Phillips’ approach is based on the usual (static) demand and supply curves as illustrated in Figure 1. At the point of intersection, 0, the market is in equilibrium at the wage rate $W_0$, with the amount of labour employed $E_0$ equal to the amount of labour demanded. Unemployment is zero — which is to say, as measured, equal to “frictional” or “transitional” unemployment, or to use the terminology I adopted some years ago from Wicksell, at its “natural” rate. At this point, says Phillips, there is no upward pressure on wages. Consider instead the point F, where the quantity of labour demanded is higher than the quantity supplied. There is over-employment, wages at $W_F$ are below the equilibrium level, and there will be upward pressure on them. At point U, there is unemployment, $W_U$ is above the equilibrium wage rate and there is downward pressure. The larger the discrepancy between the quantity of labour demanded and the quantity supplied, the stronger the pressure and hence the more rapidly wages will rise or fall.

Phillips translated this analysis into an observable relation by plotting the level of unemployment on one axis, and the rate of change of wages over time on the other, as in Figure 2. Point $E_0$ corresponds to point O in Figure 1. Unemployment is at its “natural” rate so wages are stable (or in a growing economy, rising at a rate equal to the rate of productivity growth). Point F corresponds to “over-full” employment, so wages are rising; point U to unemployment, so wages are falling.

Fisher talked about price changes, Phillips about wage changes, but I believe that for our purpose that is not an important distinction. Both Fisher and Phillips took it for granted that wages are a major component of total cost and that prices and wages would tend to move together. So both of them tended to go very readily from rates of wage change to rate of price change and I shall do so as well.

![Figure 2](image)

**The Fallacy in Phillips**

Phillips’ analysis seems very persuasive and obvious, yet it is utterly fallacious. It is fallacious because no economic theorist has ever asserted that the demand and supply of labour were functions of the nominal wage rate (i.e. wage rate expressed in £s). Every economic theorist from
Adam Smith to the present would have told you that the vertical axis in Figure 1 should refer not to the *nominal* wage rate but to the *real* wage rate.

But once you label the vertical axis $\frac{W}{P}$ as in Figure 3, the graph has nothing to say about what is going to happen to *nominal wages* or prices. There is not even any *prima facie* presumption that it has anything to say. For example, consider point O in Figure 3. At that level of employment, there is neither upward nor downward pressure on the real wage. But that real wage can remain constant with W and P separately *constant*, or with W and P each *rising* at the rate of 10 per cent a year, or *falling* at the rate of 10 per cent a year, or doing anything else, provided both change at the *same* rate.

![Figure 3](image)

**II. The Keynesian Confusion Between Nominal and Real Wages**

How did a sophisticated mind like Phillips’ — and he was certainly a highly sophisticated and subtle economist — come to confuse nominal wages with real wages? He was led to do so by the general intellectual climate that had been engendered by the Keynesian revolution. From this point of view, the essential element of the Keynesian revolution was the assumption that prices are highly rigid relative to output so that a change in demand of the kind considered by Fisher would be reflected almost entirely in *output* and very little in prices. The price level could be regarded as an institutional datum. The simple way to interpret Phillips is that he was therefore assuming the change in nominal wages to be equal to the change in real wages.

But that is not really what he was saying. What he was saying was slightly more sophisticated. It was that changes in *anticipated* nominal wages were equal to changes in *anticipated* real wages. There were two components of the Keynesian system that were essential to his construction: first, the notion that prices are rigid in the sense that people in planning their behaviour do not allow for the possibility that the price level might change, and hence regard a change in nominal wages or nominal prices as a change in real wages and real prices; second, that real wages *ex post* could be altered by *unanticipated* inflation. Indeed the whole Keynesian argument for the
possibility of a full employment policy arose out of the supposition that it was possible to get workers (at least in the 1930s when Keynes wrote The General Theory) to accept lower real wages produced by inflation that they would not have accepted in the direct form of a reduction in nominal wages.\(^7\)

These two components imply a sharp distinction between anticipated nominal and real wages and actual nominal and real wages. In the Keynesian climate of the time, it was natural for Phillips to take this distinction for granted, and to regard anticipated nominal and real wages as moving together.

