

# Unit 15

INFLATION, UNEMPLOYMENT, AND MONETARY  
POLICY

# OUTLINE

A. Introduction

B. Inflation

C. The Phillips Curve

D. Monetary Policy

# A. Introduction

# The Context for This Unit

Governments can use fiscal policy e.g. spending, taxation to stabilize the economy during recessions. (Unit 14)

Besides unemployment, fluctuations in GDP also affect prices.

- What factors affect the price level in an economy?
- What is the ideal level of inflation and how do central banks achieve it?
- How do central banks respond differently to supply-side and demand-side shocks?

# This Unit

- Inflation: causes and effects on the economy
- The trade-off between inflation and unemployment
- How central banks can use monetary policy to respond to shocks in the economy
- The importance of expectations and how central banks can manage them

## B. Inflation

# Inflation: Key Concepts

**Inflation** = an increase in the general price level

**Zero inflation** = A constant price level from year to year

**Deflation** = A decrease in the general price level

**Disinflation** = A decrease in the rate of inflation

$$\text{Real interest rate} = \text{Nominal interest rate} - \text{Inflation rate}$$
[The Fisher equation]

# What's wrong with inflation?

For people on fixed nominal income (e.g. pensioners), higher inflation means lower real value of income.

Inflation reduces the real value of debt – good for borrowers, bad for creditors.

High rate of inflation makes the economy work less well:

- high inflation is often volatile → uncertainty
- it is harder for producers to distinguish between changes in **relative prices** and inflation
- menu costs as firms have to update their prices more frequently



# What's wrong with deflation?

Deflation could have even more dramatic consequences than high inflation.

When prices are falling, households will postpone consumption (particularly of durables) because they expect goods will be cheaper in the future. This is similar to a negative shock to aggregate demand.

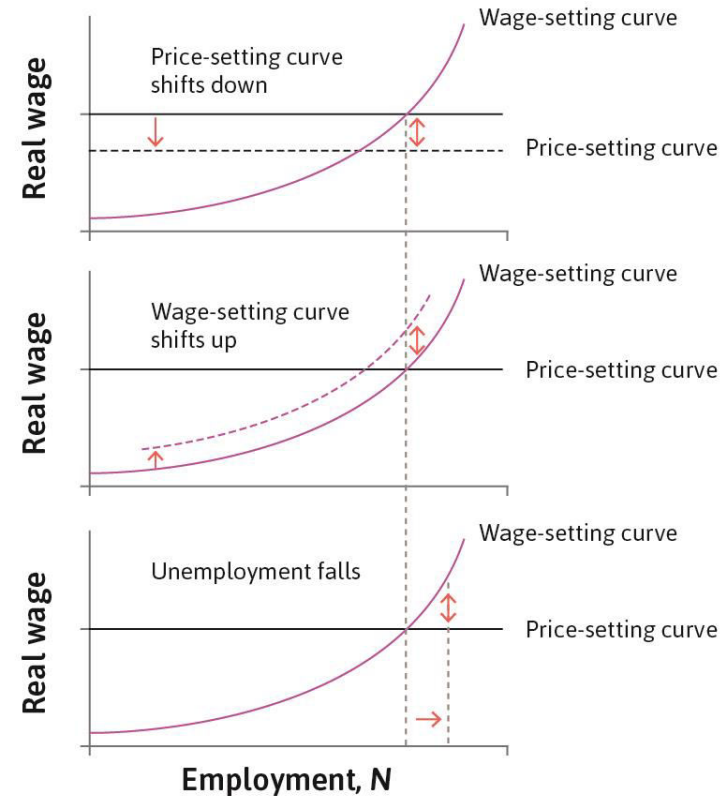
Deflation increases the real debt burden, which may lead households to cut consumption to return to their target wealth.

# Causes of inflation

Recall: Wages and prices are determined by interactions between firms, consumers, and workers.

Inflation may be due to:

- Increases in bargaining power of firms over their consumers  
e.g. reduction in competition
- Increases in the bargaining power of workers over firms, due to higher bargaining power or employment



1. Owners' power rises relative to consumers' (e.g. lower competition) – medium to long run

2. Employees' power rises relative to owners' (e.g. stronger unions) – medium to long run

3. Employees' power rises relative to owners' in a business cycle upswing – short to medium run

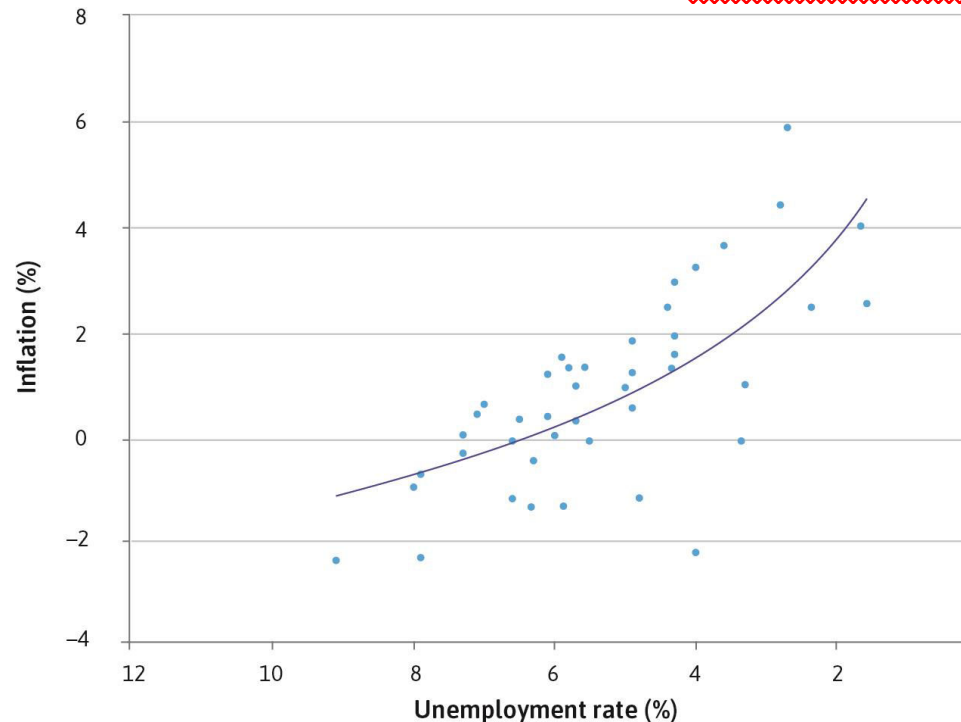
## C. The Phillips Curve

# Inflation and employment

Higher employment may result in inflation.

Negative relationship between unemployment and inflation

It increases workers' bargaining position → higher wages →  
higher cost of production → higher prices



