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Principles of
Macroeconomics
Sixth Edition

21

The Influence of Monetary and Fiscal Policy on Aggregate Demand

Premium PowerPoint Slides by Ron Cronovich

In this chapter, look for the answers to these questions:

- How does the interest-rate effect help explain the slope of the aggregate-demand curve?
- How can the central bank use monetary policy to shift the *AD* curve?
- In what two ways does fiscal policy affect aggregate demand?
- What are the arguments for and against using policy to try to stabilize the economy?

Introduction

- Earlier chapters covered:
  - the long-run effects of fiscal policy on interest rates, investment, economic growth
  - the long-run effects of monetary policy on the price level and inflation rate
- This chapter focuses on the short-run effects of fiscal and monetary policy, which work through aggregate demand.

Aggregate Demand

- Recall, the *AD* curve slopes downward for three reasons:
  - The wealth effect
  - The interest-rate effect
  - The exchange-rate effect

the most important of these effects for the U.S. economy

- Next:
  A supply-demand model that helps explain the interest-rate effect and how monetary policy affects aggregate demand.

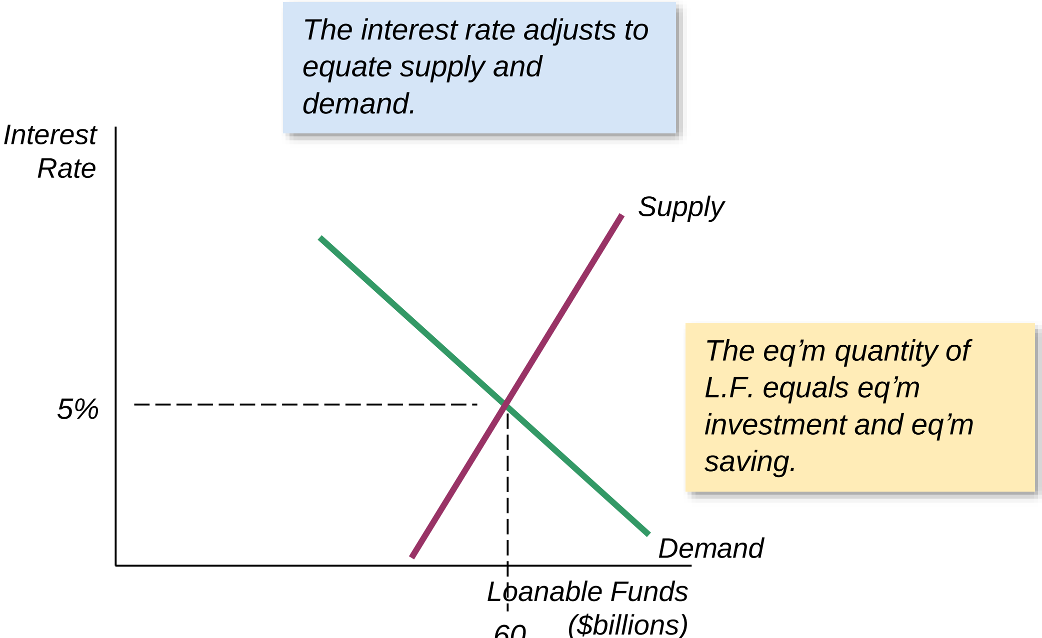
The Theory of Liquidity Preference

- A simple theory of the interest rate (denoted ***r***)
- ***r*** adjusts to balance supply and demand for money
- Money supply: assume fixed by central bank, does not depend on interest rate

The Theory of Liquidity Preference

- Money demand reflects how much wealth people want to hold in liquid form.
- For simplicity, suppose household wealth includes only two assets:
  - Money – liquid but pays no interest
  - Bonds – pay interest but not as liquid
- A household's "money demand" reflects its *preference* for *liquidity*.
- The variables that influence money demand: ***Y***, ***r***, and ***P***.

