MACROECONOMICS: - a high speed introduction (or revision)

This is a course in macroeconomic theory which, as well as trying to familiarise you with the latest concepts and techniques, tries also to capture something of the development of macroeconomic theorising in recent years and thus to show you how we have got to be where we are. Looking at the evolution of macro ideas makes some sense from a teaching and learning point of view because this evolution itself represents not so much a replacement of old ideas by new ones, but by the addition of new ideas to old, as we've come to realise that the macroeconomy is more complicated than we thought it was years ago. In other words, what was accepted as the core of macroeconomics some fifty years ago was not so much wrong as incomplete. It might now be described as 'simple' or 'basic macroeconomics'. It marked the first recognition that something called the macroeconomy actually existed and required tools for its analysis which were not just those of microeconomics generalised to the whole economy. This initial development of macroeconomics focused on the analysis of aggregate demand (AD), largely ignoring aggregate supply (AS). It was associated with the name of John Maynard Keynes (though it often ignored some of Keynes's fundamental insights) and was widely-accepted as 'correct' from about 1945 to 1970. Since then we have seen attacks on simple Keynesianism launched from a resurgent 'classical' tradition in the 1970s and 1980s and the emergence in the last fifteen years or so of a 'new-keynesian' macroeconomics, sometimes referred to as 'the new consensus macroeconomics (or NCM). Needless to say, the last named has some features of all that went before.

We start this summary by looking at what Keynes called the 'classical' view (which meant roughly-speaking all the ideas the pre-dated his *General Theory of Employment Interest and Money* (1936) and of which he disapproved). We then look at basic Keynesianism, the classical revival and the NCM.

THE 'CLASSICAL' VIEW.

Keynes used the term 'classical' in a fairly indiscriminate way and included economists whose work we might now describe as neo-classical or even Marshallian. No matter. Our purpose is to form a fairly simple view of thinking about the macroeconomy before Keynes.

Firstly, we should all know by now that macroeconomics is concerned with: output/real income (Y), employment and unemployment (L and U), the *general* price level (P) and its rate of change or inflation, (π). Other issues like international trade and exchange rates also often feature in the list and, of course, there are the policies which can be brought to bear on these variables. For many years, the starting point in analysing Y, L, U, π was to assume that they were determined by the same <u>rational</u>, maximising behaviour that applied in all markets. In other words, <u>aggregate</u> employment could be explained in the same way that employment in any particular industry could be explained; likewise, total output was just the aggregation of the quantities traded in all markets for goods and services and could therefore be explained by supply and demand.

Furthermore, it was assumed that prices throughout the economy were flexible and that agents were well-informed and that there were few serious market imperfections. In these circumstances, it was normal for markets to 'clear' (i.e. no excess demand or supply) and, following the aggregation principle, if this were true for individual (micro) markets then this must be true for the economy as a whole. This may so far seem reasonable. but it does already bring us to a dramatic proposition. **This is that full employment will be the norm.** This arises once we say that the labour market 'clears'. Supply is equal to demand. There is no excess supply of labour at the current wage. There maybe people who are not prepared to work except for a higher wage and

there maybe people of working age who don't wish to work at any price. But these categories are irrelevant. Labour market equilibrium is tantamount to full employment.

With 'full employment' the norm, other startling propositions followed. The obvious one was that an increase in aggregate demand (AD) could only raise the general level of prices. Since the economy is at full employment, there is no alternative. Aggregate supply (AS) is fixed (ignoring long-run economic growth resulting from population growth and technological improvements). Changes in aggregate spending could not affect real variables.

This idea was popularly summed up in the Quantity Theory of Money which began as the 'equation of exchange' and was written as

$$MV \equiv PT$$

where M is the total money stock, P is the average price level and T is the total <u>volume</u> of transactions. V, often called 'velocity' is a coefficient required to make the two sides equal and identical. Basically it's interpreted as saying that total spending is equal and identical to total sales. If we substitute Y for T (by assuming that T is a fixed multiple of Y), then we have an expression which says, in effect, that $AD \equiv AS$. Burt as it stands it is merely an identity (true by definition). We can't predict anything (except that an increase/decrease on one side must be matched by the same on the other side). What makes it into the Quantity <u>Theory</u> are firstly the restrictions placed upon V and Y. Y is easy – thanks to the full employment proposition it can change only v slowly over time. Similarly, V changes only v slowly since it is determined by institutional arrangements surrounding the way in which payments are made. This means that changes in M must be 'reflected in' changes in P and the direction of causality is resolved by assuming that the money supply is exogenously determined by the central bank. Hence, a change in the money supply causes a change in the price level, leaving 'real' variables (Y, L etc...) unchanged.

Furthermore, in the absence of a money supply shock, AD will be stable. This is ensured by the behaviour of velocity. But we could look at aggregate demand in a different way by considering its components, C, I and G: standing for consumption, investment and government spending. (In effect we are looking backwards at classical ideas through Keynesian 'eyes'). Classical economists were aware the components of aggregate demand could fluctuate. For example, people might decide to save more. But they would only do this by lending at interest to others who wished to spend. Anything else was irrational. Certainly, it would be irrational to save by accumulating money, since money (= notes and coin + bank sight deposits) did not pay interest. Hence an increase (for example) in saving must be equivalent to an increase in lending and this lending would be used by borrowers to finance their expenditure. An equality between saving and borrowing or (saving and 'investment') was guaranteed by the rate of interest which would function as the price. Notice that since money is assumed not to pay interest, we have a fairly narrow definition of money and its functions are limited to means of payment. This is another way of understanding the stability of velocity. If money's function is mainly to help carry out transactions then there will be a stable relationship between the quantity of money and the level of aggregate (nominal) spending. Hence changes in the money stock were both necessary and sufficient conditions for a change in spending.

Before we leave the 'Classical' view, we take a quick look at the labour market since the full-employment axiom is probably the most striking feature of the classical view and we need to come back to it later in connection with Keynes and again with more recent developments.