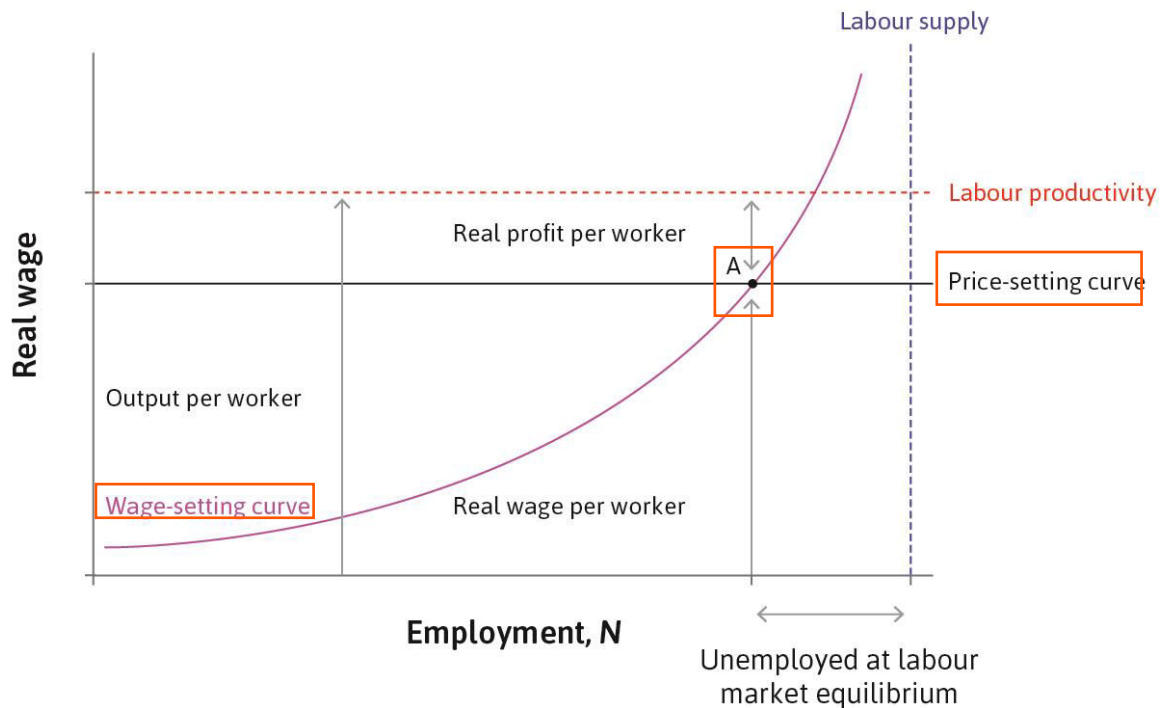
# Inflation and aggregate demand

An upswing in business cycle is often associated with rising inflation.

- higher aggregate demand → higher employment → higher wages → higher cost of production → higher prices
- the economy experiences price and wage inflation, but the real wage ( $W/P$ ) has not increased
- constant real wage means that employment stays high
- ...and the wage-price spiral continues

# Stable price level

Prices are stable (inflation is 0) when the labour market is in equilibrium.



Unemployment below equilibrium:  
workers' claims to real wages +  
firms' claims to real profits >  
total productivity  
→ upward pressure on wages and prices

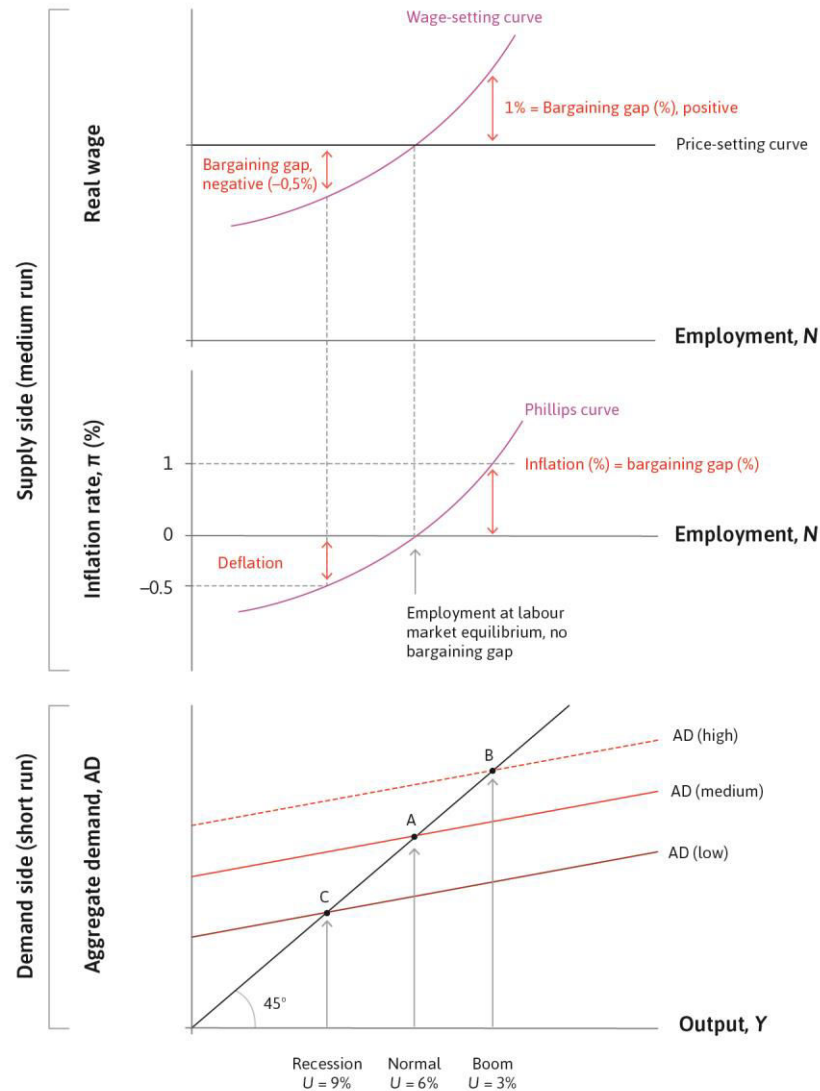
The opposite happens when  
unemployment is above equilibrium.

# The bargaining gap

**Bargaining gap** = The difference between the real wage required to incentivize effort, and the real wage that gives firms enough profits to stay in business.

- Unemployment is below equilibrium: a positive bargaining gap and inflation.
- Unemployment is above equilibrium: a negative bargaining gap and deflation.
- Labour market equilibrium: the bargaining gap is zero and the price level is constant.

# The Phillips Curve and the business cycle



A positive bargaining gap in boom  
→ inflation

A negative bargaining gap in  
recession → deflation

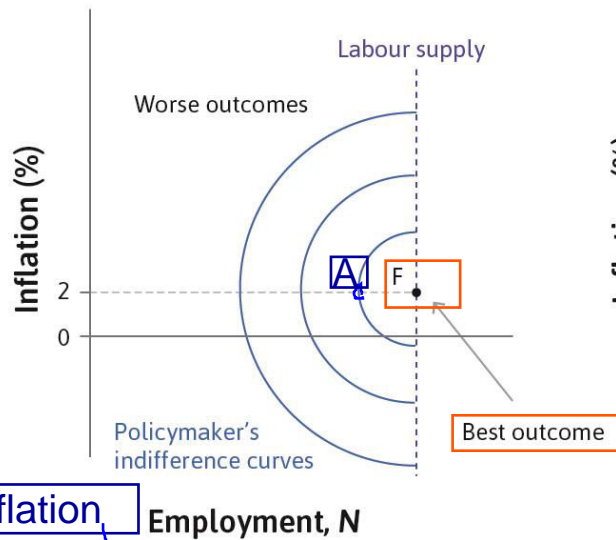


# Choosing Inflation Rates

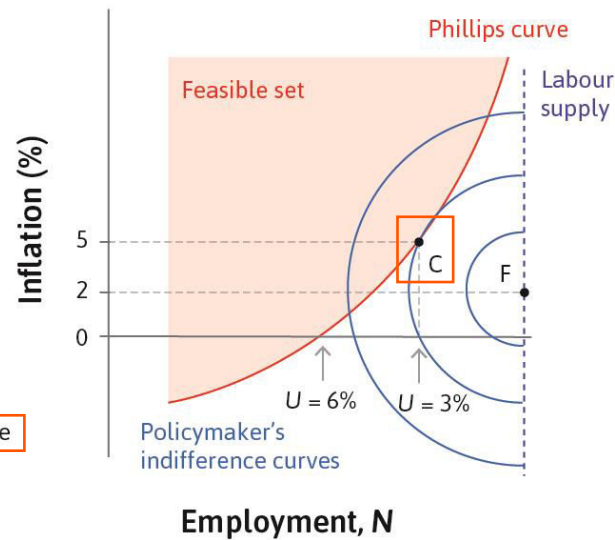
Phillips Curve determines the feasible trade-offs between inflation and unemployment. (MRT)

