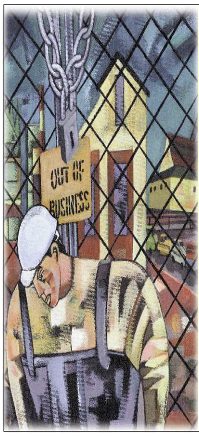


The Short-Run Tradeoff between Inflation and Unemployment

Chapter 33

Unemployment and Inflation

- The natural rate of unemployment depends on various features of the labor market.
- Examples include minimum-wage laws, the market power of unions, the role of efficiency wages, and the effectiveness of job search.

Unemployment and Inflation

- The inflation rate depends primarily on growth in the quantity of money, controlled by the Fed.
- The **misery index**, one measure of the “health” of the economy, adds together the inflation rate and unemployment rate.

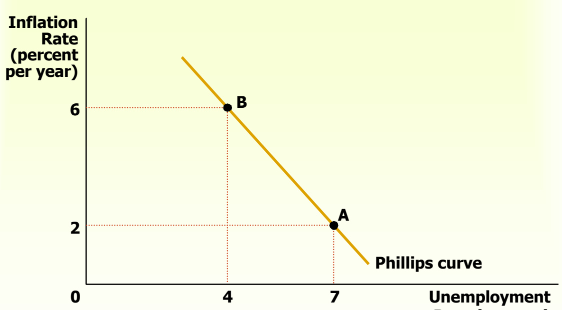
Unemployment and Inflation

- Society faces a short-run tradeoff between unemployment and inflation.
- If policymakers expand aggregate demand, they can lower unemployment, but only at the cost of higher inflation.
- If they contract aggregate demand, they can lower inflation, but at the cost of temporarily higher unemployment.

The Phillips Curve

The **Phillips curve** illustrates the short-run relationship between inflation and unemployment.

The Phillips Curve...



Aggregate Demand, Aggregate Supply, and the Phillips Curve

- The Phillips curve shows the short-run combinations of unemployment and inflation that arise as shifts in the aggregate demand curve move the economy along the short-run aggregate supply curve.

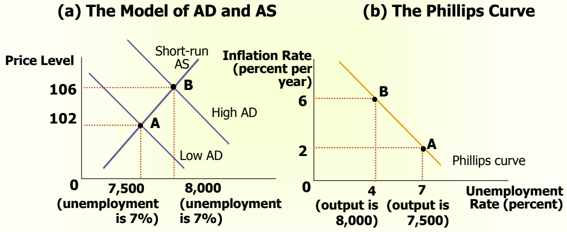
Aggregate Demand, Aggregate Supply, and the Phillips Curve

- The greater the aggregate demand for goods and services, the greater is the economy’s output, and the higher is the overall price level.
- A higher level of output results in a lower level of unemployment.

How the Phillips Curve is Related to the Model of Aggregate Demand and Aggregate Supply...

(a) The Model of AD and AS

(b) The Phillips Curve



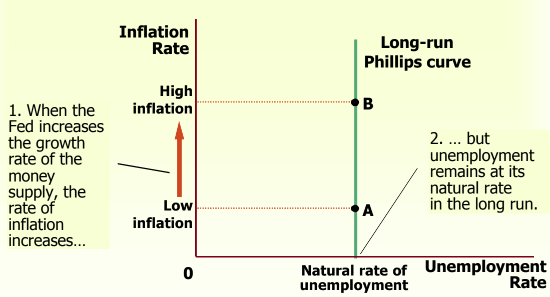
Shifts in the Phillips Curve: The Role of Expectations

The Phillips curve seems to offer policymakers a menu of possible inflation and unemployment outcomes.

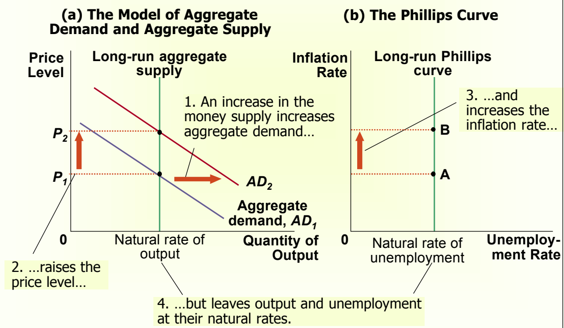
The Long-Run Phillips Curve

- In the 1960s, Friedman and Phelps concluded that inflation and unemployment are unrelated in the long run.
  - As a result, the long-run Phillips curve is vertical at the **natural rate of unemployment.**
  - Monetary policy could be effective in the short run but not in the long run.