I do not criticise Phillips for doing this. Science is possible only because at any one time there is a body of conventions or views or ideas that are taken for granted and on which scientists build. If each individual writer were to go back and question all the premises that underlie what he is doing, nobody would ever get anywhere. I believe that some of the people who have followed in his footsteps deserve much more criticism than he does for not noting the importance of this theoretical point once it was pointed out to them.

At any rate, it was this general intellectual climate that led Phillips to think in terms of nominal rather than real wages. The intellectual climate was also important in another direction. The Keynesian system, as everybody knows, is incomplete. It lacks an equation. A major reason for the prompt and rapid acceptance of the Phillips curve approach was the widespread belief that it provided the missing equation that connected the real system with the monetary system. In my opinion, this belief is false. What is needed to complete the Keynesian system is an equation that determines the equilibrium price level. But the Phillips curve deals with the relation between a rate of change of prices or wages and the level of unemployment. It does not determine an equilibrium price level. At any rate, the Phillips curve was widely accepted and was seized on immediately for policy purposes.\(^8\) It is still widely used for this purpose as supposedly describing a “trade-off,” from a policy point of view, between inflation and unemployment.

It was said that what the Phillips curve means is that we are faced with a choice. If we choose a low level of inflation, say, stable prices, we shall have to reconcile ourselves to a high level of unemployment. If we choose a low level of unemployment, we shall have to reconcile ourselves to a high rate of inflation.

III. Reaction against the Keynesian System

Three developments came along in this historical account to change attitudes and to raise some questions.

One was the general theoretical reaction against the Keynesian system which brought out into the open the fallacy in the original Phillips curve approach of identifying nominal and real wages.

The second development was the failure of the Phillips curve relation to hold for other bodies of data. Fisher had found it to hold for the United States for the period before 1925; Phillips had found it to hold for Britain for a long period. But, lo and behold, when people tried it for any other place they never obtained good results. Nobody was able to construct a decent empirical Phillips curve for other circumstances. I may be exaggerating a bit—no doubt there are other successful cases; but certainly a large number of attempts were unsuccessful.
The third and most recent development is the emergence of “stagflation,” which rendered somewhat ludicrous the confident statements that many economists had made about “trade-offs,” based on empirically-fitted Phillips curves.

**Short- and Long-run Phillips Curves**

The empirical failures and the theoretical reaction produced an attempt to rescue the Phillips curve approach by distinguishing a short-run from a long-run Phillips curve. Because both potential employers and potential employees envisage an implicit or explicit employment contract covering a fairly long period, both must guess in advance what real wage will correspond to a given nominal wage. Both therefore must form anticipations about the future price level. The real wage rate that is plotted on the vertical axis of the demand and supply curve diagram is thus not the current real wage but the anticipated real wage. If we suppose that anticipations about the price level are slow to change, while the nominal wage can change rapidly and is known with little time-lag, we can, for short periods, revert essentially to Phillips’ original formulation, except that the equilibrium position is no longer a constant nominal wage, but a nominal wage changing at the same rate as the anticipated rate of change in prices (plus, for a growing economy, the anticipated rate of change in productivity). Changes in demand and supply will then show up first in a changed rate of change of nominal wages, which will mean also in anticipated real wages. Current prices may adjust as rapidly as or more rapidly than wages, so real wages actually received may move in the opposite direction from nominal wages, but anticipated real wages will move in the same direction.

One way to put this in terms of the Phillips curve is to plot on the vertical axis not the change in nominal wages but that change minus the anticipated rate of change in prices, as in the revised Figure 2, where, \( \frac{1}{W} \frac{dW}{dt} \) standing for the anticipated rate of change in prices, is subtracted from \( \frac{1}{W} \frac{dW}{dt} \). This curve now tells a story much more like Fisher’s original story than Phillips’.
Suppose, to start with, the economy is at point $E_0$, with both prices and wages stable (abstracting from growth). Suppose something, say, a monetary expansion, starts nominal aggregate demand growing, which in turn produces a rise in prices and wages at the rate of, say, 2 per cent per year. Workers will initially interpret this as a rise in their real wage — because they still anticipate constant prices — and so will be willing to offer more labour (move up their supply curve), i.e. employment grows and unemployment falls. Employers may have the same anticipations as workers about the general price level, but they are more directly concerned about the price of the products they are producing and far better informed about that. They will initially interpret a rise in the demand for and price of their product as a rise in its relative price and as implying a fall in the real wage rate they must pay measured in terms of their product. They will therefore be willing to hire more labour (move down their demand curve). The combined result is a movement, say, to point $F$, which corresponds with “over-full” employment, with nominal wages rising at 2 per cent per year.