یادآوری گذشته و مواجهه با نظریه رجحان نقدینگی



- دانسته بودیم که نرخ بهره در اقتصاد از تعادل میان عرضه و تقاضای وجوه قابل استقراض به وجود می آید. یعنی تعادل میان پس انداز ملی و سرمایه گذاری برنامه ریزی شده.
- در اینجا نرخ بهره از تعادل میان عرضه و تقاضای پول به دست می آید.
- طبق نظریه کلاسیک ها تولید، نرخ بهره و سطح قیمت ها براساس مطالب گذشته تغییر می کنند.
  - نرخ بهره از توازن میان عرضه و تقاضای وجوه قابل استقراض به دست می آید.
  - تولید از عرضه سرمایه و نیروی کار و زمین و فناوری و...
  - سطح قیمت ها از تعادل میان عرضه و تقاضای پول به دست می آید.
- اما در کوتاه مدت:
  - نرخ بهره از تعادل عرضه و تقاضای پول به دست می آید (در هر سطح از قیمت)
  - تولید به دلیل تغییر تقاضای کل تغییر میکند. همچنین تقاضای کالا و خدمات تابعی از نرخ بهره تعیین شده در بازار پول است.
  - سطح عمومی قیمت ها بدون تغییر باقی می مانند.

Money Demand

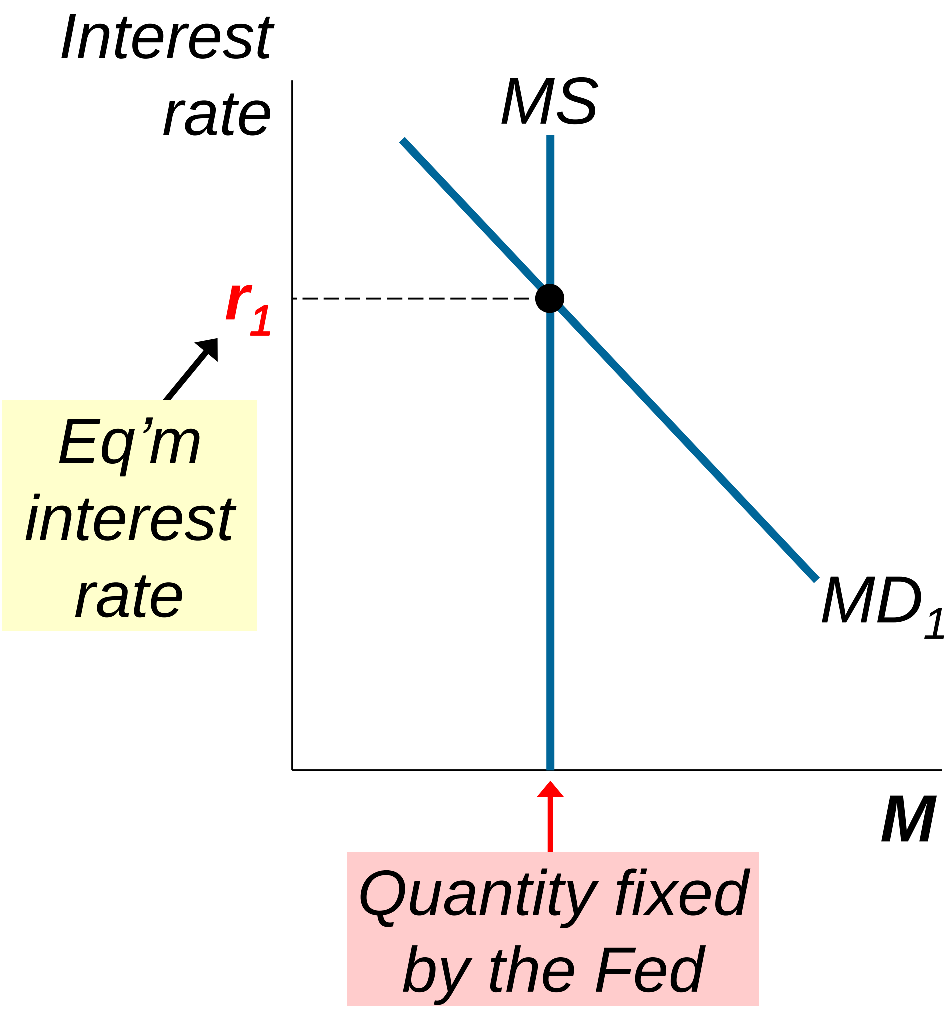
Suppose *r* rises, but *Y* and *P* are unchanged. What happens to money demand?