L_S: Labour is a positive function of a <u>real wage</u>

L_D: Firms will hire labour up to the point where marginal product = real wage.
Because all prices are flexible (including money wages) the labour market will clear - just like other markets.
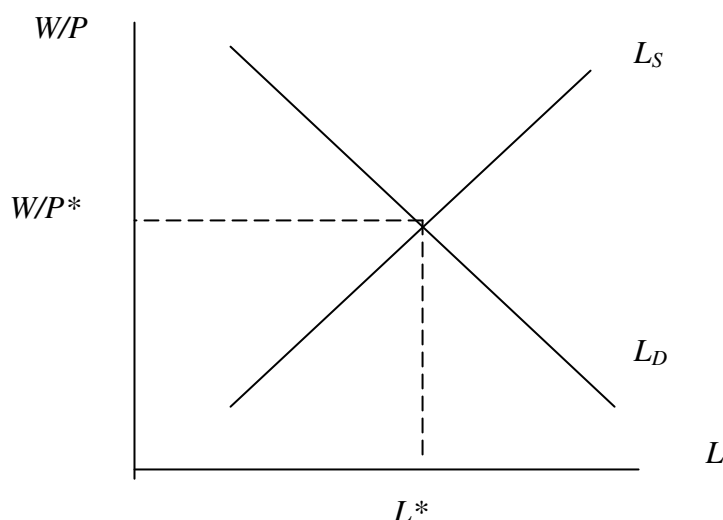
The labour market is in equilibrium at real wage W/P^* and the volume of employment L^*.

The crucial point is that *if* the labour market clears , as in the diagram, we have full employment.

Changes in aggregate demand won't change the quantity of employment.

> Note
>
> Don't make the mistake of thinking that a change in *AD* will shift the L_D curve. *W/P* is the real wage. This means a physical qty of goods. Firms are willing to hire L^* of labour because the physical qty of goods that labour has to be paid is just equal to the physical quantity the last worker can produce, i.e. labour's marginal physical product.
>
> If we have *W/P* on the vertical axis, the only thing that can cause a shift in L_D is a change in the physical productivity of the workforce.

If a change in *AD* cannot change *L,* what will it do? Consider this sequence:

1. An increase in *AD* presents to individual firms as an increase in the demand for their products. (They have no way of telling an increase in *AD* from say an increase in demand resulting from change of taste).

2. Firms try to increase output by hiring more labour and buying more inputs.

3. If factor markets are in equilibrium ('clearing') more factor inputs can be bought only if a higher price is offered.

4. Labour observes a higher money wage offer and, employment and output both increase.

5. But: while factor inputs may be paid more, all prices are rising. Why?

6. Answer: (a) firms are producing under conditions of incr. marginal cost; (b) the cost of *all* factor inputs is rising.

7. The rise in prices offsets the rise in money incomes. $\Delta W = \Delta P$ so W/P^* does not change and neither does L^*. prices rise, but Y is fixed. In *AS/AD* terms: <u>the *AS* curve is vertical</u> because we are at full employment.

In summary then:

Equilibrium in the labour market determines the level of employment
Through the partial production function, the level of employment fixes output
Since employment is fixed by *real* wage and prices are fully flexible,
        ΔP has no effect on *L,* or *Y*

In diagrams?
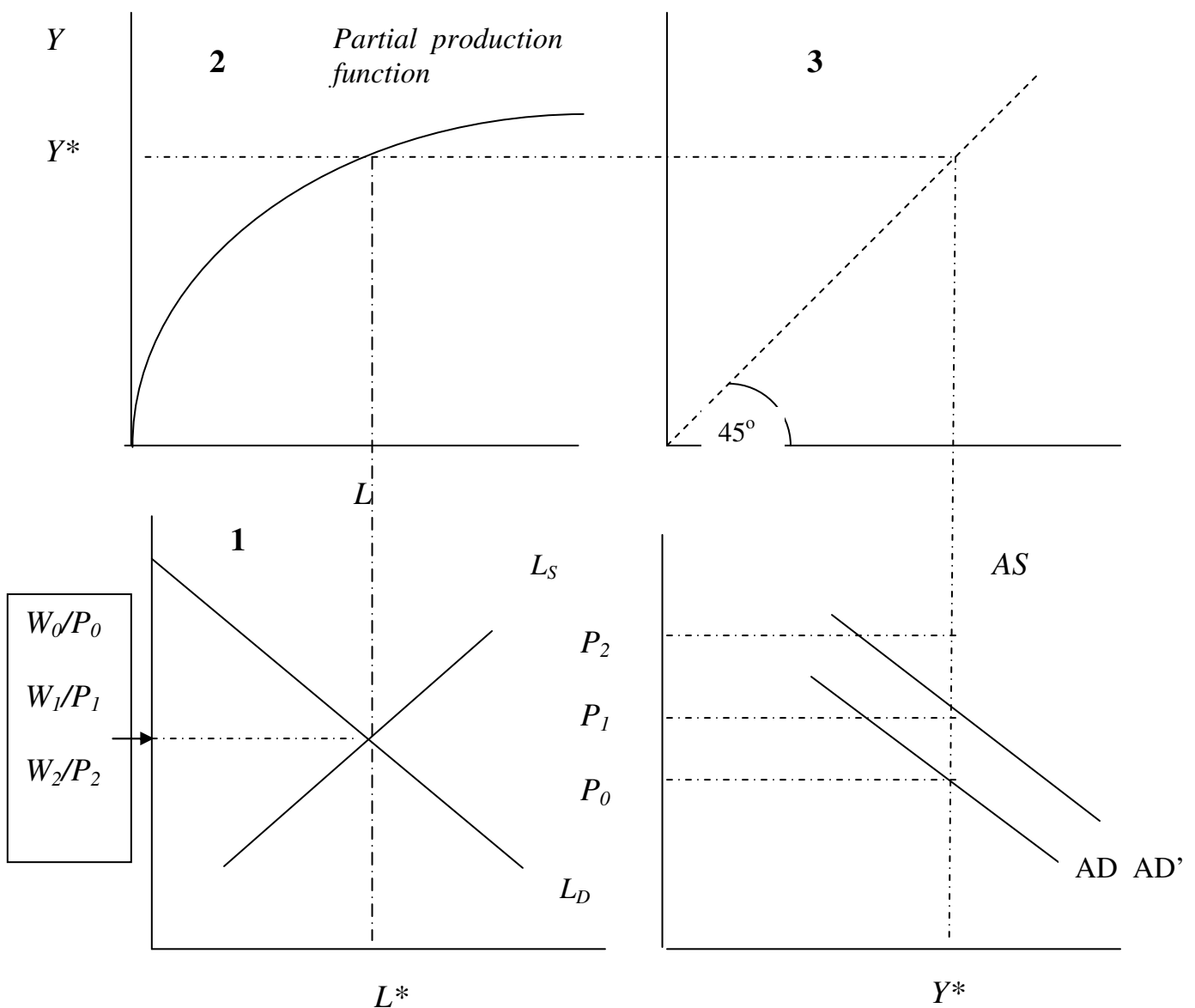
THE ECONOMICS OF J M KEYNES

By contrast with the Classics, the importance of *AD* was first stressed by J M Keynes in *The General Theory of Employment, Interest and Money* (the *GT*) published in 1936. The 1930s were a period of very high unemployment and spare economic capacity throughout the western world so it was hardly surprising that Keynes stressed the importance of demand and had very little to say about the behaviour of supply. In the circumstances, AS was hardly likely to be a problem (and it seemed v difficult to accept the Classical axiom that full employment was the norm. FE with U > 20%?, come off it!)