But, as time passes, both employers and employees come to recognise that prices in general are rising. As Abraham Lincoln said, you can fool all of the people some of the time, you can fool some of the people all of the time, but you can’t fool all of the people all of the time. As a result, they raise their estimate of the anticipated rate of inflation, which reduces the rate of rise of anticipated real wages, and leads you to slide down the curve back ultimately to the point $E_0$. There is thus a short-run “trade-off” between inflation and unemployment, but no long-run “trade-off.”

By incorporating price anticipations into the Phillips curve as I have just done, I have implicitly begged one of the main issues in the recent controversy about the Phillips curve. Thanks to recent experience of “stagflation” plus theoretical analysis, everyone now admits that the apparent short-run Phillips curve is misleading and seriously overstates the short-run trade-off, but many are not willing to accept the view that the long-run trade-off is zero.

We can examine this issue by using a different way of incorporating price anticipations into the Phillips curve. Figure 4 keeps the rate of change of nominal wages on the vertical axis but contains a series of different curves, one for each anticipated rate of growth of wages. To put it algebraically, instead of writing the Phillips curve relation as

$$\frac{1}{W} \frac{dW}{dt} - \left( \frac{1}{P} \frac{dP}{dt} \right)^* = f(U),$$

where $U$ is unemployment, we can write it in more general form as

$$\frac{1}{W} \frac{dW}{dt} - f\left[U, \left( \frac{1}{P} \frac{dP}{dt} \right)^*\right].$$

Now suppose something occurs to put the economy at point $F$ at which wages are rising at 2 per cent a year and unemployment is less than the natural rate. Then, as people adjust their expectations of inflation, the short-run Phillips curve will shift upwards and the final resting place would be on that short-run Phillips curve at which the anticipated rate of inflation equals the current rate. The issue now becomes whether that Phillips curve is like A, so that the long-
run curve is negatively sloping, like LL, in which case an anticipated rate of inflation of 2 per cent will still reduce the level of unemployment, though not by as much as an unanticipated rate of 2 per cent, or whether it is like B, so that the long-run curve is vertical, that is, unemployment is the same at a 2 per cent anticipated rate of inflation as at a zero per cent anticipated rate.

IV. No Long-Run Money Illusion

In my Presidential Address to the American Economic Association seven years ago, I argued that the long-run Phillips curve was vertical, largely on the grounds I have already sketched here: in effect, the absence of any long-run money illusion. At about the same time, Professor E. S. Phelps, now of Columbia University, offered the same hypothesis, on different though related grounds. This hypothesis has come to be called the “accelerationist” hypothesis or the “natural rate” hypothesis. It has been called accelerationist because a policy of trying to hold unemployment below the horizontal intercept of the long-run vertical Phillips curve must lead to an accelerated inflation.

Suppose, beginning at point $E_0$ on Figure 4, when nobody anticipated any inflation, it is decided to aim at a lower unemployment level, say $E_F$. This can be done initially by producing an inflation of 2 per cent, as shown by moving along the Phillips curve corresponding to anticipations of no inflation. But, as we have seen, the economy will not stay at $F$ because people’s anticipations will shift, and if the rate of inflation were kept at 2 per cent, the economy would be driven back to the level of unemployment it started with. The only way unemployment can be kept below the “natural rate” is by an ever-accelerating inflation, which always keeps current inflation ahead of anticipated inflation. Any resemblance between that analysis and what you in Britain have been observing in practice is not coincidental: what recent British governments have tried to do is to keep unemployment below the natural rate, and to do so they have had to accelerate inflation—from 3.9 per cent in 1964 to 16.0 per cent in 1974, according to your official statistics.