r is the opportunity cost of holding money.

An increase in ***r*** reduces money demand: households attempt to buy bonds to take advantage of the higher interest rate.

Hence, an increase in *r* causes a decrease in money demand, other things equal.

How *r* Is Determined

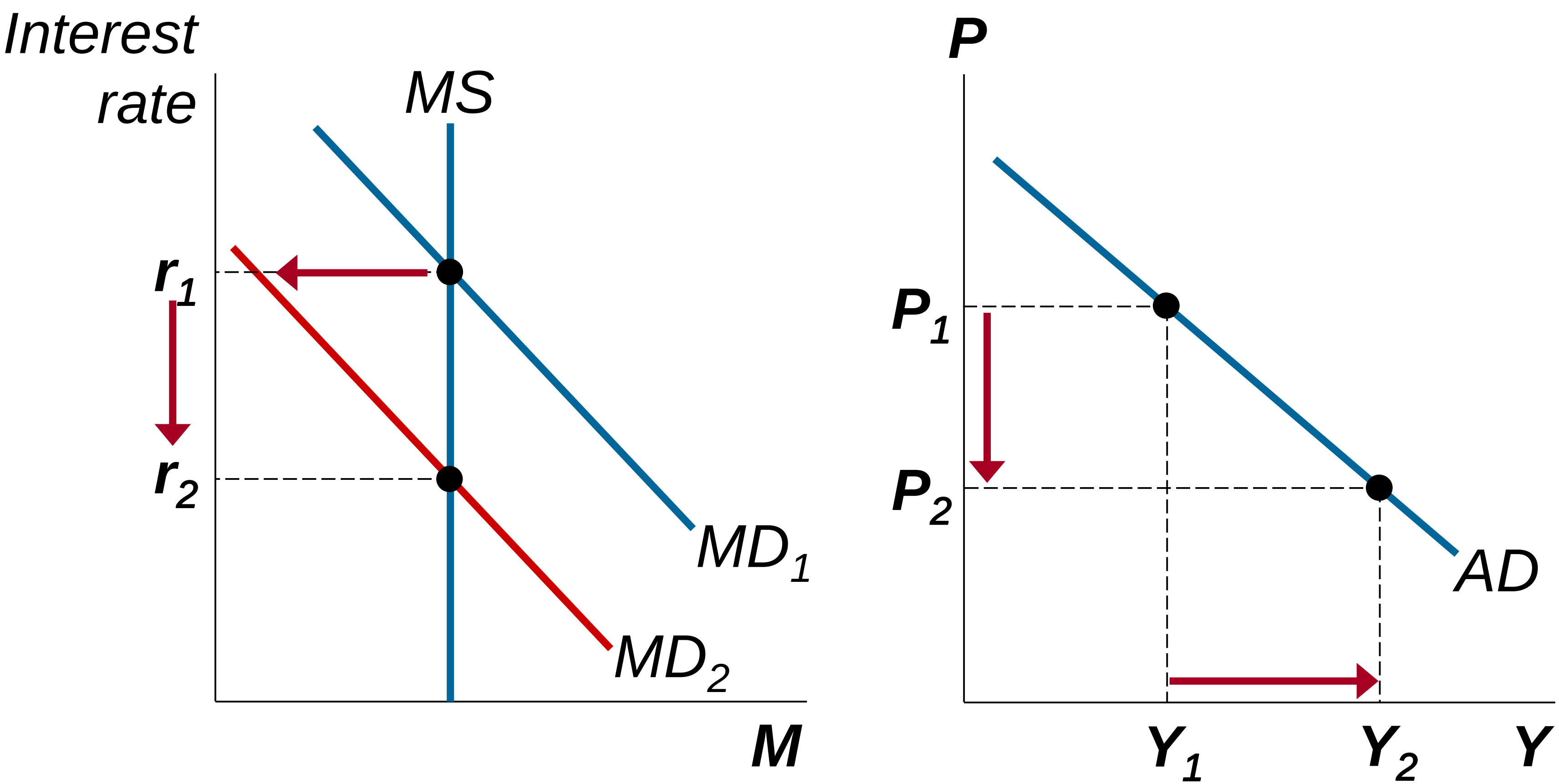


