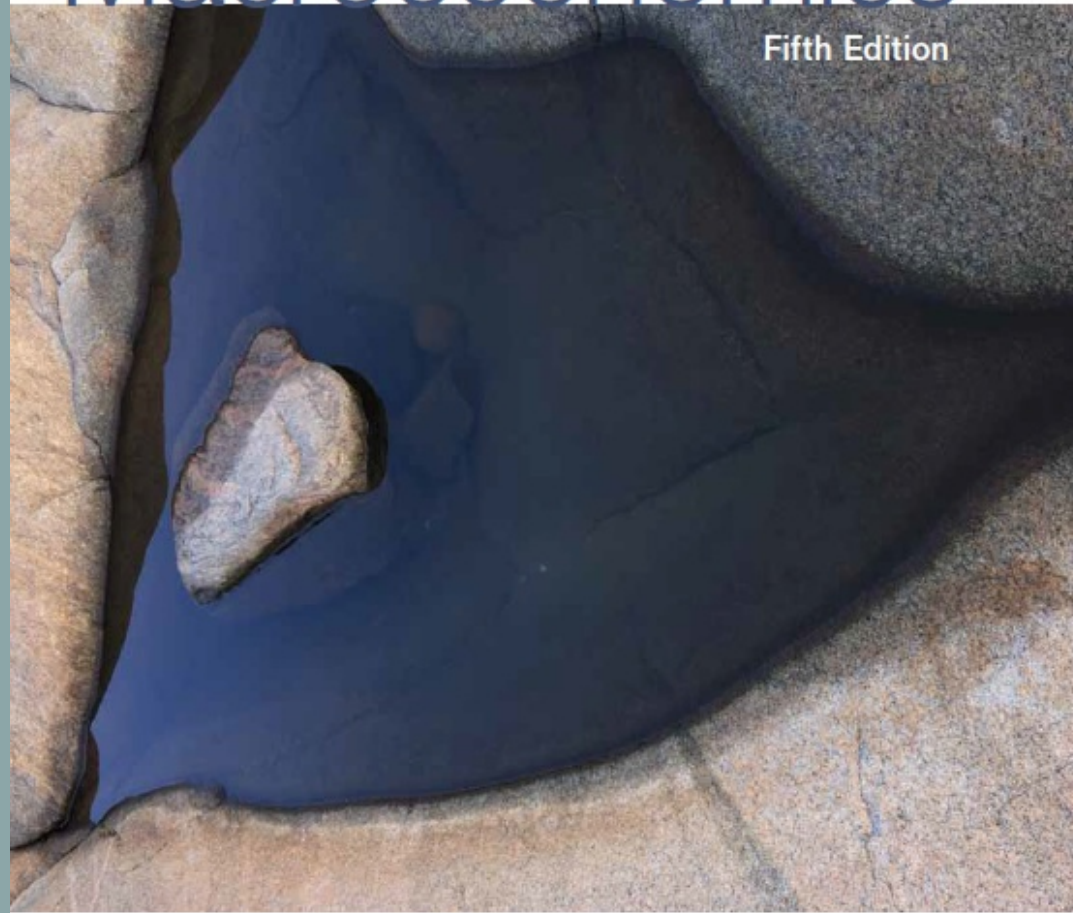


# Chapter 14

## New Keynesian Economics: Sticky Prices

# Macroeconomics

Fifth Edition



Stephen D. Williamson

# Chapter 14 Topics

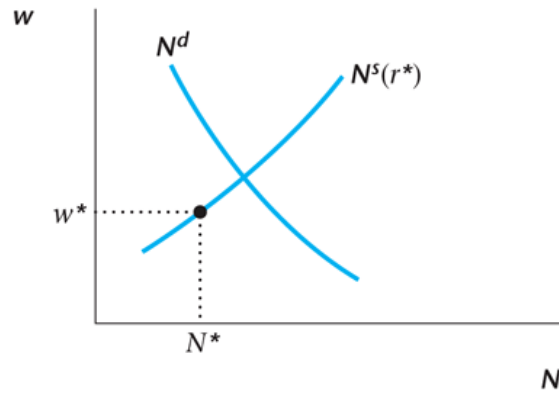
- Construction of the New Keynesian Sticky Price Model – extending the Monetary Intertemporal Model.
- The Role of Government Policy – Monetary and Fiscal Stabilization.
- How does the model fit the data?
- Total Factor Productivity Shocks
- Liquidity Traps
- Critique