Basically, the message was that output (*Y*) (and employment) will settle at an 'equilibrium' level where output is equal to total planned spending. In symbols: $Y = C + I + G$, where *C* is consumption, *I* is investment and *G* is government spending (notice that we exclude the external sector for the time being). Of the three components of AD, *C* is usually thought to be the most predictable, *I* is rather unstable (and the source of most fluctuations in AD) while *G* can be varied to adjust the level of AD to keep it at or near the level of *Y* which corresponds to 'full employment'. Notice that this has to be 'managed'; it is not automatic.

But this is only a part of Keynes's *GT*. In the *GT* Keynes spent a lot of time discussing fluctuations in *I* and why they occurred. Roughly speaking, he argued that investment (the purchase of capital equipment by firms) was determined by the level of interest rates (*i*) and the state of business 'expectations'. This raises the question of what determines *i*. To answer this, Keynes turned to 'monetary conditions' or what is sometimes called the 'monetary sector' to distinguish it from the 'real' or 'goods' sector where goods and services are produced and sold (the 45° diagram). Keynes's analysis of interest argued that it was determined by the interaction of people's desire for liquidity (i.e. 'money') and the stock of money that was available. The demand for money represented a desire for money for everyday transactions purposes but also a desire to hold money sometimes as a form of saving (or wealth) – especially in times of particular uncertainty and risk. This view of money marked another dramatic break with the Classical tradition. Recall that the classics regarded holding money for non-transaction purposes (they would have called it 'hoarding') as irrational since money paid no interest. But Keynes's argument was that it made perfectly good sense to hold money if you feared a capital loss from other assets (e.g. bonds). This raised the question of where this fear might come from. The best that Keynes could manage was to say that when the *actual* rate of interest was 'low', then people would expect a rise in future and a fall in asset prices. But this merely turned the question into what was meant by 'low'? Presumably it would depend upon the condition of the economy or the circumstances of the day. In any event it introduced a psychological element to the demand for money and therefore the possibility that the demand for money might be unstable. Even if it wasn't, introducing a demand for money which was independent of transactions but dependent on the rate of interest meant that the demand for money could vary independently of nominal output, or *PY*. This destroyed the argument that *V* was always stable and predictable. Changes in the quantity of money no longer *guaranteed* a change in aggregate demand; by the same token aggregate demand could change *without* a change in the money supply. Furthermore, there was no longer any guarantee that the rate of interest would adjust to balance investment and saving and maintain the level of *AD*. The rate of interest is now being set in the money market by the demand for money, relative to its (fixed) supply.

This aggregate demand side of the *General Theory* was summarised in an article by Sir John Hicks (1937). This model became the *IS/LM* model that has dominated intermediate macroeconomics teaching since the late-1940s. It is an extremely versatile and compact model which can be used to show how the goods and money markets interact in order to produce an 'equilibrium' level of aggregate demand. Unfortunately, for Keynesian scholars, the model plays

down the psychological elements in the *GT* and in so doing, loses the uncertainty and consequently the instability of behaviour that Keynes stressed. It's a major curiosity in the history of economic thought that Keynes saw Hicks's paper before publication and gave it his approval. With *AD* depending in part on *i*, and *i* depending on the demand for money which itself depended on the level of economic activity (remember its role as a means of payment) we have a classic circular argument: output depends (in part) on the rate of interest which depends (in part) on the level of output. So the next step is to bring the goods market and money markets together. This is done in what is called the IS/LM model and this model marks the beginning of most intermediate macro courses. Historically speaking, the IS/LM model followed the *GT* very quickly. It was developed by Sir John Hicks and published in 1937 (though he called it the IS/LL model). Serious students of Keynes have argued that the IS/LM model fails to capture many of the ideas of the *GT* and misleads about some others, but interestingly Keynes saw it before publication and accepted it as a reasonable simplification of his ideas.

Remember that all the time we are working with the IS/LM model, our attention is focused on *AD* alone. In effect, we are assuming that *Y* (and *L, U*) are free to respond to Δ*AD*.

But sooner or later, we have to ask what is happening to AS while all this is going on. What sort of economy are we analysing in which ΔAD causes changes in output and employment? Clearly, it must be the case that there is 'spare capacity' in some sense of the term. There must be unemployed resources widely available. Remember that Keynes and Hicks were both working in an environment where that was obviously the case. No one at the time was very concerned about the possibility that the economy might run up against its maximum output potential. ('If only…' most policy-makers would have said at the time). Nor was anyone worried about inflation. During the 1930s, the general price level if anything tended *to fall*. All this changed after 1945, though it took twenty-five years for the significance of the change to be recognised. By the 1980s, *AS* was suddenly back in the picture, and pretty central at that. So, what was the Keynesian view of the labour market?

Summary:
The labour market does not necessarily clear.
The real wage can be above the market clearing level
There are no forces which guarantee *W/P* moves to *W/P**

Why?

[1]. In a capitalist system, the volume of employment is determined by firms' demand for labour – not by workers offer to supply.

[2]. Firms/workers can only negotiate the <u>money wage</u>. What happens to the real wage depends upon subsequent changes in *P*.

The following is possible and there is no reason why it should not persist.