MS curve is vertical: Changes in ***r*** do not affect *MS*, which is fixed by the Fed.

MD curve is downward sloping: A fall in ***r*** increases money demand.

تکرار: اثر نرخ بهره در منحنی تقاضا کل

*A fall in **P** reduces money demand, which lowers **r**.*



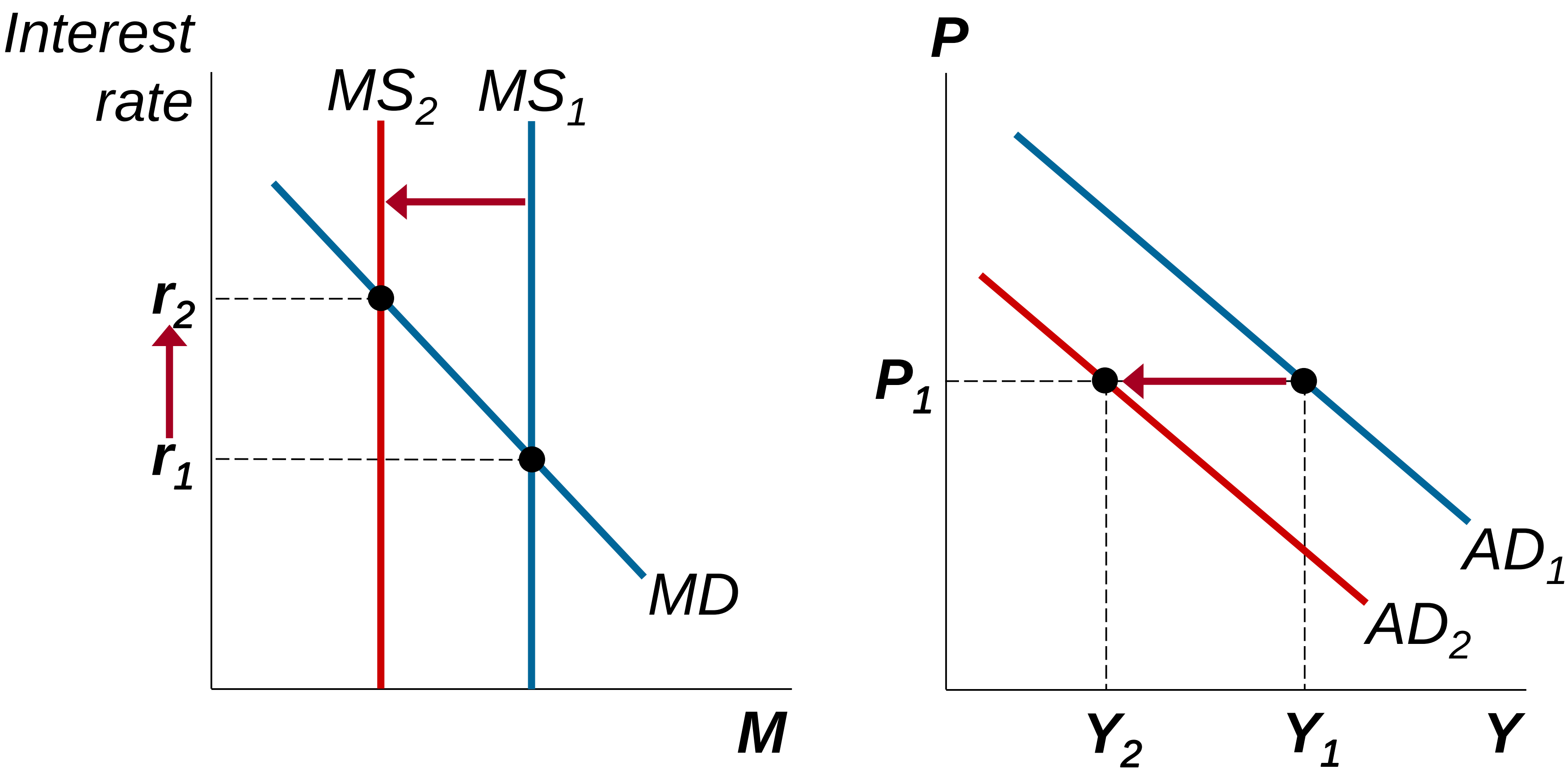
*A fall in **r** increases **I** and the quantity of g&s demanded.*