Misunderstandings about the “Natural Rate” of Unemployment
The hypothesis came to be termed the “natural rate” hypothesis because of the emphasis on the natural rate of unemployment. The term “the natural rate” has been misunderstood. It does not refer to some irreducible minimum of unemployment. It refers rather to that rate of employment which is consistent with the existing real conditions in the labour market. It can be lowered by removing obstacles in the labour market, by reducing friction. It can be raised by introducing additional obstacles. The purpose of the concept is to separate the monetary from the non-monetary aspects of the employment situation—precisely the same purpose that Wicksell had in using the word “natural” in connection with the rate of interest.

In the past few years, a large number of statistical studies have investigated the question whether the long-run Phillips curve is or is not vertical. That dispute is still in train.

Most of the statistical tests were undertaken by rewriting Equation (2) in the form:

\[
\frac{1}{W} \frac{dW}{dt} = a + b \left( \frac{1}{P} \frac{dP}{dt} \right)^* + f(U)
\]

or

\[
\frac{1}{P} \frac{dP}{dt} = a + b \left( \frac{1}{P} \frac{dP}{dt} \right)^* + f(U),
\]

where the left-hand side was either the rate of change of wages or the rate of change of prices. The question then asked was the value of b.\textsuperscript{12} The original Phillips curve essentially assumed b=0; the acceleration hypothesis set b equal to 1. The authors of the various tests I am referring to used observed data, mostly time-series data, to estimate the numerical value of b.\textsuperscript{13} Almost every such test has come out with a numerical value of b less than 1, implying that there is a long-run “trade-off.”\textsuperscript{14} However, there are a number of difficulties with these tests, some on a rather superficial level, others on a much more fundamental level.

One obvious statistical problem is that the statistically fitted curves have not been the same for different periods of fit and have produced very unreliable extrapolations for periods subsequent to the period of fit. So it looks very much as if the statistical results are really measuring a short-term relationship despite the objective. The key problem here is that, in order to make the statistical test, it is necessary to have some measure of the anticipated rate of inflation. Hence, every such test is a joint test of the accelerationist hypothesis and a particular hypothesis about the formation of anticipations.

\[\text{V. The Adaptive Expectations Hypothesis}\]

Most of these statistical tests embody the so-called adaptive expectations hypothesis, which has worked well in many problems. It states that anticipations are revised on the basis of the difference between the current rate of inflation and the anticipated rate. If the anticipated rate was, say, 5 per cent but the current rate 10 per cent, the anticipated rate will be revised upward by some fraction of the difference between 10 and 5. As is well known, this implies that the anticipated rate of inflation is an exponentially weighted average of past rates of inflation, the weights declining as one goes back in time.
Even on their own terms, then, these results are capable of two different interpretations. One is that the long-run Phillips curve is not vertical but has a negative slope. The other is that this has not been a satisfactory method of evaluating people’s expectations for this purpose.

A somewhat more subtle statistical problem with these equations is that, if the accelerationist hypothesis is correct, the results are either estimates of a short-run curve or are statistically unstable. Suppose the true value of b is unity. Then when current inflation equals anticipated inflation, which is the definition of a long-run curve, we have that

\[ f(U) = -a. \]

This is the vertical long-run Phillips curve with the value of U that satisfies it being the natural rate of unemployment. Any other values of U reflect either short-term equilibrium positions or a stochastic component in the natural rate. But the estimation process used, with \[ \frac{1}{P} \frac{dP}{dt} \] on the left-hand side, treats different observed rates of unemployment as if they were exogenous, as if they could persist indefinitely. There is simply no way of deriving Equation (4) from such an approach. In effect, the implicit assumption that unemployment can take different values begs the whole question raised by the accelerationist hypothesis. On a statistical level, this approach requires putting U, or a function of U, on the left-hand side, not \[ \frac{1}{P} \frac{dP}{dt} \].