W/P L_S

W/P

W/P^*

W/P_1 L_D

                                                L
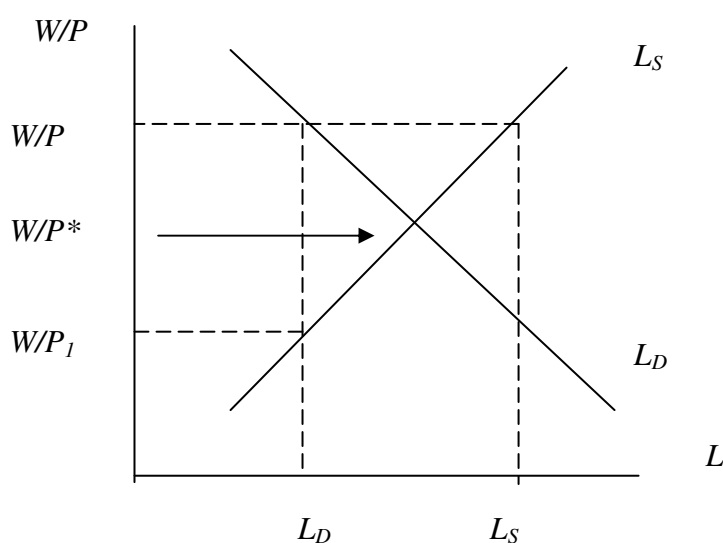
L_D L_S

Because of (2), $W/P > W/P^*$ and the volume of employment is L_D. $L_S - L_D$ is involuntary U.

(1) means that involuntary unemployment can persist. Firms are on their demand curve. W/P is just equal to labour's marginal product at L_D so there is no incentive to firms to change their demand for labour.

Why should anything change? Firms are happy. The employed workers are happy.
(Diagram says L_D workers are actually willing to work for a real wage as low as W/P_1)

Of course, workers who are involuntarily unemployed are unhappy. They are all willing to work at W/P and many will be willing to work at a real wage less than W/P.

But what can they do? It is not easy to communicate this to firms.
Even if they succeed, unlikely that a firm is going to sack existing workers to replace with cheaper workers (remember $W/P = MP$).

According to Keynes, the way to get some of the unemployed into work, is to increase AD. This will raise some prices but not money wages. (Remember, many unemployed are willing to work for *lower* real wages). This causes a fall in W/P and now there is an incentive to firms to hire more labour. If we want to compare with the 'classical sequence' …..

[1] is the same; [2] is the same. Then the difference begins. Because the labour market does not clear, it is not necessary to offer higher money wages. Offering the higher money wages was essential in the classical sequence because of the assumption that we start from labour market-clearing. This in turn made it impossible for the real wage to fall and employment to increase.

Keynes's critics understood his argument, of course, but their reaction was that the disequilibrium real wage was the result of 'market imperfections'. The implication was that the problem was a minor one and that it would quickly be eliminated when agents on both sides of the market realised the mistakes they were making in wage-setting. This infuriated Keynes who saw the problem as being endemic in the (power) structure of modern economies. What the classics dismissed as 'market imperfections' were for Keynes fundamental to the capitalist system and therefore this kind of labour market failure was endemic, not a matter of (temporary) bad luck.

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In diagrams:
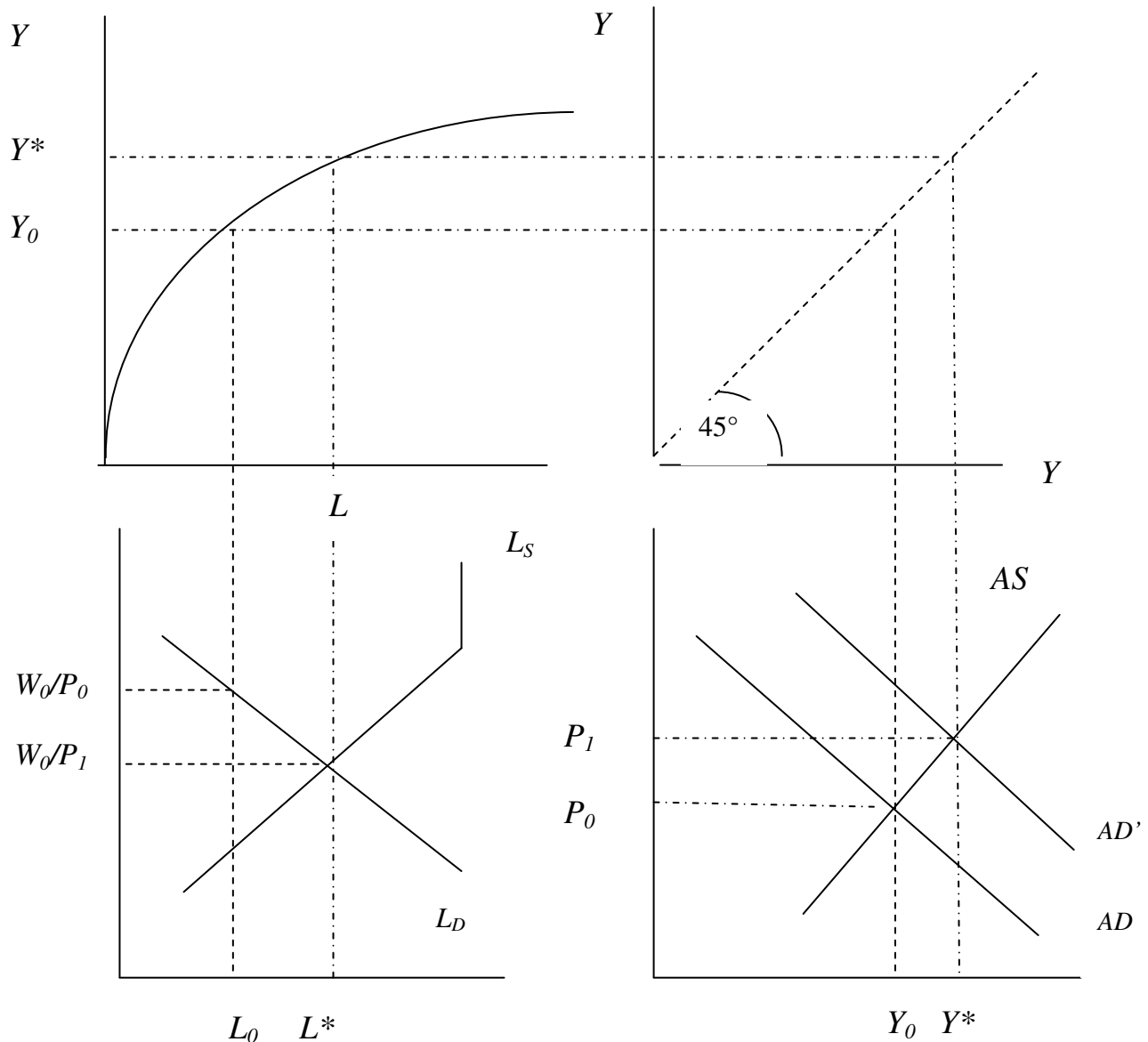
We begin at L_0/Y_0 and a price level of P_0. An increase in AD causes prices to rise (as per the Classical case) but money wages do not follow. This is because the real wage is above market clearing and well above the real wage required by the current level of employment. (What is the real wage required by L_0?). Rising prices and a fixed money wage leads to falling real wages and an increase in employment and output.