Monetary Policy and Aggregate Demand

- To achieve macroeconomic goals, the Fed can use monetary policy to shift the *AD* curve.
- The Fed's policy instrument is *MS*.
- The news often reports that the Fed targets the interest rate.
  - More precisely, the **federal funds rate**, which banks charge each other on short-term loans
- To change the interest rate <u>and</u> shift the *AD* curve, the Fed conducts open market operations to change *MS*.

The Effects of Reducing the Money Supply

*The Fed can raise **r** by reducing the money supply.*



*An increase in **r** reduces the quantity of g&s demanded.*

ACTIVE LEARNING

Monetary policy

For each of the events below,

- determine the short-run effects on output
- determine how the Fed should adjust the money supply and interest rates to stabilize output

A. Congress tries to balance the budget by cutting govt spending.

B. A stock market boom increases household wealth.

C. War breaks out in the Middle East, causing oil prices to soar.

ACTIVE LEARNING

Answers

A. Congress tries to balance the budget by cutting govt spending.

This event would reduce agg demand and output.

To stabilize output, the Fed should increase *MS* and reduce ***r*** to increase agg demand.

ACTIVE LEARNING

Answers

B. A stock market boom increases household wealth.

This event would increase agg demand, raising output above its natural rate.

To stabilize output, the Fed should reduce *MS* and increase ***r*** to reduce agg demand.