**Indifference curves** show policymaker's preferred tradeoffs between inflation and unemployment. (MRS)

The policymakers' preferences



The policymakers' preferences and the Phillips curve trade-off

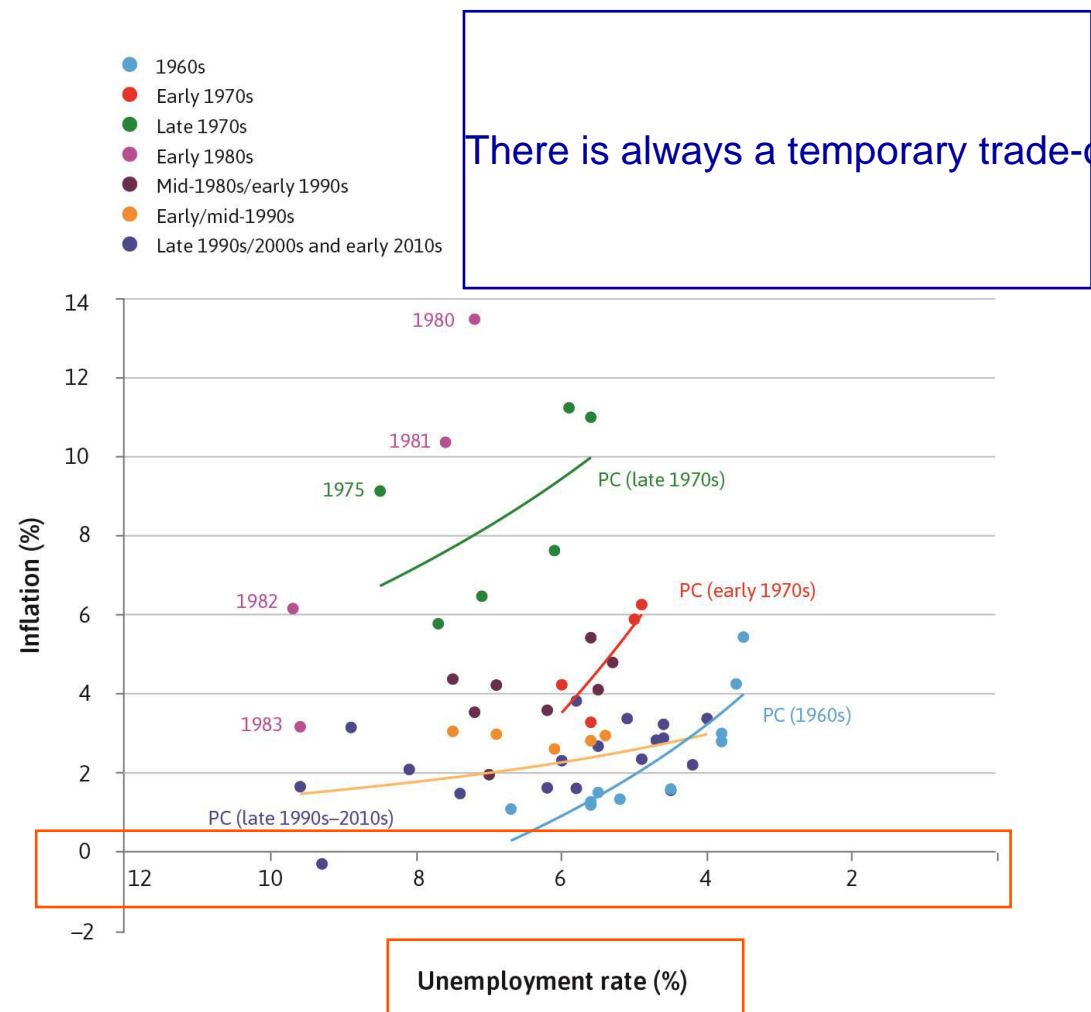


Optimal inflation rate where:  $MRS = MRT$

# The Phillips Curve Over Time

Trade-off between inflation and  
unemployment is not stable:  
**Phillips Curve shifts over time**

Keeping unemployment “too low”  
leads to higher prices  
but also rising inflation



**There is only one unemployment rate at which inflation is stable.**

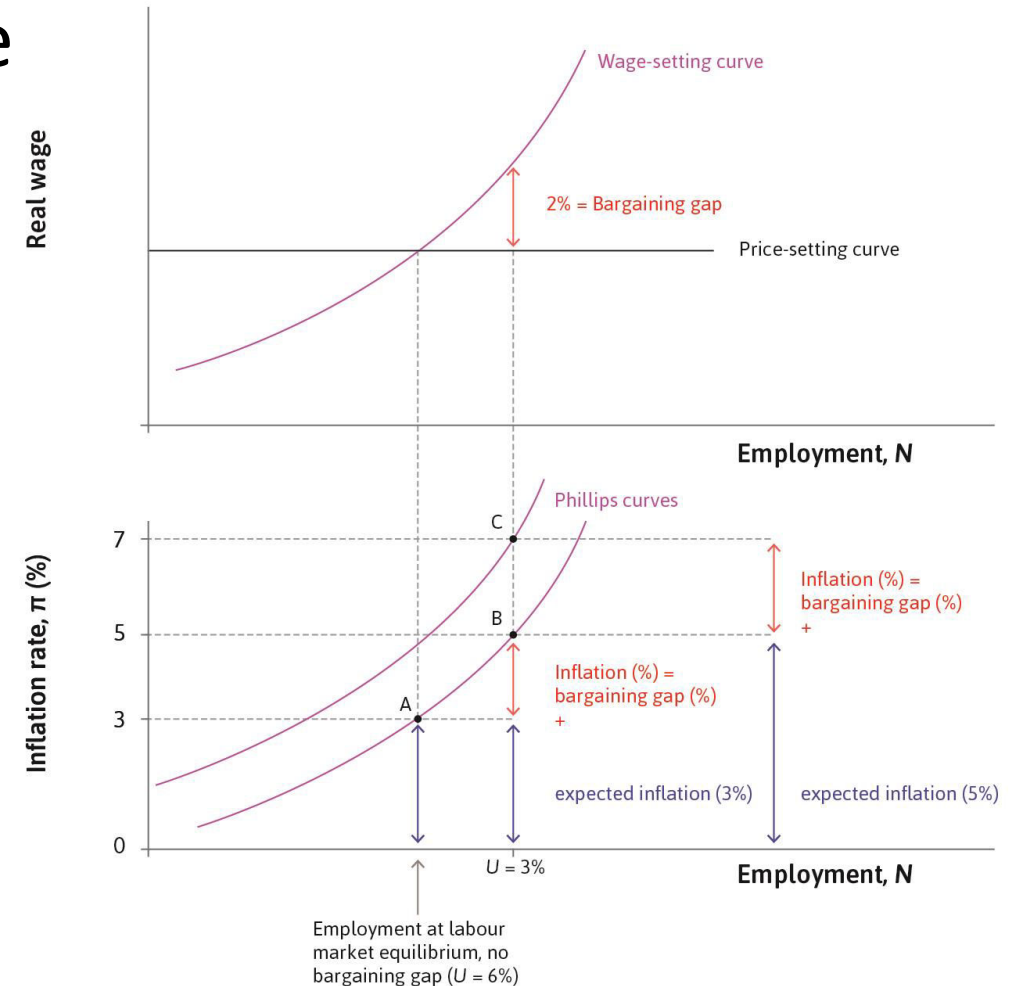
# The role of expectations

Expectations of future prices can cause the Phillips curve to shift.