**VI. Rational Expectations**

A still more fundamental criticism has recently been made by a number of economists in the United States. This criticism has its origin in an important article by John Muth on rational expectations. The rational expectations approach has been applied to the problem in recent articles by Robert Lucas of Carnegie-Mellon (now of Chicago), Tom Sargent of the University of Minnesota, and a number of others.¹⁵

This criticism is that you cannot take seriously the notion that people form anticipations on the basis of a weighted average of past experience with fixed weights — or any other scheme that is inconsistent with the way inflation is really being generated. For example, let us suppose that the current course of the price level is the one drawn on panel A of Figure 5, that inflation is accelerating. With a fixed exponential weighting pattern (with weights summing to unity) the anticipated rate of inflation will always be lagging behind, as in Panel B. But people who are forming anticipations are not fools—or at least some of them are not. They are not going to persist in being wrong. And more generally they are not going to base their anticipations solely on the past history of prices. Is there anybody in this room whose anticipation of inflation next year will be independent of the result of the coming British elections? That is not reported in the past record of prices. Will it be independent of policies announced by the parties that come into power, and so on? Therefore, said Muth, we should assume that people form their anticipations on the basis of a correct economic theory: not that they are right in each individual case but that over any long period they will on the average be right. Sometimes this will lead to the formation of anticipations on the basis of adaptive expectations, but by no means always.
If you apply that idea to the present problem it turns out that, if the true world is one in which people form expectations on a rational basis so that on the average they are right, then assuming that they form expectations by averaging the past with fixed weights will yield a value of $b$ in equation (3) less than unity even though the true value is unity.

Consider a world in which there is a vertical long-run Phillips curve and in which people form their expectations rationally, so that on the average, over a long period, their expectations are equal to what happens. In such a world, the statistician comes along and estimates equation (3) on the assumption that people form their anticipations by averaging past experience with fixed weights. What will he find? It turns out that he will find that $b$ is less than 1. Of course, this possibility does not prove that the statistical tests incorporating adaptive expectations are wrong but only provides an alternative interpretation of their results.

In a series of very interesting and important papers, Lucas and Sargent\textsuperscript{16} have explored the implication of the rational expectations hypothesis and have tried to derive empirical tests of the slope of the long-run Phillips curve without the possibly misleading assumption of adaptive expectations.

Their empirical tests use a different kind of information. For example, one implication of a rational expectations hypothesis is that, in a country in which prices have fluctuated a great deal, expectations will respond to changes in the current rate of inflation much more rapidly than in a country in which prices have been relatively stable. It follows that the observed short-run Phillips curve will be steeper in the first country than in the second. Comparisons among countries in this way, as well as other tests, seem so far entirely consistent with what any reasonable man must surely expect: which is that, since you can’t fool all the people all the time, the true long-run Phillips curve is vertical.
VII. Implications for Theory and Policy

The evidence is by no means all in. Some of the articles I have referred to are not yet published and some have been published only in the past two or three years. So we certainly cannot regard the matter as settled. Even so, it is worth noting how far-reaching are the implications of this view not only for the Phillips curve problem but also for policy.

One very strong and very important implication for policy is that, if you treat people as forming expectations on a rational basis, no fixed rule of monetary or fiscal policy will enable you to achieve anything other than the natural rate of unemployment. And you can see why. Because — to go back to my initial Phillips curve analysis—the only way in which you ever get a reduction of unemployment is through unanticipated inflation.

If the government follows any fixed rule whatsoever, so long as the people know it, they will be able to take it into account. And consequently you cannot achieve an unemployment target other than the natural rate by any fixed rule. The only way you can do so is by continually being cleverer than all the people, by continually making up new rules and using them for a while until people catch up on them. Then you must invent a new set of rules. That is not a very promising possibility.

This analysis provides a different sort of intellectual background for a view that some of us have held for a long time: that it is a better approach to policy to say that you are going to co-operate with the people and inform them of what you are doing, so giving them a basis for their judgements, rather than trying to fool them. What the Sargent/Lucas argument and analysis really suggests is that you are fooling yourself if you think that you can fool them.