ACTIVE LEARNING
Answers

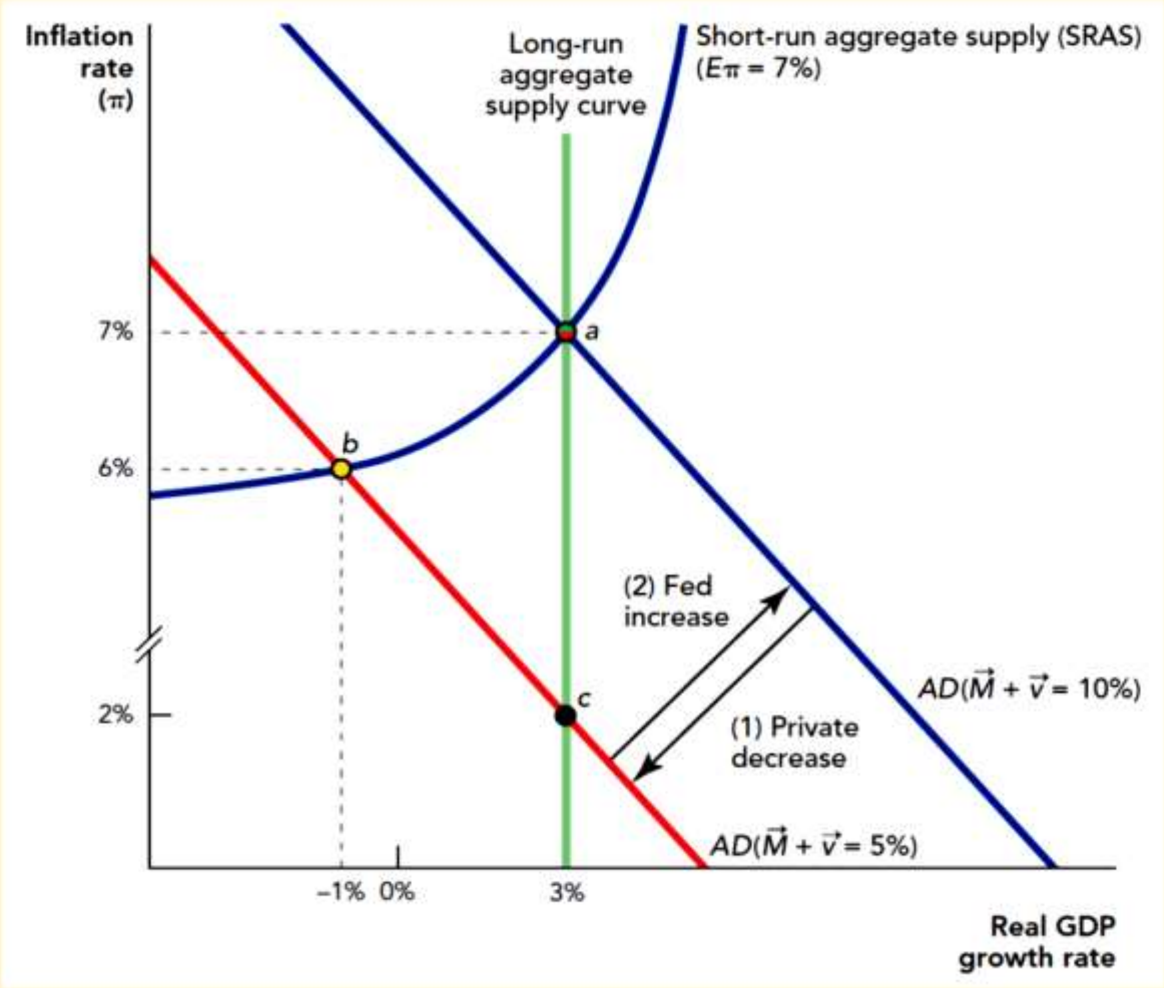
C. War breaks out in the Middle East, causing oil prices to soar.

This event would reduce agg supply, causing output to fall.

To stabilize output, the Fed should increase *MS* and reduce ***r*** to increase agg demand.