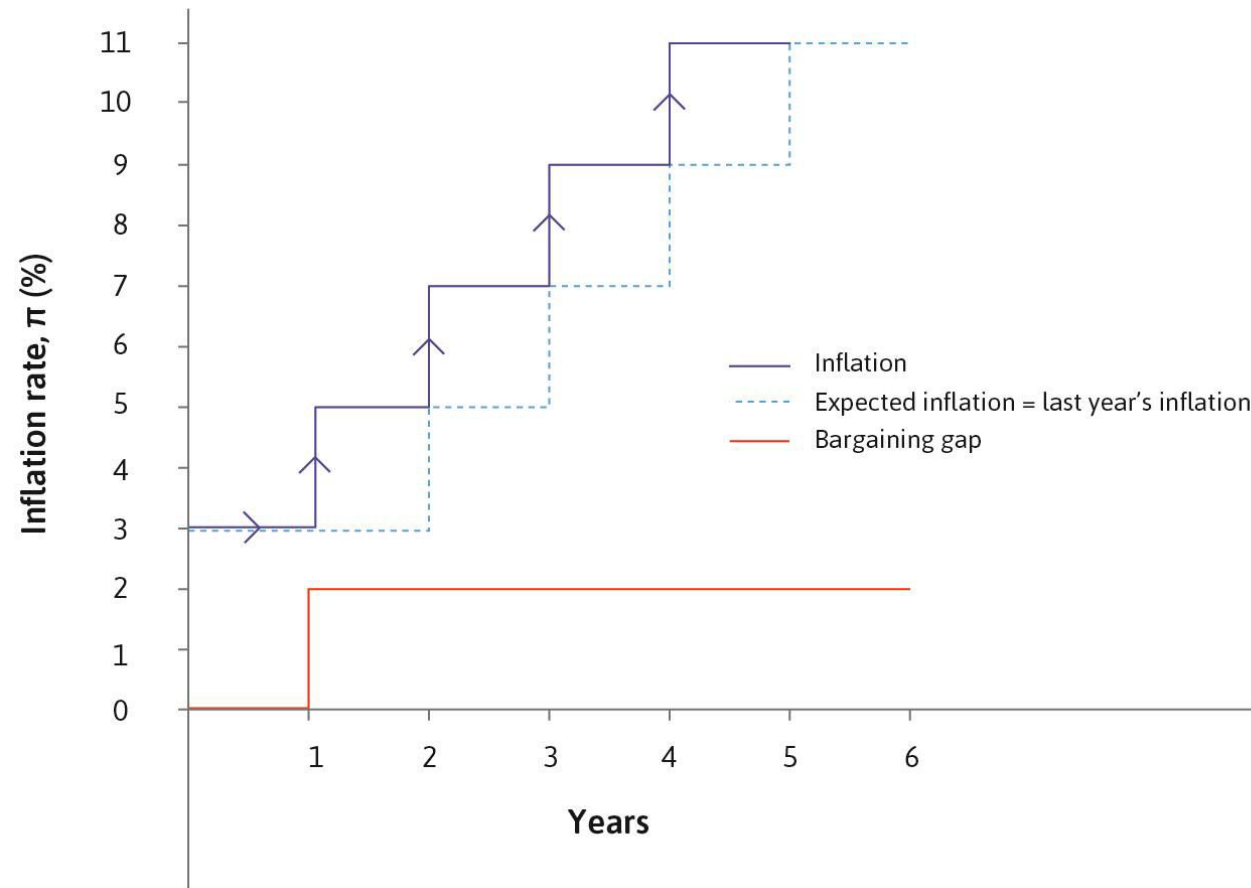
Factors that is not x-axis or y-axis

$$\text{Inflation} = \text{expected inflation} + \text{bargaining gap}$$

The inflation-stabilizing rate is the unemployment rate which keeps inflation constant.



# Expected inflation and the bargaining gap

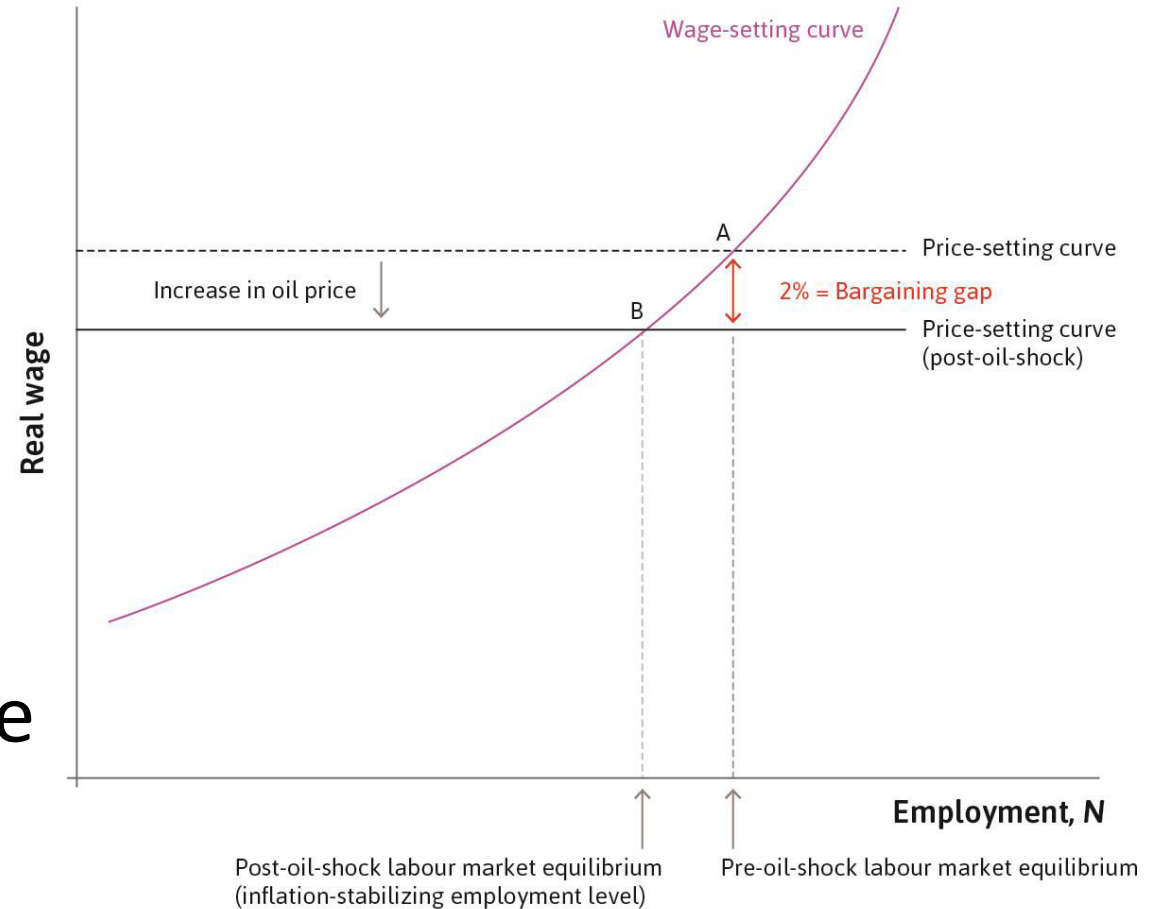


As long as the bargaining gap remains unchanged, inflation rises each year

# Supply shocks

Another cause of high and rising inflation is a **supply shock** = unexpected change on the supply-side of the economy  
e.g. oil price shock.

Supply shocks shift the Phillips curve by affecting the labour market equilibrium.