That is about where the present state of the argument is. I might summarise by saying that there is essentially no economist any longer who believes in the naive Phillips curve of the kind originally proposed. The argument has shifted now to a second level, where everybody agrees that the long-run Phillips curve is steeper than the short-run Phillips curve. The only argument is whether it is vertical or not quite so vertical. And here the evidence is not quite all in. But there is a line of approach in analysis and reasoning which enables you to interpret, so far as I know, all the existing evidence consistently on the hypothesis of a long-run vertical Phillips curve.

Addendum

Questions and Answers on the Trade Unions and Inflations

LORD (WILFRED) BROWN: Can one leave trade union power out of account in all these equations?

PROFESSOR FRIEDMAN: I will quote from another famous American writer, a humorist and not an economist, who said, “The trouble with people ain’t ignorance, it’s what they know that ain’t so.” Trade unions play a very important role in determining the position of the natural level of unemployment. They play a more important role in denying opportunities to some classes in the community that are open to others. They play a very important role in the structure of the labour force and the structure of relative wages. But, despite appearances to the contrary, a given amount of trade union power does not play any role in exacerbating inflation. It is true that if relatively weak unions become strong, in the process of going from weak to strong they may
exert an interim inflationary influence. They will, in the process, drive up the real wages of their members. This will reduce the level of employment in their sector. Insofar as the government has a full employment policy and is sensitive to the total level of unemployment, it will adopt expansionary policies and drive up the level of money demand. This is capable of producing a \textit{temporary} rise to a new level of prices. But it does not produce continuing inflation. The strong union will then get its new real wage rate, and there will be a re-alignment of employment in the various industries.

What seems so obvious ought to be judged against a broader range of experience. If A produces B, then where you have A you should have B. If A is the only factor that produces B, then where you have B you should have A. If you look around the world and at your own (British) experience, and our (American) experience, you will find there are many periods when you had strong unions and there was no inflation. There are many periods when you had no unions and a great deal of inflation. Historically there simply is nothing like a one-to-one relationship between strong trade unions and inflation.

Let me explain the fallacy in the argument as I see it. I think you will agree that strong industrial monopolies do not produce inflation; they produce high relative prices for the products they are monopolising, and low output for those products. If a monopoly gets stronger, or if a monopoly replaces competition, in the process of going from competition to monopoly, it will drive up the relative price of its product and reduce the output. If there is difficulty in absorbing the redundant employees created in that way, once again there may be a once-for-all rise in the price level, but there is no \textit{continuous} process of inflation.

Why are unions different? People say, because unions are not maximising profit. But that is not really relevant. Union behaviour is not an utterly random, erratic thing; it is determined by some objectives, whatever they may be. The question you must ask is: Is there an equilibrium real wage? Analysis of that problem shows the fallacy in the more sophisticated arguments that propose to demonstrate unions’ responsibility for inflation.

Suppose that all union agreements run for three years, and that, whenever they are negotiated, they include a provision for a 100 per cent cost-of-living adjustment. Then unions are truly negotiating for real wages. How can strong unions under those circumstances create inflation? There is no way. A strong union can create social conflict, it can drive people out of work, it can create unemployment. If it becomes stronger, and therefore the number of people employed in its areas is going to be smaller as it is driving up its real wage, it can create temporary inflation in the process because of some policy which is absorbing the unemployed without a wage decrease. But it cannot create \textit{continuous} inflation.

I may say I am absolutely appalled by the widespread belief I find in Britain that you can use the paper club of price and wage control to beat down the rigid power of trade unions, that you can do by subterfuge and in indirect ways what you are not prepared to do directly and openly.

\textbf{Mark Brady:} What is the possibility that a process of inflation, by producing a misallocation of resources and malinvestment, will raise the natural rate of unemployment so that the Phillips curve will be bent to the \textit{right} rather than be vertical?
PROFESSOR FRIEDMAN: That is a very difficult question to answer. The crucial problem arises whether the inflation is open or repressed. If the inflation is open — if there are no restrictions — there is no reason why it should produce malinvestment. It will produce a maldistribution of resources by inducing people to hold smaller cash balances than they otherwise would, by inducing them to waste resources in doing physically what could be done with the aid of money. That would make the level of real income lower than it otherwise would be, but there is no reason why it should alter the level of employment or unemployment. That is a different question.