سیاست پولی برای تثبیت اقتصادی

FIGURE 35.1

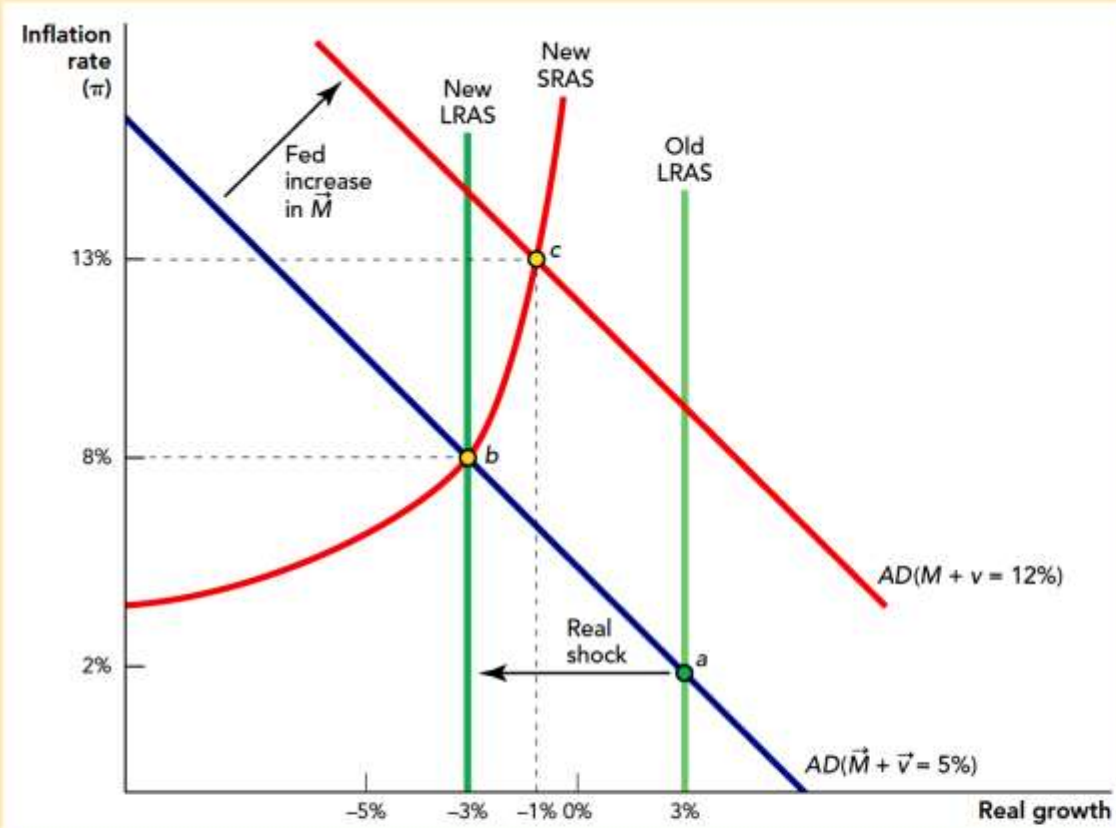


In the Best-Case Scenario, the Federal Reserve Can Offset a Negative Shock to AD with an Increase in $\vec{M}$

A decrease in AD (step 1) shifts the AD curve inward, shifting the equilibrium from point *a* to point *b*. If the Federal Reserve acts quickly, an increase in $\vec{M}$ (step 2) will move the economy back to point *a* without a prolonged recession.