# Oil price shocks and inflation

Increase in the price of oil

→ downward shift of price-setting curve

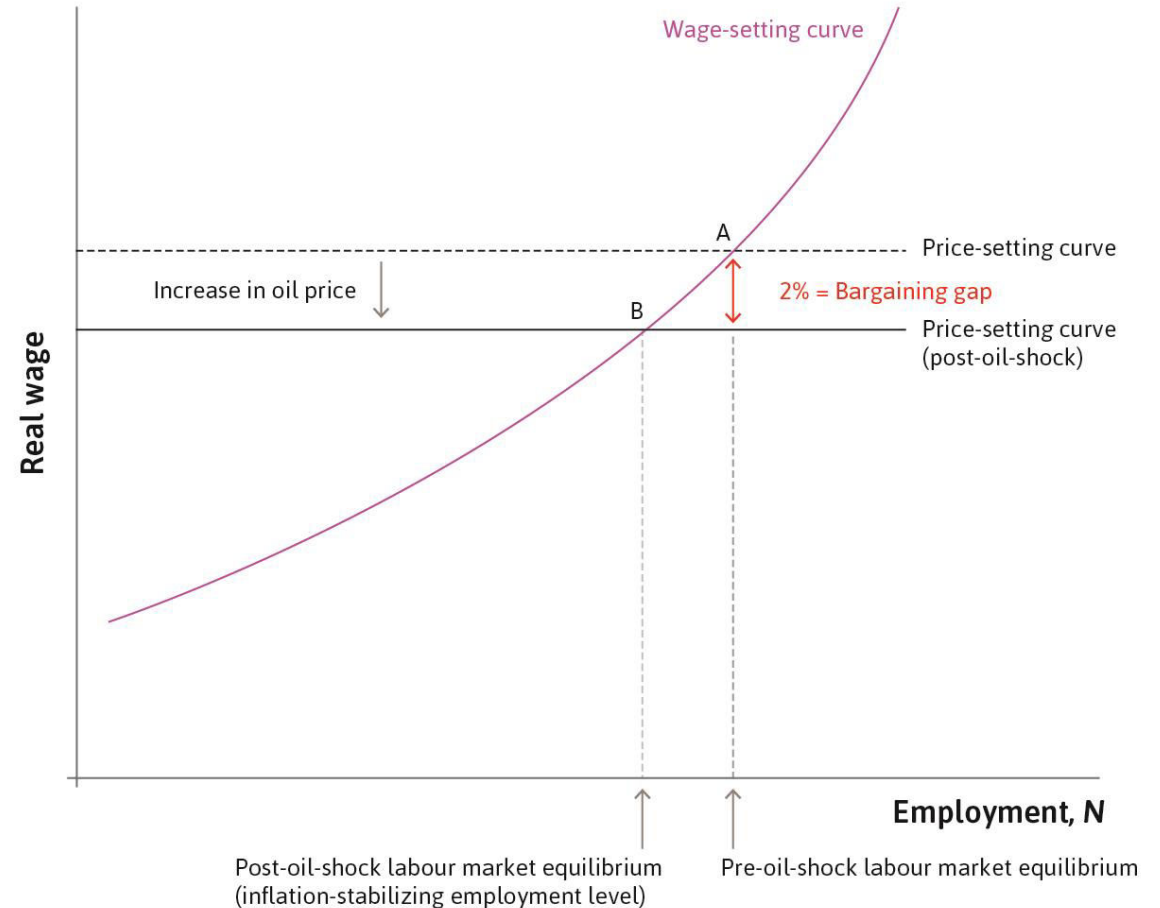
→ prices rise

→ real wages fall

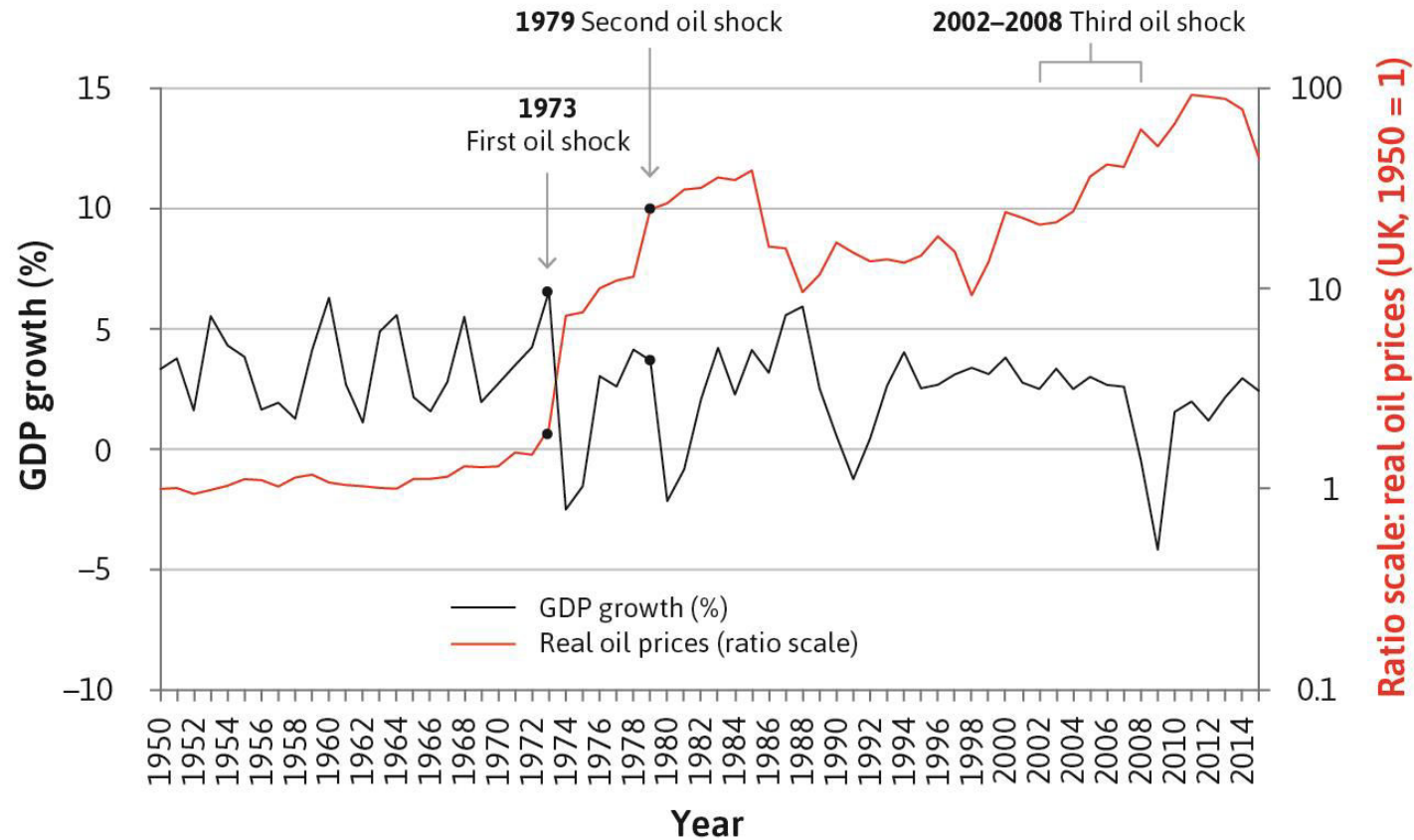
→ positive bargaining gap

→ persistently higher inflation

$$W/P = w \text{ decreases}$$



# Oil price shocks in 1970s

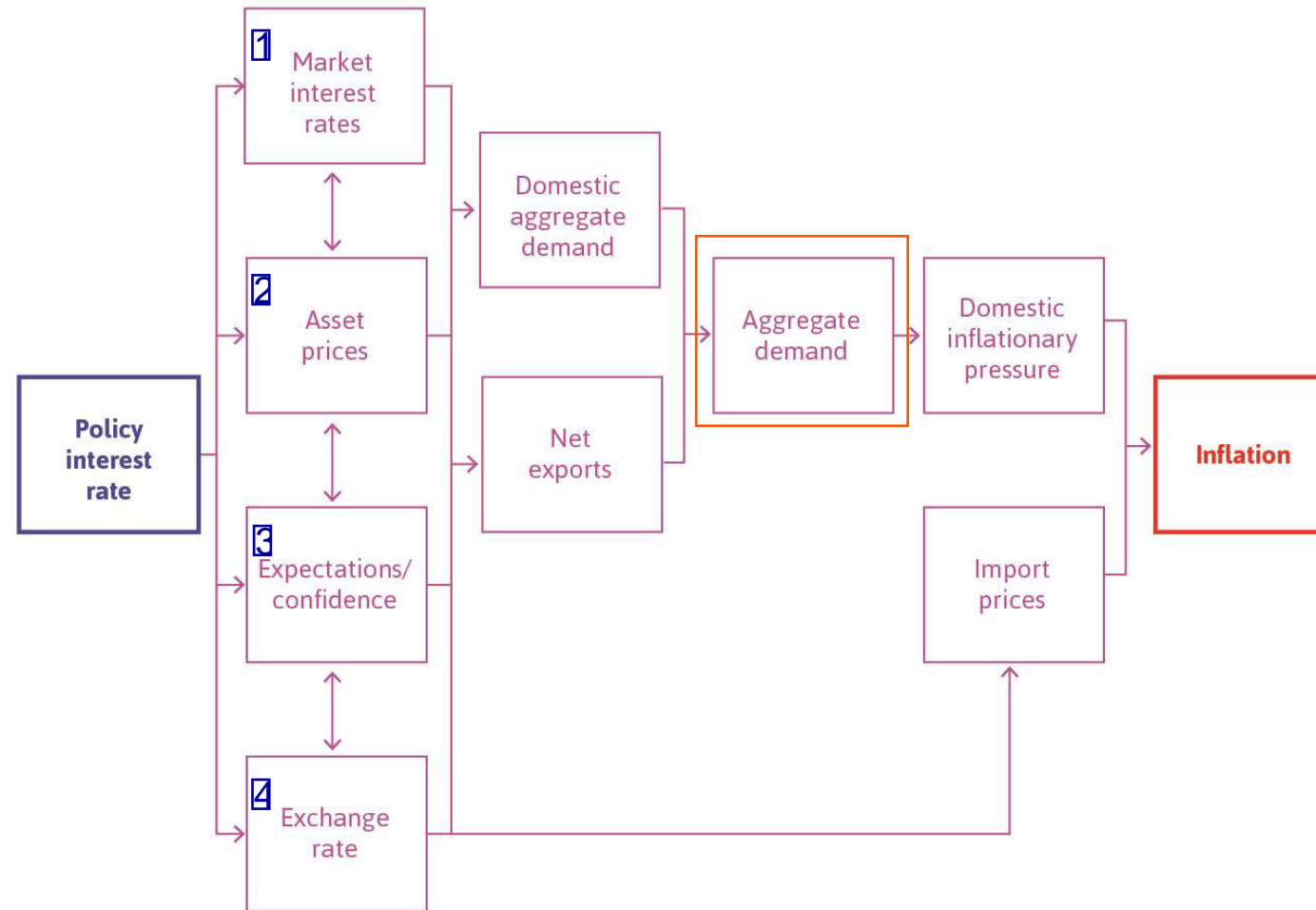


Unexpected increases in oil prices in 1970s caused simultaneous increase in unemployment and prices.

# D. Monetary Policy



# Transmission mechanisms



The Central Bank sets an inflation target (usually 2%).

# Market interest rates

To set the policy rate, the central bank will work backwards:

1. Choose the desired level of aggregate demand, based on the labour market equilibrium and the Phillips curve
2. Estimate the real interest rate, which will produce this level of aggregate demand (using the multiplier model)