# The Sticky Price Model

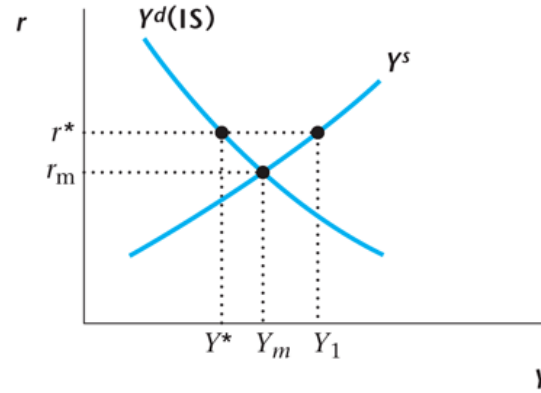
- Firms sell as much output as is demanded in the short run at a fixed price.
- Model monetary policy as a fixed target for the interest rate  $r$ , supported by setting the money supply appropriately.
- Employment determined as the quantity of labour required to produce the quantity of output demanded at the fixed price of goods.

# Figure 14.1

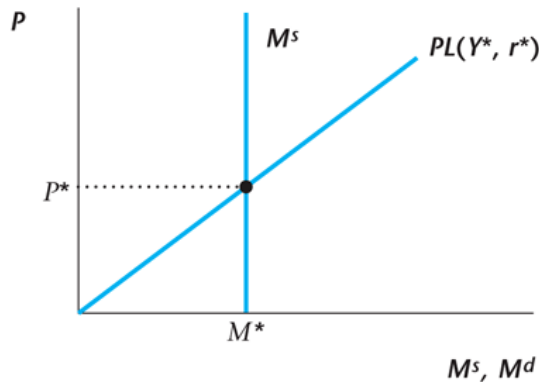
## The New Keynesian Model



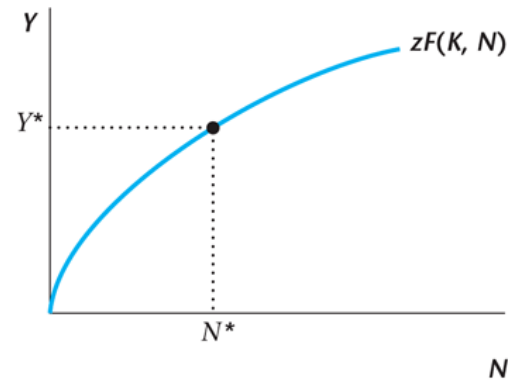
(a) Current labor



(b) Current goods



(c) Money



(d) Production

## Two Key Concepts

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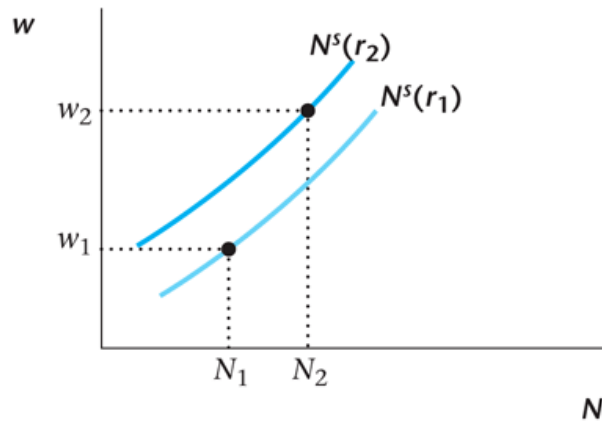
- The *output gap* is the difference between equilibrium output (if prices were flexible) and actual output.
- The *natural rate of interest* is the equilibrium rate of interest if prices were flexible.

