Business Cycle Theories

We consider four fundamentally different theories of the business cycle, chronologically:

- the classical school of thought (self-correcting)

- the Keynesian revolution (no self-correction)

- the new classical theory (policy ineffectiveness)

- the new Keynesian theory (contract-based wage and price stickiness)

1. The Classical Theory — Self-Correcting Economy

If every demand shift were followed by a simultaneous supply shift by the same amount in the same direction, then real income would never deviate from natural real GDP (Y^N) and there would be no business cycles. For instance, following a change in aggregate demand, if nominal wages change in proportion, then the aggregate supply curve shifts vertically by the same amount as the demand shift, with no change in real variables.

Self-correcting forces: the role of flexible prices in stabilising real GDP under some conditions. The classical economists assumed that the economy would not operate with real GDP (Y) away from the level of natural real GDP (Y^N) for any length of time: if $Y < Y^N$, then firms would be producing at below capacity, and would tend to cut nominal wages and prices, which would continue until Y^N was again reached. If $Y > Y^N$, then above-capacity production could support hikes in nominal wages and prices, until real output fell back to Y^N.

The consequence was *no business cycle in real GDP*, although there was a cycle in the price level from P_0 down to P_1 and up to P_0 again. (See Gordon, pp. 164, for the *quantity theory of money*.)

They saw unemployment as a transitory, self-correcting condition of only minor social importance. The term *unemployment* did not exist until the late nineteenth century.[1] The classicals

(Smith, Ricardo, Mill, Marshall, Pigou) saw remedies for unemployment in remedies for wage stickiness, not in fiscal or monetary stimulation, which would have been thought unnecessary, had they been thought of at all.

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1. The new edition of the OED lists the first citation of the word in 1888.

2. Keynesian Revolution

The Keynesian critique of the classical self-correcting mechanism is presented in two categories:

- the failure of demand to adjust because of *monetary impotence* (the failure of real GDP to respond to an increase in the real money supply or a fall in the real interest rate), and

- the failure of supply to adjust as a result of *rigid wages* (the failure of the nominal wage rate to adjust by the amount needed to maintain equilibrium in the labour market).

2.1 Demand adjustment

The classical model, with perfectly flexible prices, relies on two important mechanisms by which a deflation (a fall in the level of prices, P) leads to a stimulation of output to its natural level (Y^N):

- a deflation has to lower interest rates through increasing real balances (M^s/P), and

- interest rates must be lowered by enough to stimulate the planned autonomous spending (A_p) and aggregate demand necessary to bring the output level back to its natural rate.

Keynes' objection to the first channel is the possibility of a *liquidity trap*, in which an extremely low interest rate causes people to hold any additional money instead of purchasing interest-bearing assets. The liquidity trap corresponds to a perfectly flat money demand schedule and LM curve so that interest rates —

and thus output — will not respond to the increase in real money supply resulting from the deflation (fall in *P*).

Keynes' objection to the second channel is the possibility that planned autonomous expenditures are very or totally unresponsive to changes in the interest rate. This implies a very steep or *vertical IS curve and AD curve*, so that output will not respond to deflation.

Because both of these demand-side problems are the result of the failure of flexible prices to influence real output (*Y*) through the real money supply, they are called the problem of *monetary or deflation impotence*.

In response to Keynes' criticisms, the classicals responded with the argument of the *Pigou or real balance effect* (the direct stimulus to aggregate demand caused by an increase in the real money supply; doesn't require a fall in the interest rate), where the increase in real money balances caused by a deflation stimulates autonomous spending, and thus the IS curve directly.

The force of the real balance effect is countered, however, by the possibility of the destabilising *expectations effect* (the decline in aggregate demand caused by the postponement of purchases when consumers expect prices to fall in the future) and *redistributionary effect* (the fall in aggregate demand caused by the effect of falling prices in redistributing income from high-spending debtors to low-spending savers) of falling prices.