The obvious conclusions to draw from this analysis were twofold. Firstly, it appeared that the level of output/employment could be varied by adjusting the level of aggregate demand, at least up to some point which we call 'full employment'. Secondly, increasing the level of output/employment would be associated with rising prices or inflation.

The theory received a considerable boost by the war and post-war experiences of the developed economies. During this period, high levels of demand (for war materiel as well as civilian goods and services) were associated with unprecedentedly low levels of unemployment.

In 1958, these basic Keynesian ideas received a further boost through the work of A W Phillips who (1958) published a study of the long-run (1861-1957) relationship between the rate of wage inflation and unemployment. This produced the famous 'Phillips curve' which showed a

tendency for wage inflation to increase as unemployment fell (employment/output rose). The relationship is sketched in the following diagram.

$\dot{W}\%$

5.5%

$U\%$
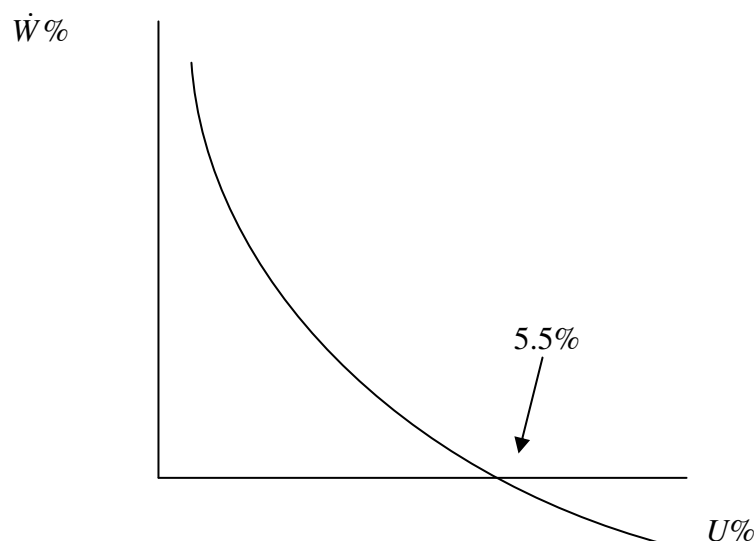
The crucial message was that inflation could be 'traded-off' against unemployment. Phillips' results suggested that wage inflation would be positive if unemployment were less than about 5.5% but that inflation could be held at reasonable (2-3%) levels if unemployment were c.2.5%.

Retrospectively, the Phillips curve can be seen as symbolic of the simple Keynesianism that informed macro policy from about 1950 to 1970. It seemed to give empirical confirmation to Keynes's basic insight that output and employment could be increased (by aggregate demand measures) until 'full employment' was reached when additional demand would be translated mainly into inflation with no effect on real variables. Note that there was little discussion of what exactly was meant by 'full employment'. Phillips appeared to supply a working figure of around about 2 per cent but there was no discussion about what determined this magnitude or whether it might be expected to vary. In fact, because Phillips' data spanned a long period, it created the impression that the figure had some long-run significance. This becomes crucial in the next section.


THE MONETARIST REVIVAL

In the late 1960s the idea that there might be a dependable trade-off between inflation and unemployment ran into trouble. This was because given levels of unemployment became associated with increasing rates of inflation. In terms of the diagram, it appeared that the curve was shifting outward. (It was also apparent that the 'scatter' of observations was becoming 'looser' suggesting that the whole relationship was becoming less dependable).

Inevitably, this led to a much closer (and critical) examination of the 'theory' behind the Phillips curve. The principle critics were Friedman (1968) and Phelps (1967). Essentially, what both pointed out was that the policymaker could exploit the relationship only if workers suffered from money illusion. More commonly, this is expressed by saying that workers ignore the rate of inflation when making wage bargains. To see why, consider the next diagram in which we assume that the economy is at A, with inflation at 2% and unemployment at 4%.[1] Furthermore, the situation is stable. Assuming that workers are rational and do *not* suffer from money illusion, this stability must mean that the labour market is in equilibrium. Workers are happy to supply the

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[1] Note that we have changed 'wage inflation' to '(price) inflation'. Most discussions of the Phillips curve refer to inflation in this general sense. There is no big issue involved in the transition. Wage and price inflation will differ depending on the rate of growth of productivity.

labour associated with $U = 4\%$, because they are receiving money wages which increase by enough to maintain the real wage when $\pi = 2\%$.
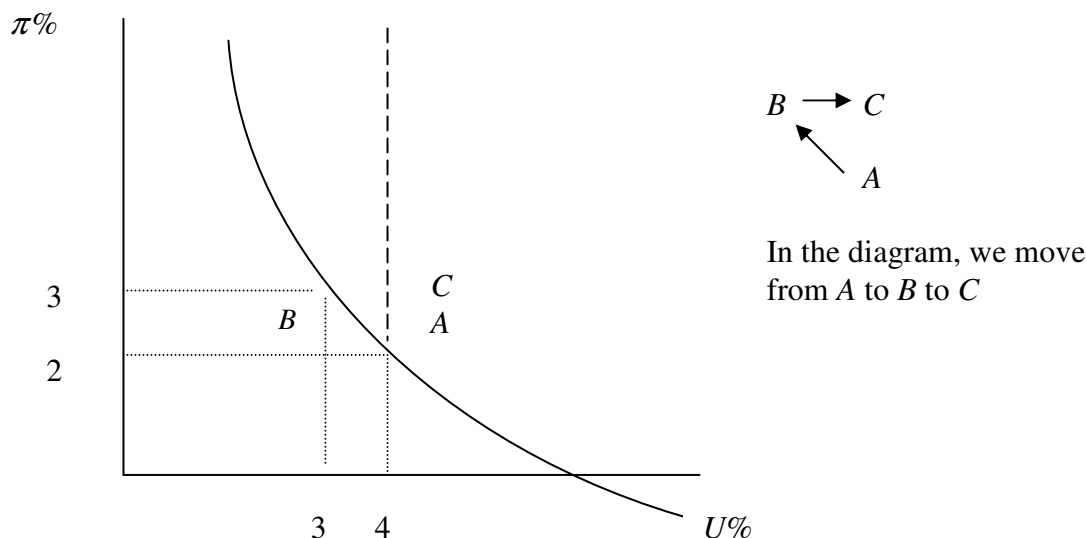
Suppose now that the policymaker decides to aim for $U = 3\%$. This involves an increase in AD and a movement up the Phillips curve (say) to 3%/3%. The increase in AD confronts individual firms as an increase in demand for their own products and they respond by hiring more labour for which they <u>have to offer higher money wages</u> (remember, the labour market was in equilibrium). Workers respond positively, because they observe the higher money wages as an increase in the real wage. But, if all markets were in equilibrium, this rise in money wages is being repeated everywhere and so the general level of prices is rising. The higher money wage is <u>not</u> an increase in the real wage. As soon as they realise this, workers withdraw their extra offers of work and output/employment return to their original levels. The critical difference, however, is that prices are now rising more rapidly than they were. This is shown in the diagram by '*C*'. Needless to say, if the policymaker is disappointed with this, s/he can repeat the action but the result will be the same. We shall start at *C*, move temporarily to a higher level of inflation/lower unemployment and then slip back to the original level of unemployment but at a rate of inflation which is higher again.