# The Nonneutrality of Money in the New Keynesian Model

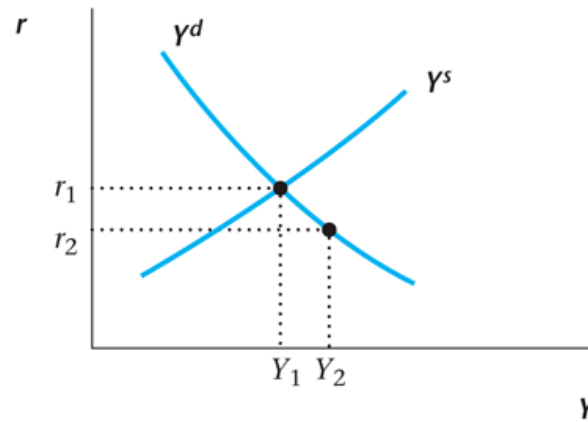
- A reduction in the central bank's interest rate target, supported by an increase in the money supply, acts to increase aggregate output and employment.
- The demand for output rises at the fixed price of goods, and firms accommodate the increase in demand by hiring more workers.
- Consumption, investment, real wage, increase.

# Figure 14.2

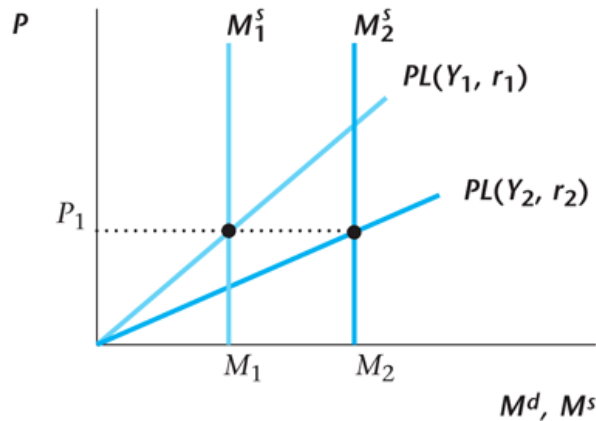
## A Decrease in the Central Bank's Interest Rate Target in the New Keynesian Model



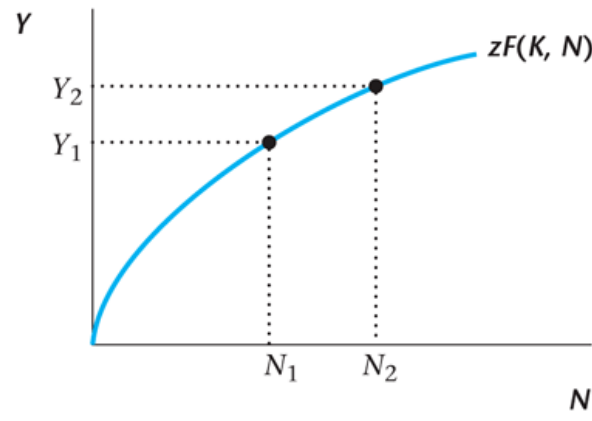
(a) Current labor



(b) Current goods



(c) Money



(d) Production

# Can Fluctuations in the Interest Rate Target Explain Business Cycles?

- Can explain all the key business cycle facts, but average labour productivity is countercyclical, rather than procyclical, as in the data. As well, the price level is acycyclical, or procyclical, if some firms can change their prices. This also does not fit.
- Fit of the model to the data in this respect is not as good as for the real business cycle model or the Keynesian coordination failure model in Chapter 13.



# Table 14.1 Data Versus Predictions of the New Keynesian Model with Fluctuations in the Central Bank's Interest Rate Target

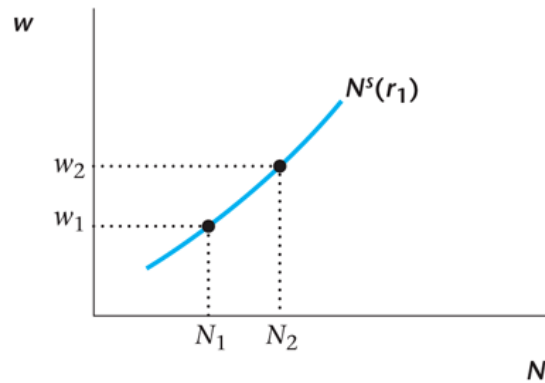
Variable	Data	Model
Consumption	Procyclical	Procyclical
Investment	Procyclical	Procyclical
Price Level	Countercyclical	Acyclical
Money Supply	Procyclical	Procyclical
Employment	Procyclical	Procyclical
Real Wage	Procyclical	Procyclical
Average Labor Productivity	Procyclical	Countercyclical