3. Calculate the nominal policy rate that will produce the appropriate market interest rate.

# Asset prices

A change in the policy rate has a ripple effect through all the interest rates in the economy.

When the interest rate goes down, the price of assets goes up.

Households who own assets will be wealthier, which will increase their consumption.

# Profit expectations

Consistent policymaking and good communication with the public builds confidence in the Central Bank.

This can lead firms to expect higher demand and therefore increase investment.

Households may be confident that they will not lose their jobs, and they may increase their consumption.

# Exchange rate

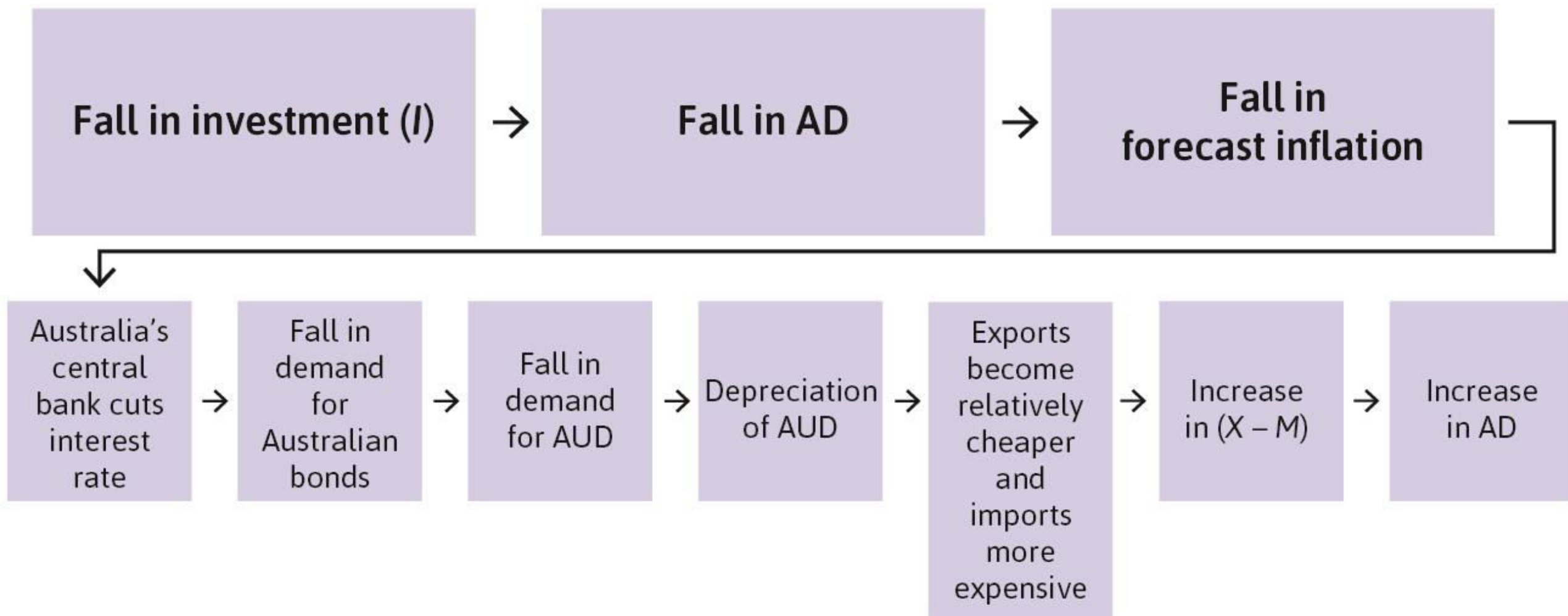
**Exchange rate** = number of units of home currency that can be exchanged for one unit of foreign currency.

Interest rates affect demand for home currency in the foreign exchange market, so affects the exchange rate (**appreciation/depreciation**).