The conclusion to which this leads is that the original Phillips curve is a short-run phenomenon. It survives only for so long as the policymaker does not try to <u>exploit</u> the inflation/unemployment trade-off. Once the policymaker tries to exploit the relationship s/he discovers that the only value that can be chosen by policy is the rate of inflation. Unemployment is fixed by the level <u>at which the labour market clears.</u> This became known as the NAIRU in the literature, meaning the 'non-accelerating inflation level of unemployment'. i.e. below this level of unemployment (4% in the diagram) inflation will accelerate. Another way of expressing this – in Phillips curve language – is to say that the 'long-run' Phillips curve is vertical. The trade-off is a very short-run phenomenon, lasting only for so long as it takes agents to realise what is happening to inflation.

Superficially, there appears to be a similarity between the short-run Phillips curve and the Keynesian analysis of the previous section. The similarity is that an increase in AD causes a rise in the price level and an increase in employment and output. But the differences are fundamental. In the case of the Phillips curve, the relationship holds only in the 'short-run'. This is because we start from the view that there is a 'natural' level of (un)empolyment to which the economy constantly tends. This is equivalent to the 'full-employment', market clearing equilibrium that we had in the previous discussion. But the Keynesian view was that the econmy was frequently away from this position and that there were <u>no forces tending automatically to return the economy to</u>

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full employment. In the Keynesian scheme, therefore, there was no need to dismiss the real effects of aggregate demand changes as 'short-run' or temporary. We can see this more clearly if we look at the algebra of the short-run Phillips curve and se how it looks if we convert it to an AS curve.

Firstly, we express the Phillips curve relation as $\pi = \pi^e - \beta(u - u^n)$ where π^e is 'expected' inflation and u-u^* is the difference between the actual rate of unemployment and its 'natural' rate. To convert this to a statement about aggregate supply, we have to replace unemployment by output and we can do this by invoking Okun's Law which says that deviations in unemployment from its natural rate are inversely related to deviations in output from its natural rate. e.g.

$-\beta(u - u^n) = (1/\alpha)(Y - Y^*)$, where Y^* is the natural level of output.

So we now have $\pi = \pi^e + (1/\alpha)(Y - Y^*)$. But in our *AD/AS* diagram we have the price <u>level</u> (rather than inflation). However, since inflation is merely the change in price level between two periods we can extract the price level by subtracting the previous price level (P_{-1}) from each side. The *AS* curve corresponding the short-run Phillips curve can thus be written as:

$P = P^e + (1/\alpha)(Y$-$Y^*)$., or if we wish to explain the level of output we can rearrange such that

$Y = Y^* + \alpha(P - P^e)$ which tells that output will settle at its natural rate unless actual inflation differs from expected inflation. In this view then, a change in aggregate demand may have some temporary effect upon output and this will last for as long as it takes for agents to realise <u>and correct</u> their error.

The idea that agents make errors, and do so repeatedly, is problematic for many economists since it goes against two of the most fundamental axioms of orthodox economics, namely that agents are rational and self-interested. To make errors which lead to sub-optimal outcomes is not what one would expect in normal circumstances. During the 1980s this led to a lot of research into how 'expectations' were formed. In the case of the short-run Phillips curve that we just looked at, expectations were often held to be formed 'adaptively'. That is to say that they were heavily influenced by what had gone before, so that our expectations of this year's inflation rate would be heavily coloured by last year's rate. If this is the case, then obviously agents will make errors when inflation rates are <u>changing.</u> Expectations will always be one step behind the true rate. But this is necessary only if expectations contain a backward looking element.

Suppose as an alternative that agents are forward looking. They are consciously striving to figure out next period's inflation and they will use all available information in order to do that. 'All available information' could cover a wide range of inputs. It could embrace the current state of the economy, political developments in oil-producing regions, current government policy and much else. What it certainly requires if expectations are to have any chance of turning out to be true is knowledge of how the economy works, at least as regards inflation. In other words, agents a 'correct' model of inflation. Then, given accurate information about the key values in the model, agents might well be able to form accurate judgements about the future, <u>at least on average.</u> Expectations formed in this way came to be known as <u>rational expectations</u> meaning that these were expectations formed in the way that we would expect from rational economic agents. Notice that if expectations are rationally formed and are correct on average, then the short-run Phillips curve disappears. In our earlier diagram, we go straight from *A* to *C*. The rate of inflation increases without even so much as a short-run increase in output and employment. And, in our *AS* equation, since $(P - P^e) = 0$, then output will always be at its natural level, Y^*. For this reason,

rational expectations formed the basis of what was sometimes called the **NEW CLASSICAL** school because its predictions were so similar to those of the 'classics' we met at the beginning.

It is interesting to note in passing that the new classical school shared another characteristic with the (old) classics – and this is why we are discussing it under the broader heading of 'monetarism'. This is the belief that there is a direct and moderately powerful link between the quantity of money and nominal spending. Bear in mind that the new classics have given us an *AS* curve that is vertical in short and long-runs then changes in the money supply can only change the price level and we are really back to the quantity theory. Indeed, it was the belief that inflation could be explained within a quantity theory framework that led to the formation of generally correct explanations. The argument was that the QT was a broadly accurate explanation of inflation and that it was simple enough for most people to grasp. Furthermore, since the behaviour of the money supply was widely known (at least amongst those who were interested) then it was a relatively simple task to form correct expectations. In effect: $\pi^e = \dot{M} + \dot{V} - \dot{Y}$. Essentially, inflation expectations depended on monetary policy and especially the growth of money supply.