The Long-Run Phillips Curve...



How the Phillips Curve is Related to the Model of Aggregate Demand and Aggregate Supply…



Expectations and the Short-Run Phillips Curve

Expected inflation measures how much people expect the overall price level to change.

Expectations and the Short-Run Phillips Curve

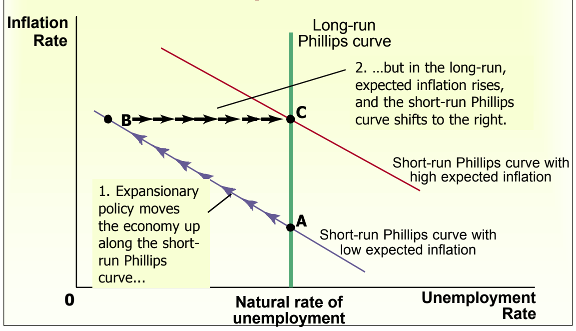
- In the long run, expected inflation adjusts to changes in actual inflation.
- The Fed's ability to create unexpected inflation exists only in the short run.
  - Once people anticipate inflation, the only way to get unemployment below the natural rate is for actual inflation to be above the anticipated rate.

Expectations and the Short-Run Phillips Curve

$$\text{Unemployment Rate} = \text{Natural rate of unemployment} - a\left(\text{Actual inflation} - \text{Expected inflation}\right)$$

This equation relates the unemployment rate to the natural rate of unemployment, actual inflation, and expected inflation.

How Expected Inflation Shifts the Short-Run Phillips Curve...



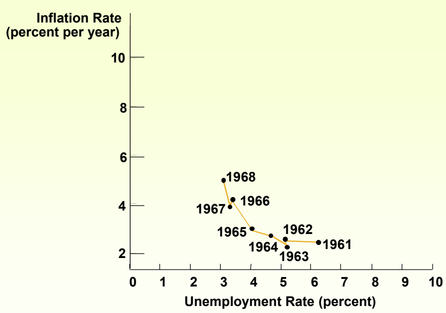
The Natural-Rate Hypothesis

- The view that unemployment eventually returns to its natural rate, regardless of the rate of inflation, is called the **natural-rate hypothesis.**
- Historical observations support the natural-rate hypothesis.

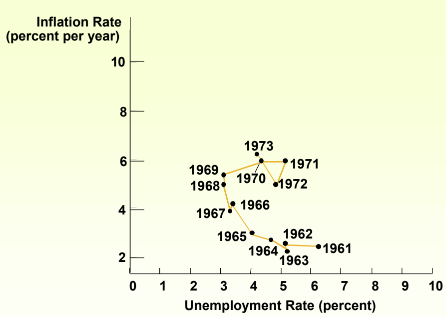
The Natural Experiment for the Natural Rate Hypothesis

- The concept of a stable Phillips curve broke down in the in the early ’70s.
- During the ’70s and ’80s, the economy experienced high inflation and high unemployment simultaneously.

The Phillips Curve in the 1960s...



The Breakdown of the Phillips Curve...



Shifts in the Phillips Curve: The Role of Supply Shocks

- Historical events have shown that the short-run Phillips curve can shift due to changes in expectations.

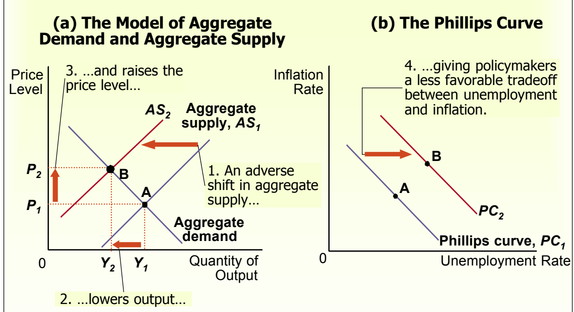
Shifts in the Phillips Curve: The Role of Supply Shocks

- The short-run Phillips curve also shifts because of shocks to aggregate supply.
  - Major adverse changes in aggregate supply can worsen the short-run tradeoff between unemployment and inflation.
  - An adverse supply shock gives policymakers a less favorable tradeoff between inflation and unemployment.

Shifts in the Phillips Curve: The Role of Supply Shocks

- A **supply shock** is an event that directly affects firms' costs of production and thus the prices they charge.
- It shifts the economy's aggregate supply curve...
- … and as a result, the Phillips curve.