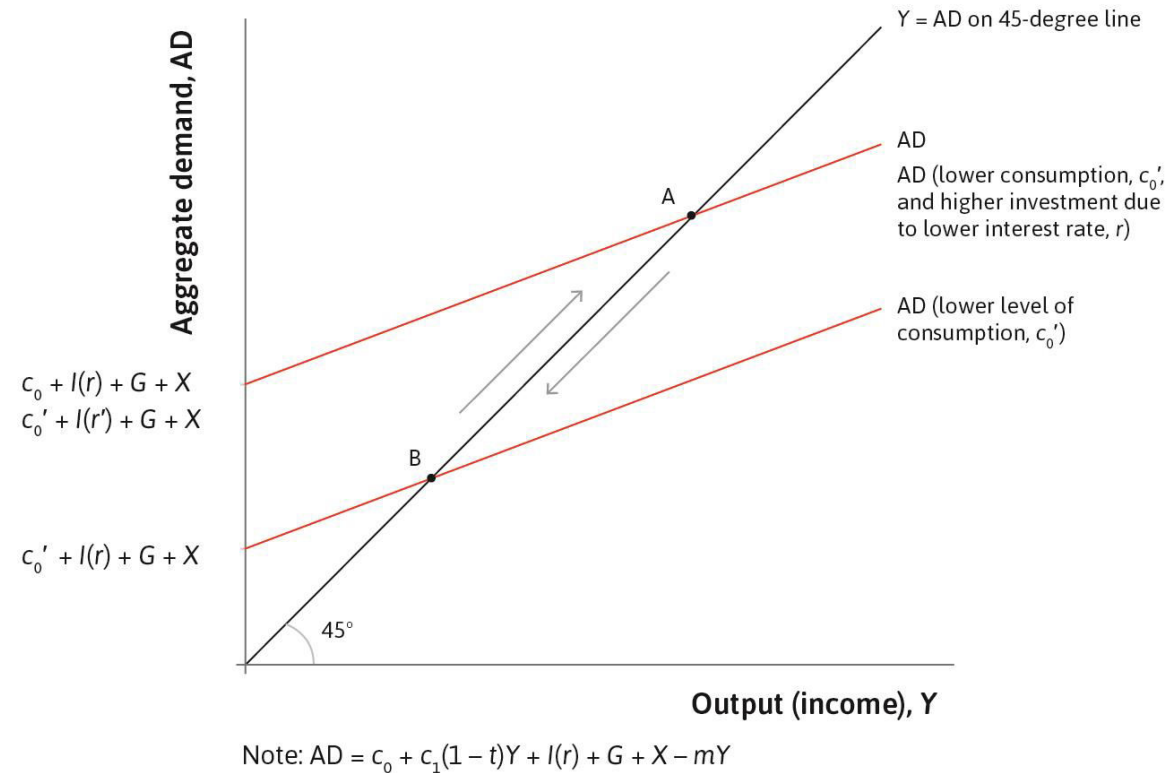
The exchange rate affects relative demand for home-produced goods, so affects net exports.

Therefore, interest rates affect aggregate demand through the market for financial assets.

# Exchange rate as transmission mechanism



# Monetary policy in the multiplier model



To stabilize the economy, the central bank stimulates investment by lowering the real interest rate. This shifts the aggregate demand curve upward.

# Monetary Policy: Limitations

1. The short-term nominal interest rate (policy rate) cannot go below zero (“zero lower bound”)
  - when the economy is in a slump, a nominal interest rate of zero may not be low enough to stabilize the economy
  - Quantitative easing = Central bank purchases of financial assets aimed at increasing investment by reducing yields.
2. A country without its own currency does not have its own monetary policy
  - E.g. countries of the eurozone

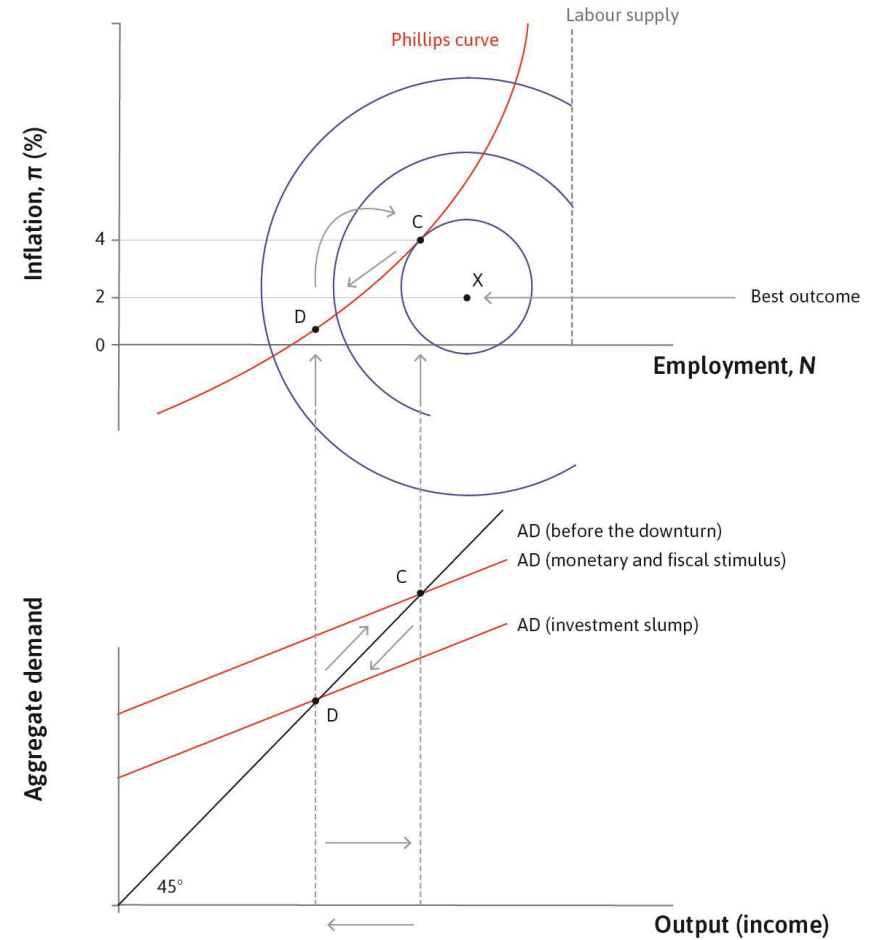


# Demand shocks

**Demand shock** = An unexpected change in aggregate demand

Governments can use both fiscal and monetary policy to stabilize the economy:

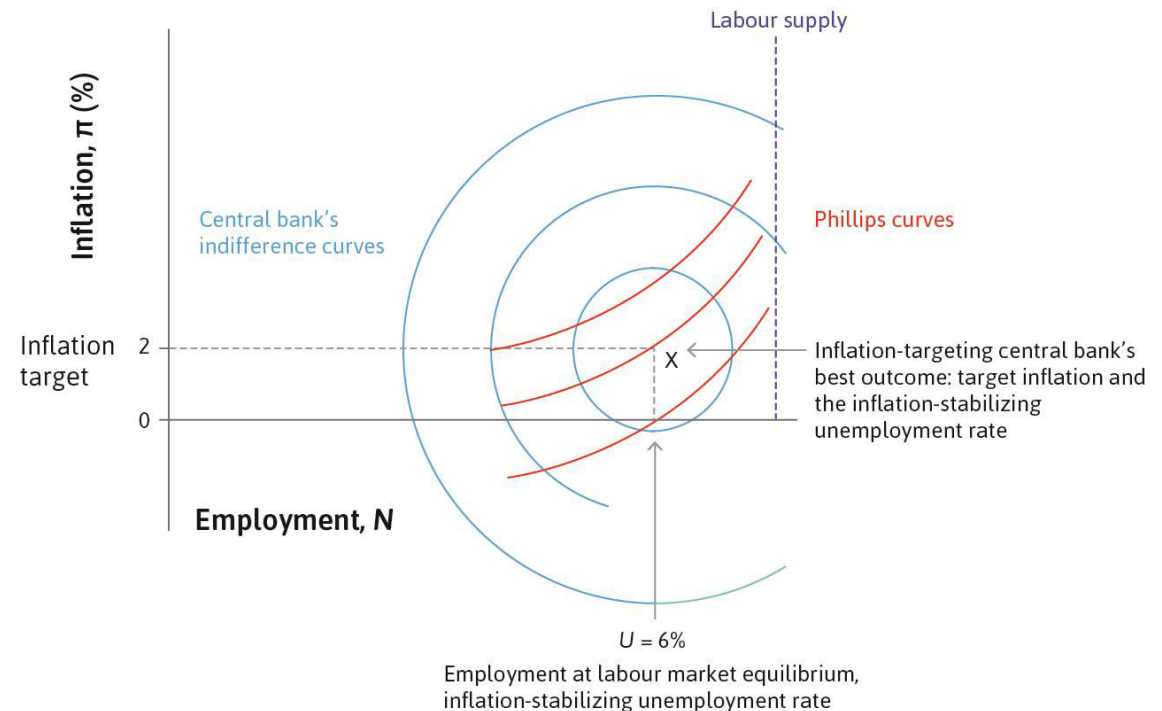
- Monetary policy – decreasing the nominal interest rate
- Fiscal policy – tax cuts and increased government spending