# Do Keynesian Aggregate Demand Shocks Explain Business Cycles?

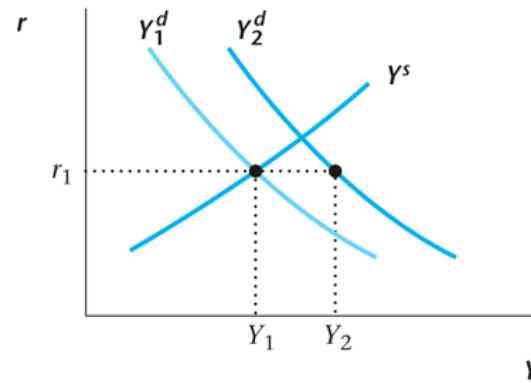
- Can explain most of the key business cycle facts, but as with changes in the interest rate target, the comovements in average labour productivity and the price level do not fit the facts.
- Fit of the model to the data in this respect is not as good as for the real business cycle model or the Keynesian coordination failure model in Chapter 13.
- Keynesians tend to emphasize aggregate demand shocks as being key for business cycles, so this is a problem.

# Figure 14.3

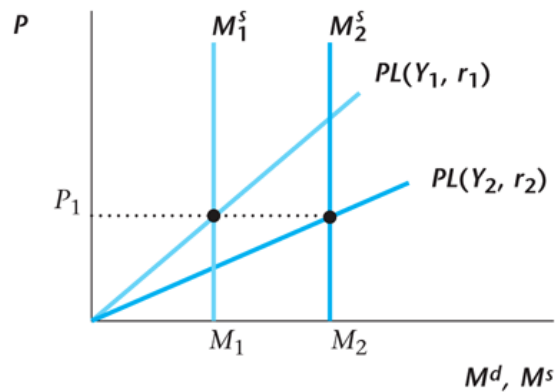
## An Increase in the Demand for Investment Goods in the New Keynesian Model



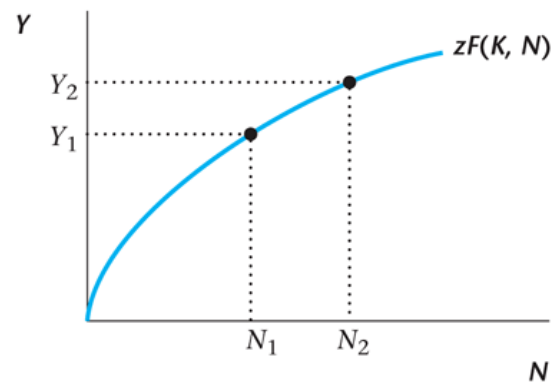
(a) Current labor



(b) Current goods



(c) Money



(d) Production

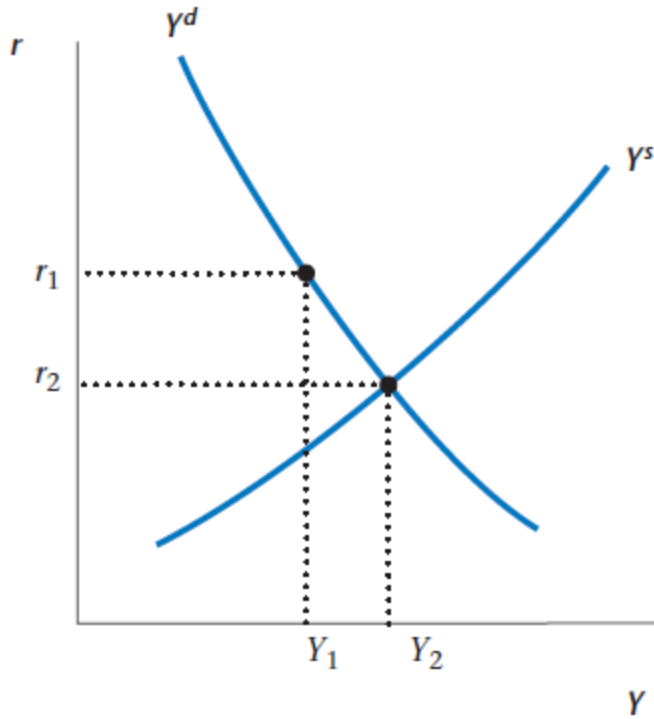
# Principles of New Keynesian Stabilization Policy

- Private markets cannot work efficiently on their own. Prices (and/or wages) do not move quickly enough to clear all markets in the short run.
- Fiscal and/or monetary policy decisions can be made quickly enough, and policy actions work quickly enough that the government can improve economic efficiency by smoothing out business cycles.
- Whether fiscal or monetary policy is used matters for the allocation of resources between the private sector and the government sector.