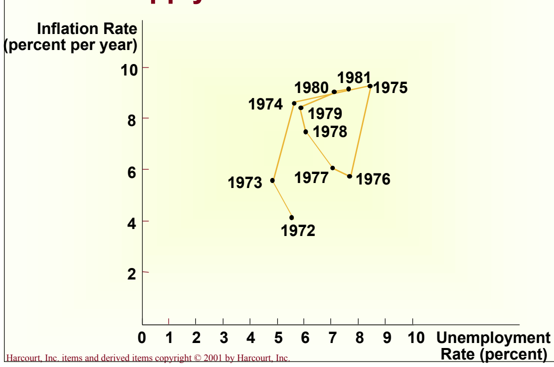
An Adverse Shock to Aggregate Supply...



Shifts in the Phillips Curve: The Role of Supply Shocks

- In the 1970s, policymakers faced two choices when OPEC cut output and raised worldwide prices of petroleum.
  - Fight the unemployment battle by expanding aggregate demand and accelerate inflation.
  - Fight inflation by contracting aggregate demand and endure even higher unemployment.

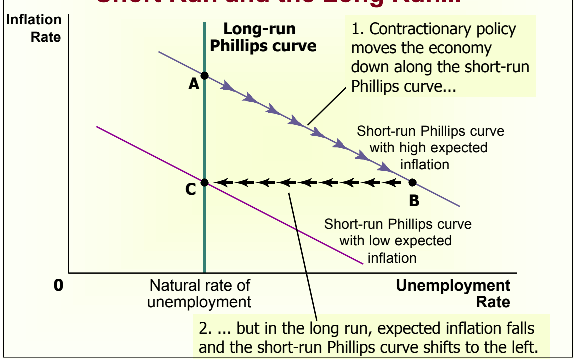
The Supply Shocks of the 1970s...



The Cost of Reducing Inflation

- To reduce inflation, the Fed has to pursue **contractionary** monetary policy.
- When the Fed slows the rate of money growth, it contracts aggregate demand.
- This reduces the quantity of goods and services that firms produce.
- This leads to a rise in unemployment.

Disinflationary Monetary Policy in the Short Run and the Long Run...



The Cost of Reducing Inflation

- To reduce inflation, an economy must endure a period of high unemployment and low output.
  - When the Fed combats inflation, the economy moves down the short-run Phillips curve.
  - The economy experiences lower inflation but at the cost of higher unemployment.

The Cost of Reducing Inflation

- The **sacrifice ratio** is the number of percentage points of annual output that is lost in the process of reducing inflation by one percentage point.
  - An estimate of the sacrifice ratio is five.
  - To reduce inflation from about 10% in 1979-1981 to 4% would have required an estimated sacrifice of 30% of annual output!

Rational Expectations

The theory of **rational expectations** suggests that people optimally use all the information they have, including information about government policies, when forecasting the future.

Rational Expectations

- Expected inflation explains why there is a tradeoff between inflation and unemployment in the short run but not in the long run.
- How quickly the short-run tradeoff disappears depends on how quickly expectations adjust.

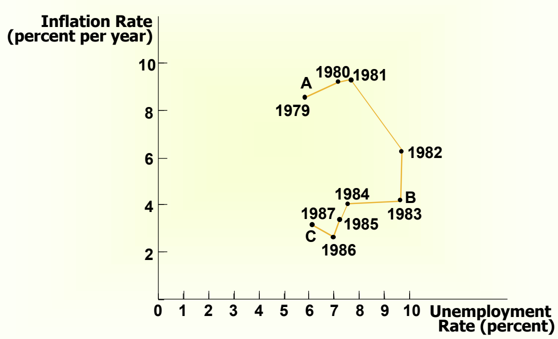
Rational Expectations

- The theory of rational expectations suggests that the sacrifice-ratio could be much smaller than estimated.

The Volcker Disinflation

- When Paul Volcker was Fed chairman in the 1970s, inflation was widely viewed as one of the nation's foremost problems.
- Volcker succeeded in reducing inflation (from 10% to 4%), but at the cost of high employment (about 10% in 1983).