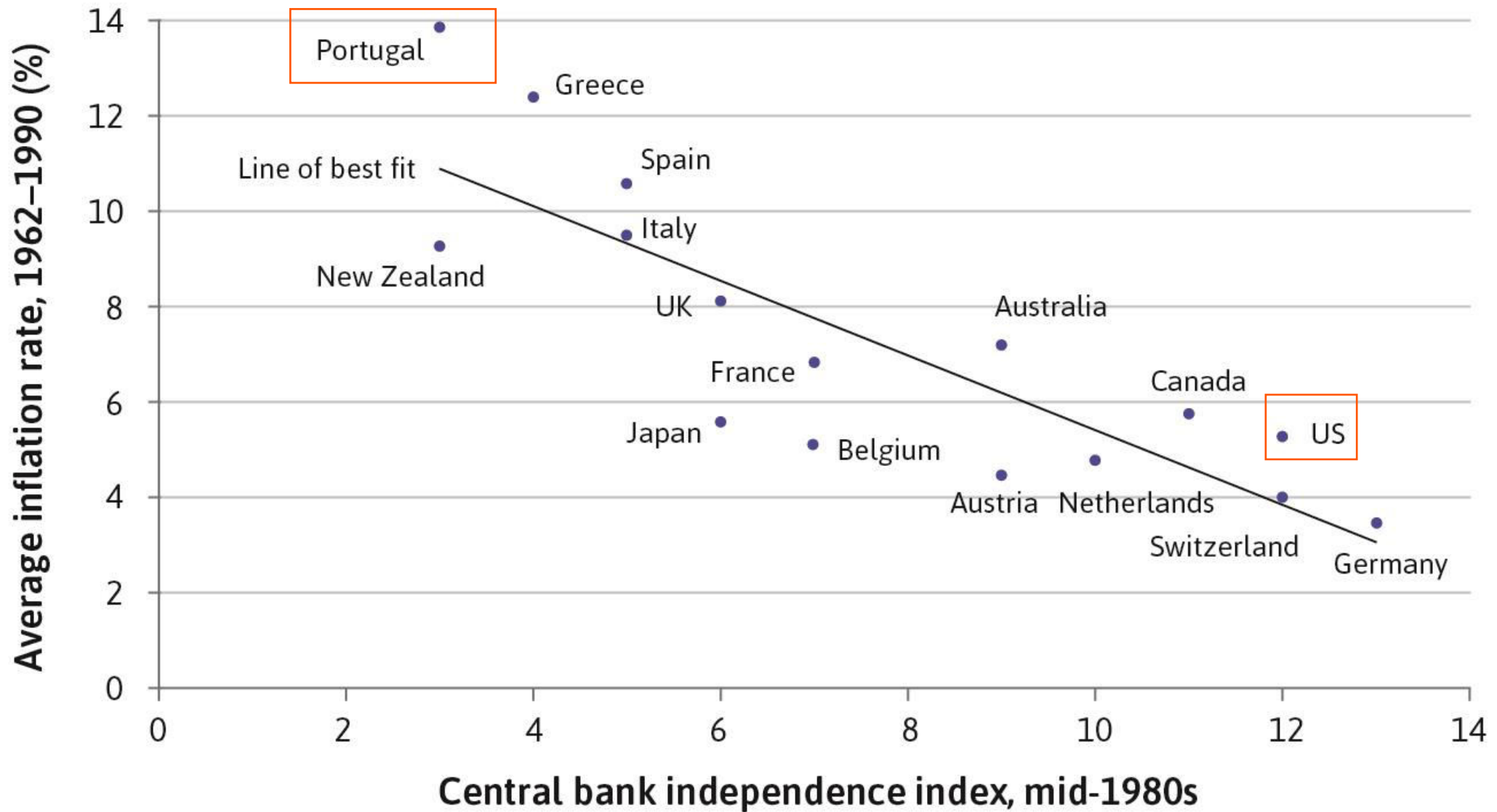
# Inflation targeting

**Inflation targeting** = monetary policy regime where the central bank uses policy instruments to keep the economy close to an inflation target

Making the central bank independent from the government gives inflation targets credibility and prevents an inflation spiral by setting expectations.



# Inflation and central bank independence

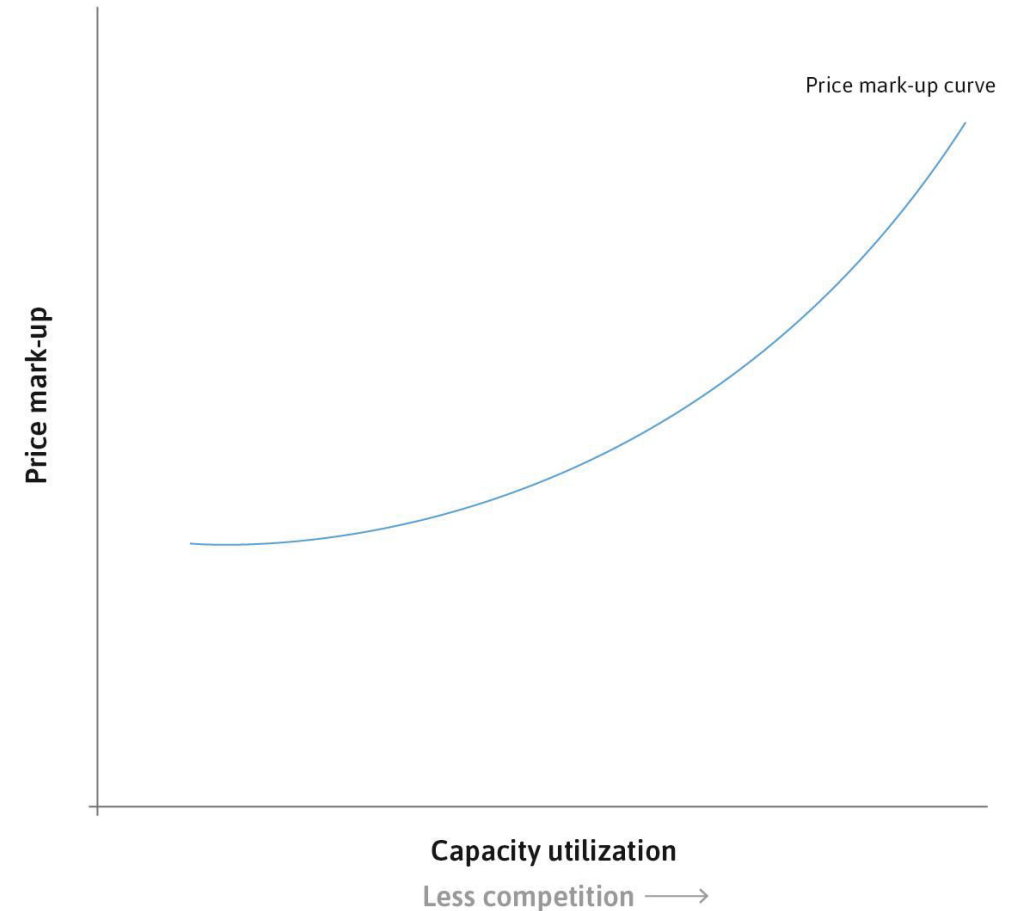


# Capacity Constraints

Another reason for the inflation-unemployment trade-off are capacity constraints.

Firms respond to rising capacity utilization by increasing investment. In the short run, firms are **capacity constrained** (unable to meet excess demand for output) so raise prices.

Wage-price spiral when other firms respond in the same way.



# Summary

1. Inflation is caused by **bargaining gaps** and **capacity constraints**
  - **Phillips Curve**: tradeoff between inflation and unemployment
  - Positive bargaining gap leads to persistently high inflation
  - The trade-off isn't stable: **expectations** matter
2. **Central banks** can stabilize the economy by changing the policy rate
  - 4 channels of **monetary transmission mechanism**: interest rate, asset prices, profit expectations, exchange rates
  - **Zero lower bound** puts a limitation on monetary policy

# In the next unit

- The long-term effects of economic policies, institutions, and technological progress on living standards and unemployment
- Factors that determine the economic performance of a country, and why policies might fail