In order to determine the effect on employment you would have to know whether the activities that are substituted for money operate in a labour market with different frictional characteristics from those in other industries.

Similarly, it is not clear what will happen to the rate of growth. The level of output will always be lower with high inflation than with low inflation, but that does not mean that output may not be growing at the same rate.

In practice, inflation is not likely to be open. In my opinion far more harm is done by the measures which are taken to repress inflation than is done by the open inflation itself. Consequently, if you are realistically going to consider different rates of inflation, then I believe that what you are saying is correct, not because of the inflation, but because the higher the rate of inflation the more widespread is likely to be the government interference in the market. In effect, such interference is equivalent to increasing the amount of frictions and obstacles in the labour market, and therefore does tend to create a higher level of unemployment. That is why, when reporters and others ask how much unemployment it will cost to reduce inflation, I say to them, when did you last beat your wife? How much unemployment will it cost not to beat inflation?

You must not let yourself be carried away by the naive Phillips curve approach and suppose that there really is a trade-off here. Given the way in which the political and economic structure will adapt itself to different rates of inflation, if you continue to let inflation accelerate you are going to have higher unemployment either way. So you only have a choice between which way you want the unemployment to come. Do you want it to come while you are getting sicker or do you want it to come while you are getting better?

QUESTION (speaker’s identity unknown): How do you reconcile the following situation with what you have just said? Supposing you have a situation with a firm or industry employing, say, 20,000 people, and unions are pressing up the wages. And then government controls the price at which the product is being sold. There comes a point where the firm says to the government: “We cannot produce this any more, give us a subsidy.” Is not that inflation because of falling production and/or more money being pushed around?

PROFESSOR FRIEDMAN: The subsidy itself is not inflation. If the subsidy is financed by printing money the consequence will be inflation. If the subsidy is financed by taxing somebody else to pay the subsidy there is no inflation.

I am not saying that the existence of strong unions may not be one of the factors that, by a variety of devices, affects what monetary policy is. But in this respect it is just one of many
influences. What produces the inflation is not trade unions, nor monopolistic employers, but what happens to the quantity of money. Anything else that affects the quantity of money will have the same effect.

Moreover, I go further. I can speak more confidently of my own country than I can of yours. In my country the theoretical possibilities we have discussed here — that union-caused unemployment would produce reactions on the part of governments which would promote inflation — have not empirically been the source of inflation. In the US the experience is that union wages have tended to lag behind inflation rather than to precede it. Almost all union confrontations have been “catch-ups.” Unions have been blamed for inflation for the same reason that in this country your government blames the price of oil for inflation. Every government looks for scapegoats for its own deficiencies. That is what has happened in my country. It is what has happened in Britain.

I doubt that, in practice, any large part of your inflationary problem has been produced by mischievous unions. No doubt there have been many mischievous actions; I am not saying there have not. I am not trying to defend unions, far from it. I think they do an enormous amount of harm. But I believe that we do no good by using bad reasons for good objectives. We ought to face up to the problem of the correct policy about unions, on the relevant grounds that unions deny people opportunities to employ their resources in the most effective way and keep the standard of life of the ordinary people of Britain lower than it otherwise would be, but not on the utterly false and irrelevant grounds that in some way they are manufacturers of money and of inflation.

We must not suppose we are dealing with a completely new phenomenon. Inflations have been with us for two thousand years. The inflation in Diocletian’s time was not produced by strong trade unions! Nor were almost any of the other historical inflations.

In your country and in mine, every businessman is persuaded that inflation is produced by labor unions, or by wage pressure, whether or not from trade unions. And that is because of the fallacy of composition. What is true for each individual is often the opposite of what is true for everybody together. Any person in this room could get out of that door in two seconds; but if everybody tried at once to get out of that door, you could not do it. In the same way, pressure on an employer to increase his prices comes to him in the form of an increase in wages and costs. It looks to him as if he is being required to increase prices because of that increase in wages and costs. That is true for him by himself. But where did that increase in costs come from? It came because somewhere else in the system somebody was increasing demand, which was tending to draw away the employer’s labor or other resources. He was required to bid in the market to keep them.