2.2 Supply adjustment

Keynes' second critique of the classicals is that nominal wage rigidity will imply a failure of the aggregate supply curve to adjust the economy to the long-run equilibrium level. Graphs of the labour market and the output market show the implications of the Keynesian rigid-wage assumption in the context of the derivation of the SAS curve.

The situation of a fall in aggregate demand along a given aggregate-supply curve, and the subsequent rise in the real wage rate in the labour market, is perfectly analogous to the short-run equilibrium point resulting from an increase in aggregate demand, but the essential difference in the Keynesian model is that nominal wage rigidity keeps workers off their labour-supply curve, preventing the adjustment of the actual wage to its equilibrium market-clearing value, and thus preventing the shifts in the SAS curve necessary to return the economy to its natural level of output (Y^N). The result is *persistent unemployment.*

Although the Keynesian model is able to explain the persistence of unemployment from the excess supply of labour that arises from nominal wage rigidity, its drawbacks include:

- a failure to explain why or how the nominal wage remains rigid, and

- the requirement that real wages move countercyclically.

The new classicals are attempting to revive classical economics in a way consistent with observed business cycles and yet allowing market clearing. The new Keynesians are developing non-market-clearing models, in which exchange occurs without market clearing prices having been established.

3. Imperfect Information

The Friedman "fooling" model serves several purposes:

- it offers the first alternative to the Keynesian assumptions of nominal wage rigidity and non-market-clearing to explain the existence of business cycles, and

- it contains some of the essential elements — market clearing and imperfect information — incorporated into the new classical theory.

The innovative feature of Friedman's model is the specification of the labour supply curve to be dependent on the *expected real wage* (W/P^e) rather than the actual real wage (W/P). This implies that the presence of imperfect price information on the part of workers will allow the economy to deviate from the long-run natural level of output (Y^N) and generate business cycles.

Because the level of output is always equal to the natural real GDP (Y^N) when expectations are accurate, the long-run aggregate supply curve is vertical. The model, which obeys the *natural rate hypothesis* (shifts in aggregate demand have no long-run effect on real GDP) is sometimes called a "natural rate" model.

The short- and long-run results of the Friedman model are exactly the same as that of the aggregate demand and supply model of Gordon's Fig 6-10, with the important difference that by expressing the labour supply curve as a function of the expected real wage, the Friedman model

assumes continuous market clearing in the labour market without any need for workers to be off their labour supply curve in the short run.

But because the principal criticism against the Friedman model is that because it is very hard to justify that workers can be "fooled" for any great length of time, it doesn't provide a satisfactory theory of business cycles. As well as its importance to the development of modern business cycle theories, the Friedman model helps understanding of the new classical model, and of the major issues separating it and the new Keynesian model.

4. The New Classical Model

This model adds one important element to Friedman's market-clearing and imperfect information: the assumption of *rational expectations* (which need not be correct, but make the best use of available information, avoiding errors that could have been foreseen by knowledge of history). People make their best forecasts of the future based on all data currently available rather than having to learn and catch up to the current situation.

Rational expectations (RE) can be distinguished from *adaptive expectations* (in which expectations for the next period's values are based on an average of actual values during the previous periods) such as Friedman's model uses. In RE models, individuals are forward-looking and adjust their expectations to their best forecasts of the future. With RE, errors in expectations occur only randomly and independently.

RE are incorporated into the Lucas-Friedman supply curve, which is given as linear in Gordon Figures 7-1 and 7-2 for simplicity. The reasoning underlying the Lucas supply curve is that whenever the expected price level equals the actual ($P^e = P$), the supply curve will be a vertical line at Y^N, and that output (Y) will only be responsive to changes in prices if the actual price level deviates from the expected level.

The slope of the supply curve can be understood by a distinction between local and aggregate supply shocks: individual producers will only be willing to

supply more if the price of their product rises relative to the general price level (P). Each individual producer is assumed to know the price of its own product, but, because of information barriers, they cannot directly observe the price of other products (Lucas: "island"), thus, for any given price change, they must infer whether this is a local or an aggregate price shock. To the extent that their guess is incorrect, the economy will be able to deviate from the natural level of GDP and generate business cycles.