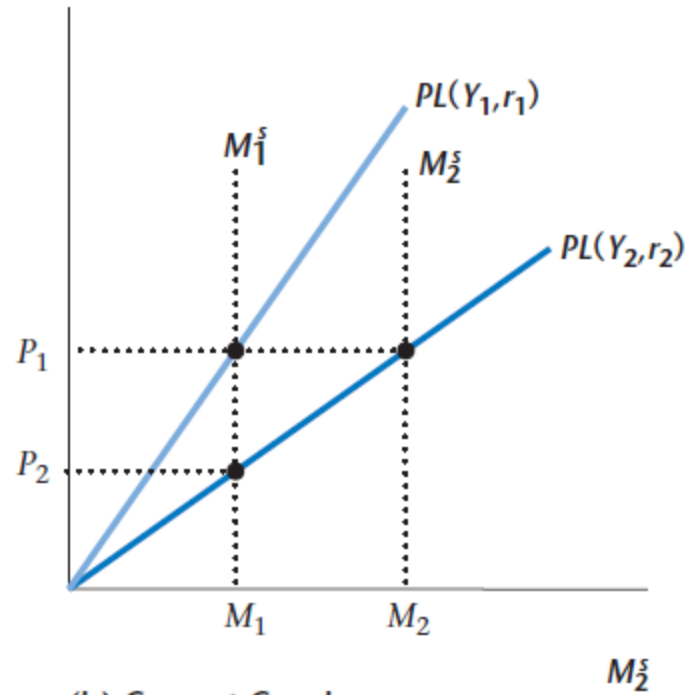
## Table 14.2 Data Versus Predictions of the New Keynesian Model with Investment Shocks

Variable	Data	Model
Consumption	Procyclical	Procyclical
Investment	Procyclical	Procyclical
Price Level	Acyclical	Procyclical
Money Supply	Procyclical	Procyclical
Employment	Procyclical	Procyclical
Real Wage	Procyclical	Procyclical
Average Labor Productivity	Procyclical	Countercyclical