The rational expectations or new classical ideas never caught on at the policy level. Even in the early 1980s when the first Thatcher administration *claimed* to place a great emphasis on restraining monetary growth as a way of controlling inflation, it did so by setting interest rates (rather than trying to control the quantity of money directly) and more relevant to the RE position the government (and the Bank of England) were well aware that changes in monetary policy had real effects, at least for a while. The years 1981-83 were years of major recession, followed by a fall in inflation. It is a perfect example of policy pushing the economy down a short-run Phillips curve, raising unemployment above and reducing output below their natural rates.

THE NEW CONSENSUS MACROECONOMICS

The last fifteen years have seen the emergence of what is known variously as the 'new consensus' of 'new Keynesian' macroeconomics. The most interesting feature of this development is the extent to which this view of how the economy works has been driven by the practical experience of what works on the policy front, rather than any breakthrough in theoretical economics. (The term 'consensus' should alert us to the fact that it is bringing together elements of pre-existing theory).

There is now a widespread belief that an 'optimal' monetary policy has the following features:

1) monetary policy should focus on price 'stability' as its primary objective;
2) the inflation target should be explicit;
3) the only practical policy instrument is the rate of interest at which the central bank re-finances commercial banks' borrowed reserves;
4) the policy instrument should be set by a central bank which is independent of government;
5) the thinking behind a change in the instrument should be easily visible.
6) fiscal policy has little relevance to the macroeconomy. Deficits should be limited to financing capital spending and must not be financed by borrowing from the central bank.

With minor variations this describes the way in which monetary policy is conducted in most developed countries. Given that a widely-held consensus has emerged regarding the best way to run macropolicy, this implies a widely-held view about how the economy works.

The way in which this is explained in the NCM literature is as follows. The diagrams may <u>look</u> different from those above, but remember that they are generally expressing ideas that we have already encountered.
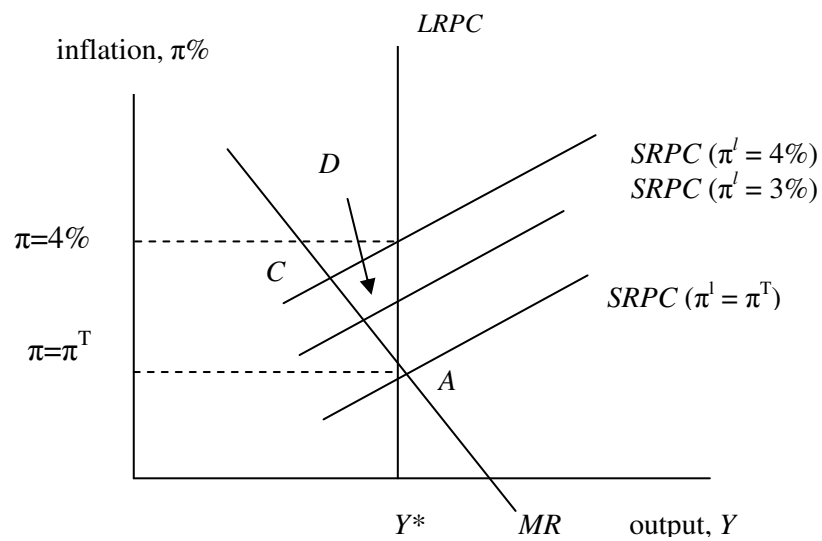
Firstly, we accept the distinction between the short-run and long-run Phillips curves. But it is customary to draw these with output (rather than unemployment) on the horizontal axis.
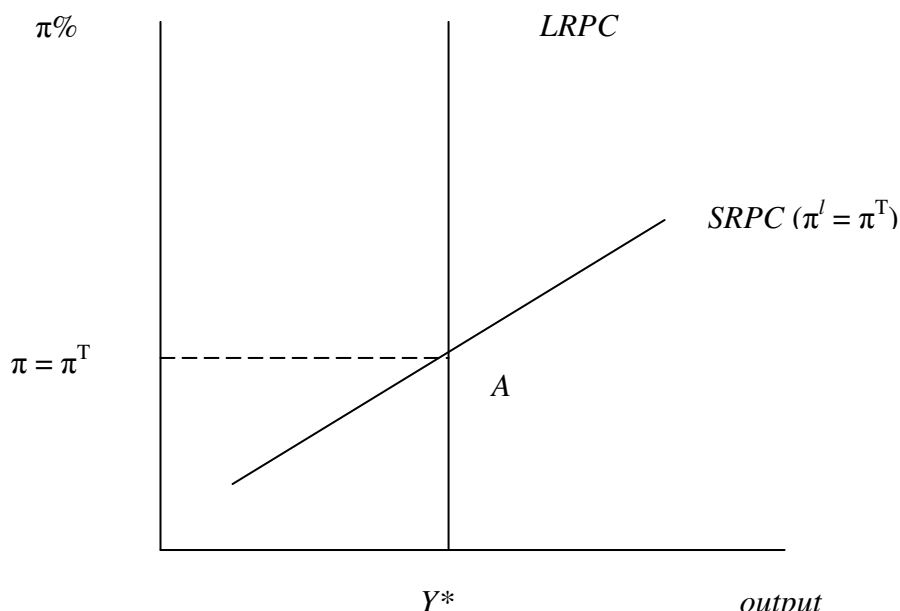
The diagram shows the economy in equilibrium, with output at its natural rate and inflation equal to target. The fact that the SRPC is upward-sloping shows that policy can affect the level of output in the short-run (hence a partial acceptance of Keynes) while it can only affect the rate of inflation (so the classics were also half-right).
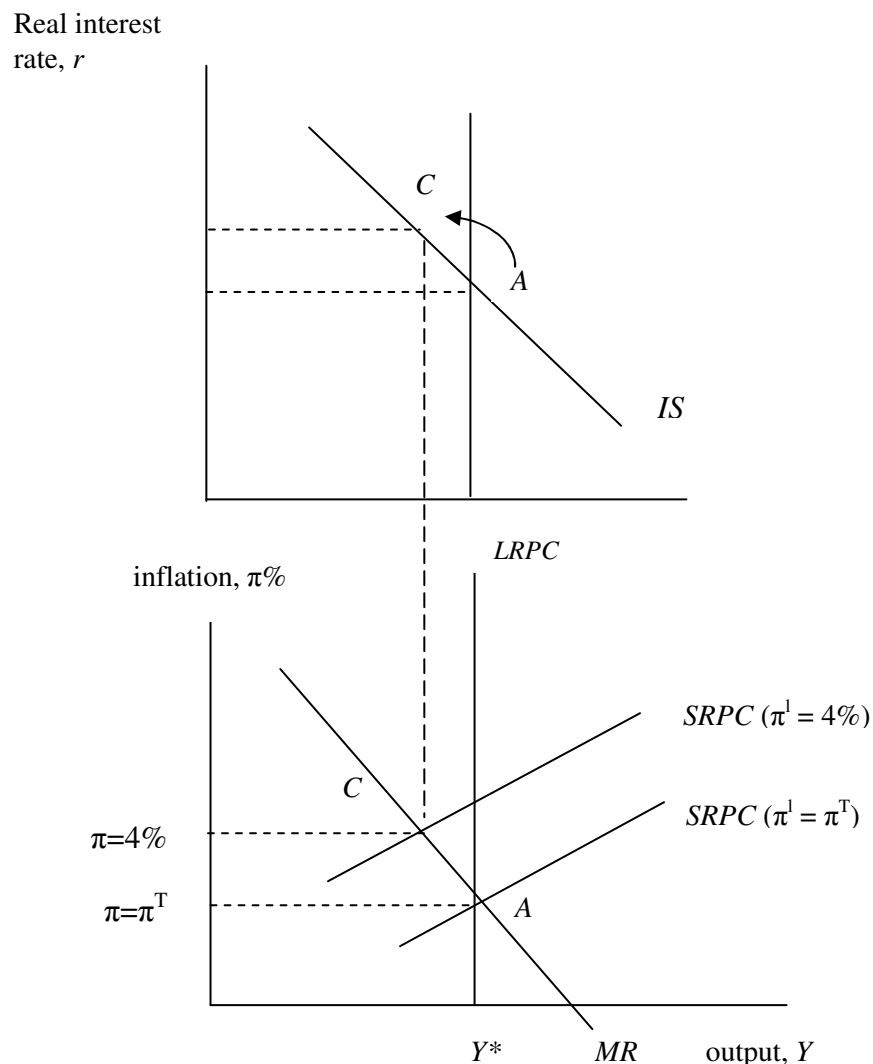
Notice that we have drawn the *SRPC* for a given value of 'lagged inflation' (π^l) rather than expected inflation. This is because in the NCM the *SRPC* relies on the fact that it takes time to adjust to the current rate of inflation. This is a bit different from saying that agents take time to <u>learn</u> the rate; it's saying instead that agents may know what the current rate is but it takes time to adjust because of the way in which contracts are drawn up and revised only at pre-determined intervals. The process is often described as 'Calvo-pricing'. Interestingly as an explanation of why output may respond to changes in demand , it's closer to Keynes's thinking in the *GT* than the explanation which relies on expectational errors.