In University Economics, Professors A. A. Alchian and W. R. Allen have an excellent little parable which I think brings this truth home very well. It says, let us suppose in a country in which everything else is fine all of a sudden there is a great craze for increasing the consumption of meat, and all the housewives rush to the butchers to buy meat. The butchers are delighted to sell them the meat. They do not mark up the prices at all, they just sell out all the meat they have, but they place additional orders with the wholesalers. The wholesalers are delighted to sell the meat. They clean out their inventories. They go back to the packing houses. The packing houses
ship out their meat. The price is the same but the packing houses send orders to their buyers at the cattle market: “Buy more beef.” There is only a fixed amount of cattle available. And so the only thing that happens is that in the process of each packer trying to buy more beef he bids up the price. Then a notice goes from the packer to the wholesaler, “We are very sorry, but due to an increase in our costs we are required to increase the price.” A notice goes from the wholesaler to the retailer. And the retailer finally says to the customer when she comes in to complain that beef has gone up, “I’m terribly sorry, but my costs have gone up.” He’s right. But what started the increase in costs all the way up and down the line? It was the housewife rushing in to buy the meat.

In exactly the same way, every businessman has a misconception of the process. From his point of view he is right—the pressure on him to raise his prices derives from increases in costs. If there happen to be unions, he will attribute it to the pressure of the unions. If there are no unions, he will attribute it to some other force which is driving up wages—perhaps the world shortage of sugar, or the Arabs. But the truth of the matter is that the ultimate source of inflation is always that increase in demand which percolates through to him in this or some other form.

Notes

3 Fisher, op. cit., p. 786.
4 Ibid., p. 787.
5 Ibid., p. 788.
6 Phillips, op. cit., p. 283.
7 J. M. Keynes, The General Theory of Employment, Interest, and Money (Macmillan, 1936): “Whilst workers will usually resist a reduction of money-wages, it is not their practice to withdraw their labour whenever there is a rise in the price of wage-goods” (p. 9). “… The workers, though unconsciously, are instinctively more reasonable economists than the classical school … They resist reductions of money-wages … whereas they do not resist reductions of real wages” (p. 14). “… Since no trade union would dream of striking on every occasion of a rise in the cost of living, they do not raise the obstacle to any increase in aggregate employment attributed to them by the classical school” (p. 15).
8 For example, Albert Rees, “The Phillips Curve as a Menu for Policy Choices,” Economica, August 1970, pp. 227–238, explicitly considers the objections to a stable Phillips curve outlined below, yet concludes that there remains a trade-off that should be exploited. He writes: ‘The strongest policy conclusion I can draw from the expectations literature is that the policy makers should not attempt to operate at a single point on the Phillips curve…. Rather, they should permit fluctuations in unemployment within a band’ (p. 238).
11 “United Kingdom General Index of Retail Prices,” Department of Employment Gazette.
12 This is the coefficient of the anticipated rate of inflation, that is, the percentage point change in the current rate of change in wages or in prices that would result from a 1 percentage point change in the anticipated rate of inflation.
13 I might note as an aside that one much noticed attempt along these lines was contained in lectures given in Britain by Robert Solow a few years ago (Price Expectations and the Behaviour of the Price Level, Manchester University Press, 1969). Unfortunately, his test has a fatal flaw which renders it irrelevant to the current issue. In order to allow for costs as well as demand, he included on the right-hand side of an equation like Equation (3) the rate of change of wages, and, on the left-hand side, the rate of change of prices. In such an equation, there is no reason to expect b to be unity even on the strictest acceleration hypothesis, because the equation is then an equation to determine what
happens to the margin between prices and wages. Let the anticipated rate of inflation rise by one percentage point, but the rate of change of wages be held constant, and any resulting rise in prices raises the excess of prices over costs and so stimulates output. Hence, in Solow’s equation, the strict acceleration hypothesis would imply that \( b \) was less than 1.


16 Footnote 1, p. 26.


4/17/13