# Figure 14.4 Stabilization Using Monetary Policy

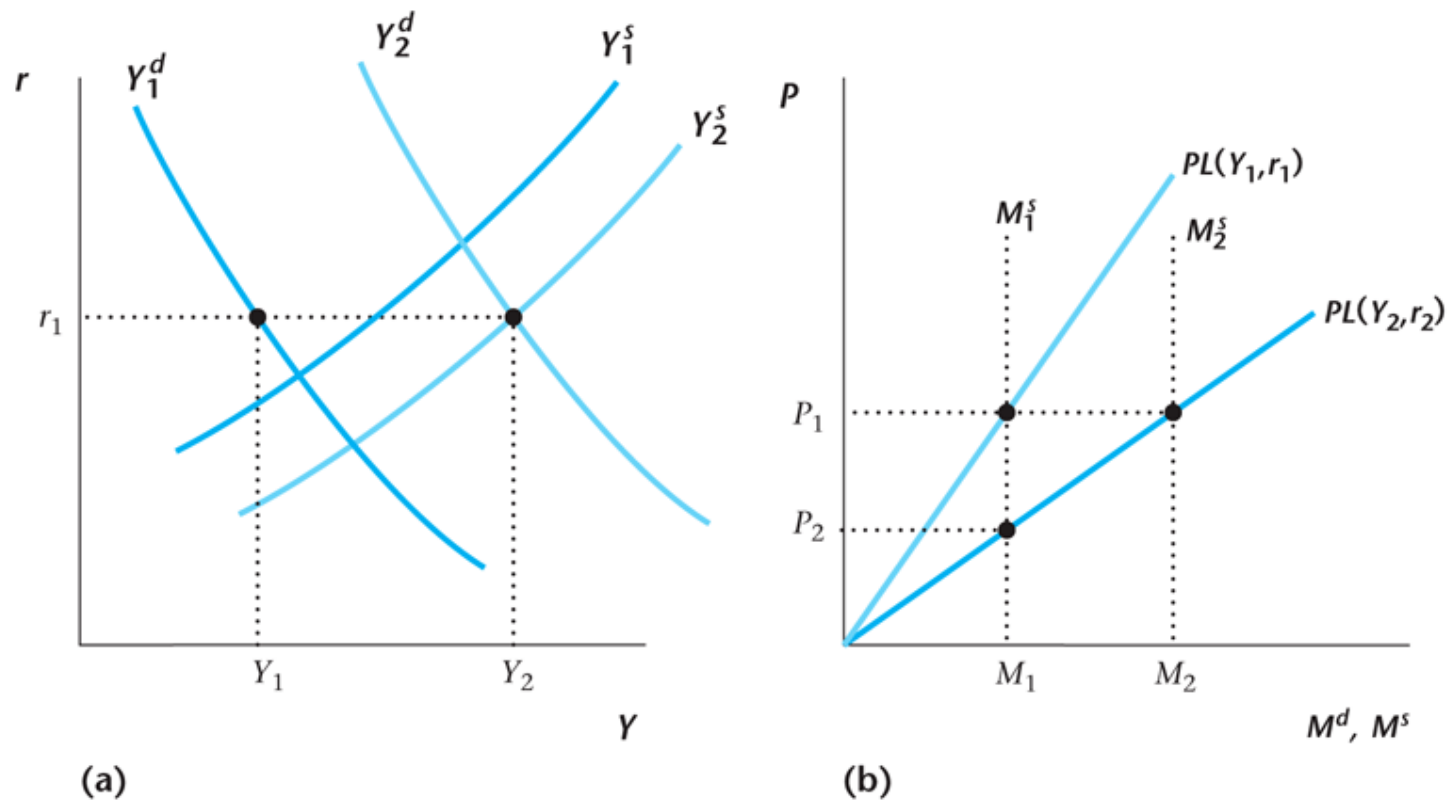


(a) Current Labor



(b) Current Goods

# Figure 14.5 Stabilization Using Fiscal Policy



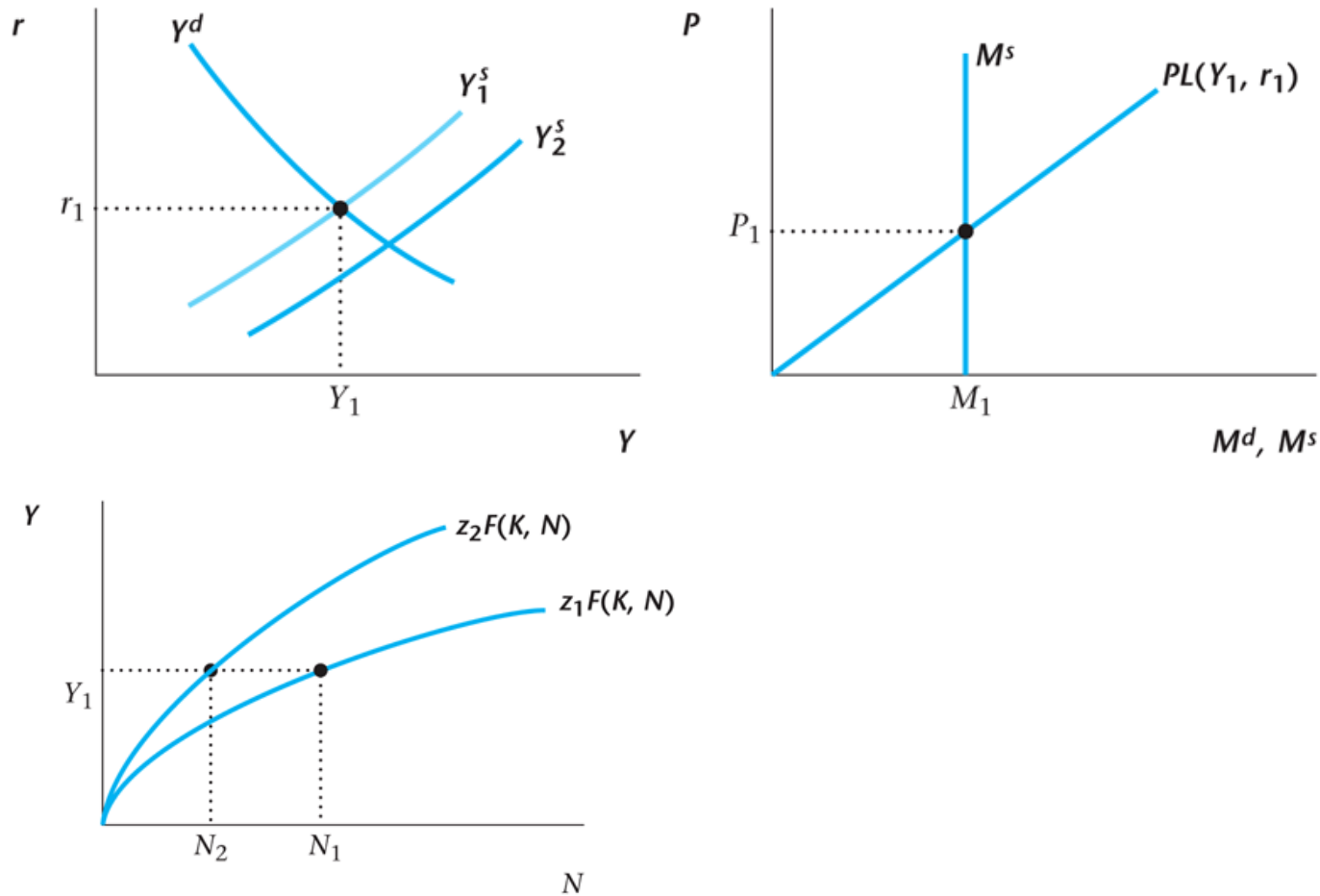
# TFP Debate

- In the New Keynesian model, if TFP goes up, employment goes down, as fewer workers are need to produce the quantity of output demanded at a fixed price.
- In the real business cycle model, when TFP goes up, employment goes up.