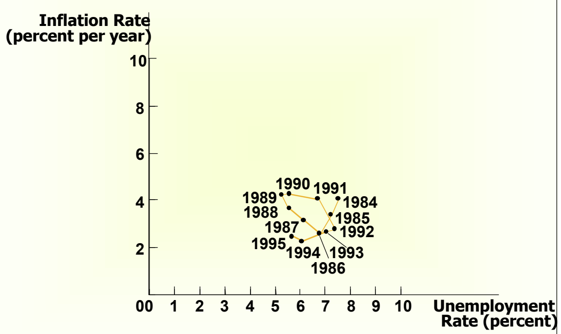
The Volcker Disinflation...



The Greenspan Era

- Alan Greenspan's term as Fed chairman began with a favorable supply shock.
  - In 1986, OPEC members abandoned their agreement to restrict supply.
  - This led to falling inflation and falling unemployment.

The Greenspan Era...



The Greenspan Era

- Fluctuations in inflation and unemployment in recent years have been relatively small due to the Fed's actions.

Summary

- The Phillips curve describes a negative relationship between inflation and unemployment.
- By expanding aggregate demand, policymakers can choose a point on the Phillips curve with higher inflation and lower unemployment.
- By contracting aggregate demand, policymakers can choose a point on the Phillips curve with lower inflation and higher unemployment.

Summary

- The tradeoff between inflation and unemployment described by the Phillips curve holds only in the short run.
- The long-run Phillips curve is vertical at the natural rate of unemployment.

Summary

- The short-run Phillips curve also shifts because of shocks to aggregate supply.
- An adverse supply shock gives policymakers a less favorable tradeoff between inflation and unemployment.

Summary

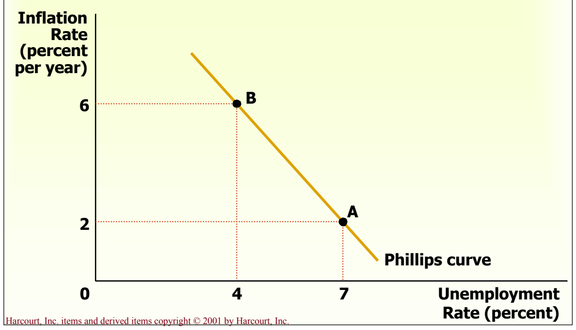
- When the Fed contracts growth in the money supply to reduce inflation, it moves the economy along the short-run Phillips curve.
- This results in temporarily high unemployment.
- The cost of disinflation depends on how quickly expectations of inflation fall.

Summary

- Because monetary and fiscal policy can influence aggregate demand, the government sometimes uses these policy instruments in an attempt to stabilize the economy.
- Changes in attitudes by households and firms shift aggregate demand; if the government does not respond, the result is undesirable and unnecessary fluctuations in output and employment.

Graphical Review

The Phillips Curve...



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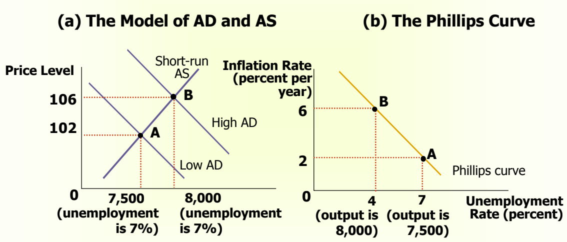
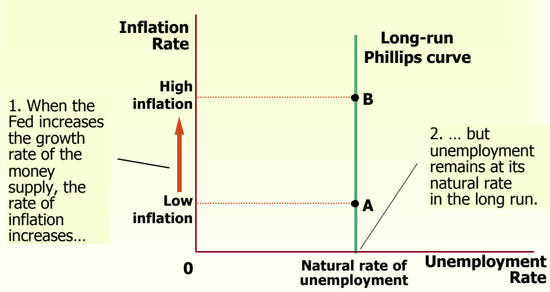


The Long-Run Phillips Curve...



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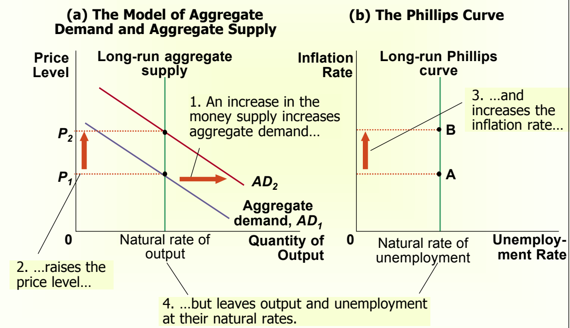