The next diagram shows what happens if there is an inflationary shock. (Assume that there's a sharp rise in the oil prices or some other development). Firstly, the *SRPC* curve shifts upward and the economy is at point *B* (we'll assume $\pi = 4\%$). In order to return us to *A*, the central bank firstly raises the rate of interest which has a deflationary effect and pushes us down the *SRPC* (to *C*). There is now an 'output gap'. Inflation falls (say to 3%). After a while, lagged inflation begins to adjust and the *SRPC* shifts down (to 3%). Once this happens, the central bank eases monetary policy slightly and so output begins to recover (the output gap is reduced). Nonetheless it remains below its natural level (at *D*). While this is the case, downward pressure on inflation continues. The *SRPC* shifts down again (not shown). There's a further easing of monetary policy, until we return to *A,* when the rate of interest settles at its original level and the output gap disappears.

inflation, π%

LRPC

$SRPC\ (\pi^l = 4\%)$
$SRPC\ (\pi^l = 3\%)$

D

π=4%

C

$SRPC\ (\pi^l = \pi^T)$

$\pi=\pi^T$

A

Y*   MR   output, Y

The central bank has 'steered' the economy back to *A* and the curve, *MR,* shows the route that it follows.

In all of this, we might ask what has happened to aggregate demand (and to the *IS/LM* model, for that matter). The following diagrams provide the answer.

Real interest
rate, *r*

C

A

IS

inflation, π%

LRPC

$SRPC\ (\pi^l = 4\%)$

C

$SRPC\ (\pi^l = \pi^T)$

π=4%

$\pi=\pi^T$

A

Y*   MR   output, Y

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The upper diagram is the *IS* curve and shows how the central bank's decision to raise interest rates reduces the level of aggregate demand. The rise takes us up the *IS* curve. *C* on the *IS* curve corresponds to *C* in the lower diagram. With output below its natural level, inflation begins to fall; the central bank progressively eases policy and steers us back to *A* (in both diagrams).

Furthermore, we can if we wish regard the lower diagram as an *AS/AD* diagram. Moreover, it has the advantage that it shows inflation (rather than the price level) on the vertical axis. In effect, then, the *SRPC* curves correspond to short-run *AS* curves. They show how the level of output varies with inflation. By the same token, the *LRPC* corresponds to the vertical or long-run *AS* curve. With the *AD* curve we need to be careful. We expect an *AD* curve to show (a negative) relationship between inflation and output. There is such a curve in the lower diagram but we have labelled it *MR* . This is because it is generated by the 'monetary rule' that the central bank chooses to follow. This is an *AD* curve in the sense that it shows the inflation/output relationship but we need to be clear that it is created by and is contingent on the central bank's reactions. If the CB changes its reactions to inflationary shocks (perhaps being less aggressive in the way that it raises interest rates) the *MR* curve will have a different slope. By contrast, a conventional *AD* curve is given by the maximising behaviour of individual agents and could be described as depending on the structure of the economy.

Notice that we have so far shown changes in aggregate demand to result solely from monetary policy decisions by the central bank. This need not be the case. If we wished to explore some of Kenes's psychological insights from the *GT* (eg that a change in the 'animal spirits' of entrepreneurs leads to a cut in investment spending) we can shift the *IS* curve to the left. This pushes down the original *SRPC*. Inflation will fall below target and unless the central bank cuts interest rates the economy will move into recession. It is probably true, however, that most economists who accept the NCM regard the economy as generally stable – much more so than did Keynes. It's worth remembering that the NCM has emerged in a period of generally low and stable inflation and high and stable output.

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