- Whether fiscal or monetary policy is used matters for the allocation of resources between the private sector and the government sector.



# Figure 14.6

## An Increase in Total Factor Productivity in the New Keynesian Model

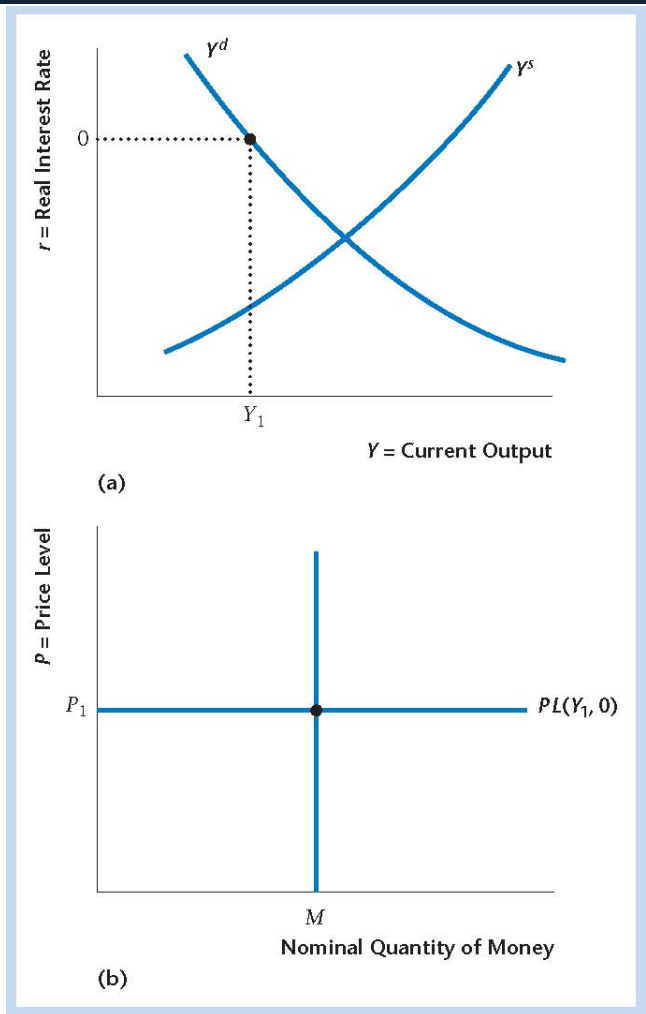


# The Liquidity Trap and Sticky Prices

- The zero lower bound on the nominal interest rate creates a problem for the use of monetary policy as a stabilization tool.
- Monetary policy cannot close the output gap at the zero lower bound.