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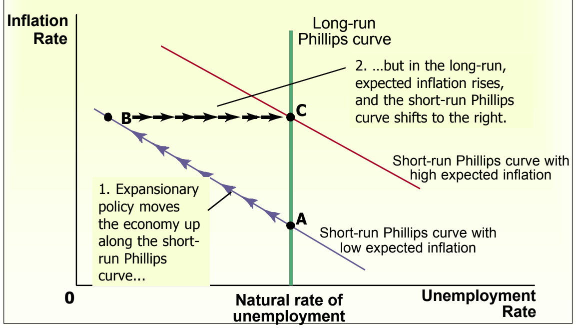
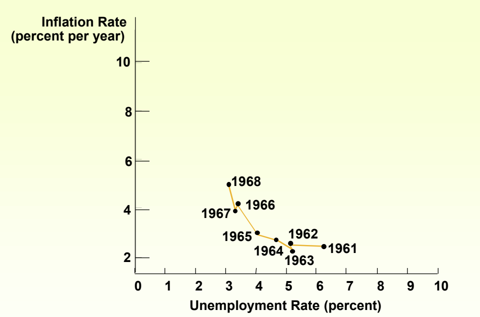


The Phillips Curve in the 1960s...



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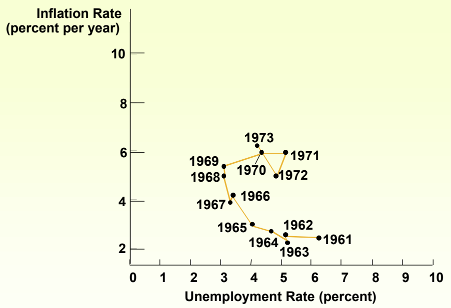
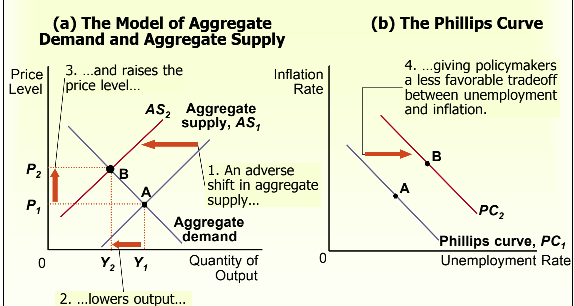
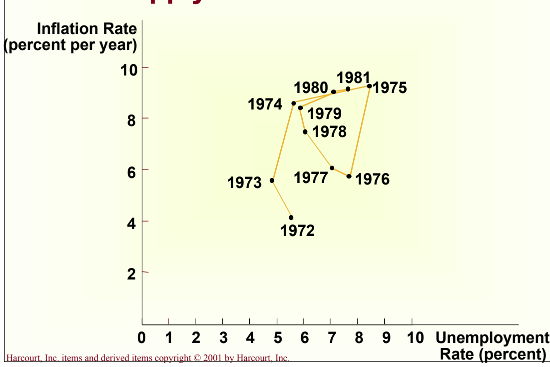


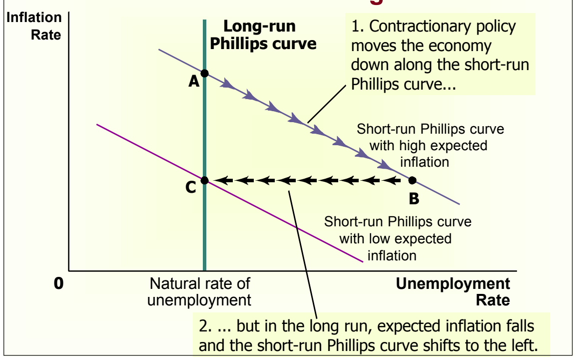
An Adverse Shock to Aggregate Supply...



The Supply Shocks of the 1970s...



Disinflationary Monetary Policy in the Short Run and the Long Run...



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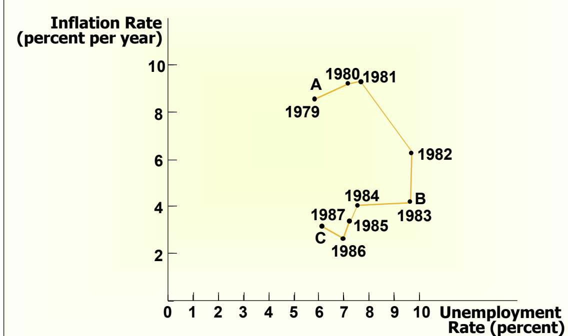

The Greenspan Era...