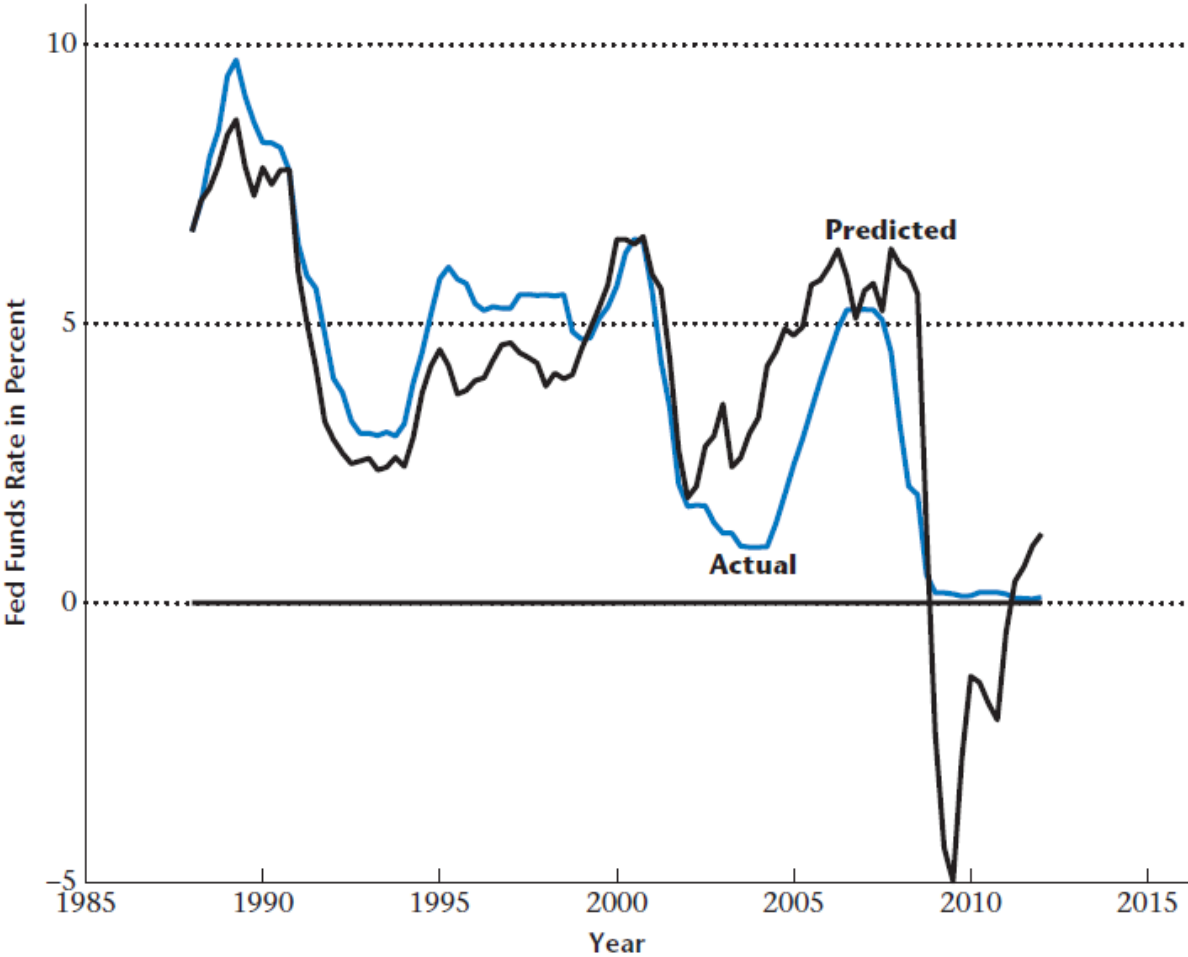
# Figure 14.7

## A Liquidity Trap at the Zero Lower Bound



# Figure 14.8

## Actual Fed Funds Rate, and Fed Funds Rate Predicted by the Taylor Rule



# Criticisms of New Keynesians

- New Keynesian model does not fit all the business cycle facts.
- Theory underlying sticky prices is poor.
- It cannot be that costly to change a price.
- Why does the price of gasoline change frequently, while the price of motor oil does not? These observations seem inconsistent with menu costs.