اعمال سیاست پولی در شرایط شوک در سمت عرضه با هدف افزایش رشد اقتصادی

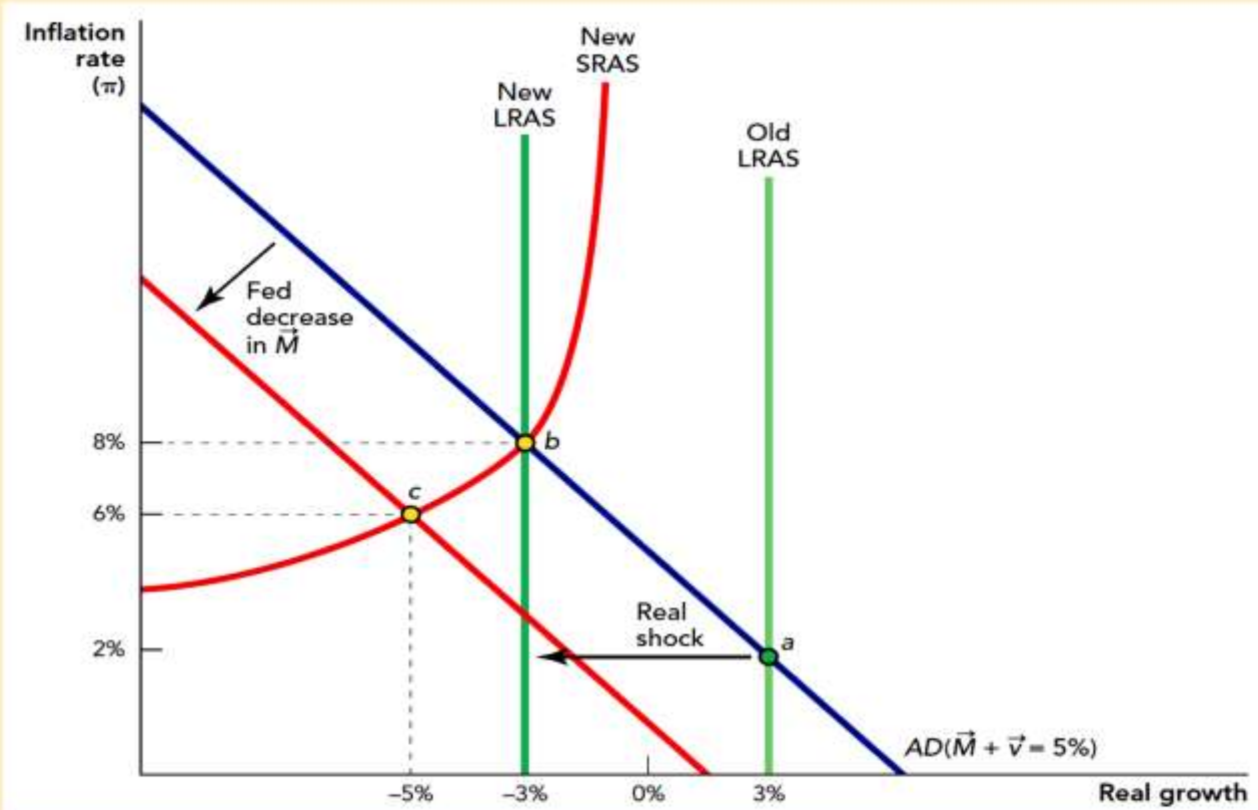
FIGURE 35.4



The Federal Reserve's Dilemma When Responding to a Real Shock (2) A real shock shifts the LRAS Curve to the left, moving the economy from point *a* to a recession at point *b*. If the Federal Reserve concentrates on the lower growth rate, it may decide to increase AD, with an increase in $\vec{M}$ moving the economy to point *c* with a little bit higher growth rate but a much higher inflation rate. Note that for clarity we have suppresed the old SRAS curve running through point *a*.

اعمال سیاست پولی در شرایط شوک در سمت عرضه با هدف کاهش تورم

FIGURE 35.3



The Federal Reserve's Dilemma When Responding to a Real Shock (1) A real shock shifts the long-run aggregate supply (LRAS) curve to the left, moving the economy from point *a* to a recession at point *b*. If the Federal Reserve concentrates on the higher inflation rate, it may decide to reduce AD, with a cut in $\vec{M}$, moving the economy to point *c* with a lower inflation rate but an even lower growth rate. Note that for clarity we have suppresed the old SRAS curve running through point *a*.

دام نقدینگی

- Monetary policy stimulates aggregate demand by reducing the interest rate.
- **Liquidity trap**: when the interest rate is zero
- In a liquidity trap, mon. policy may not work, since nominal interest rates cannot be reduced further.
- However, central bank can make real interest rates negative by raising inflation expectations.
- Also, central bank can conduct open-market ops using other assets—like mortgages and corporate debt—thereby lowering rates on these kinds of loans. The Fed pursued this option in 2008–2009.

سیاست مالی و تقاضای کل

- **Fiscal policy**: the setting of the level of govt spending and taxation by govt policymakers

تنظیم سطح مخارج دولت و مالیات توسط سیاست گذاران دولتی.

- **Expansionary** fiscal policy
  - an increase in G and/or decrease in T
  - shifts *AD* right
- **Contractionary** fiscal policy
  - a decrease in G and/or increase in T
  - shifts *AD* left
- Fiscal policy has two effects on *AD*...

1. The Multiplier Effect

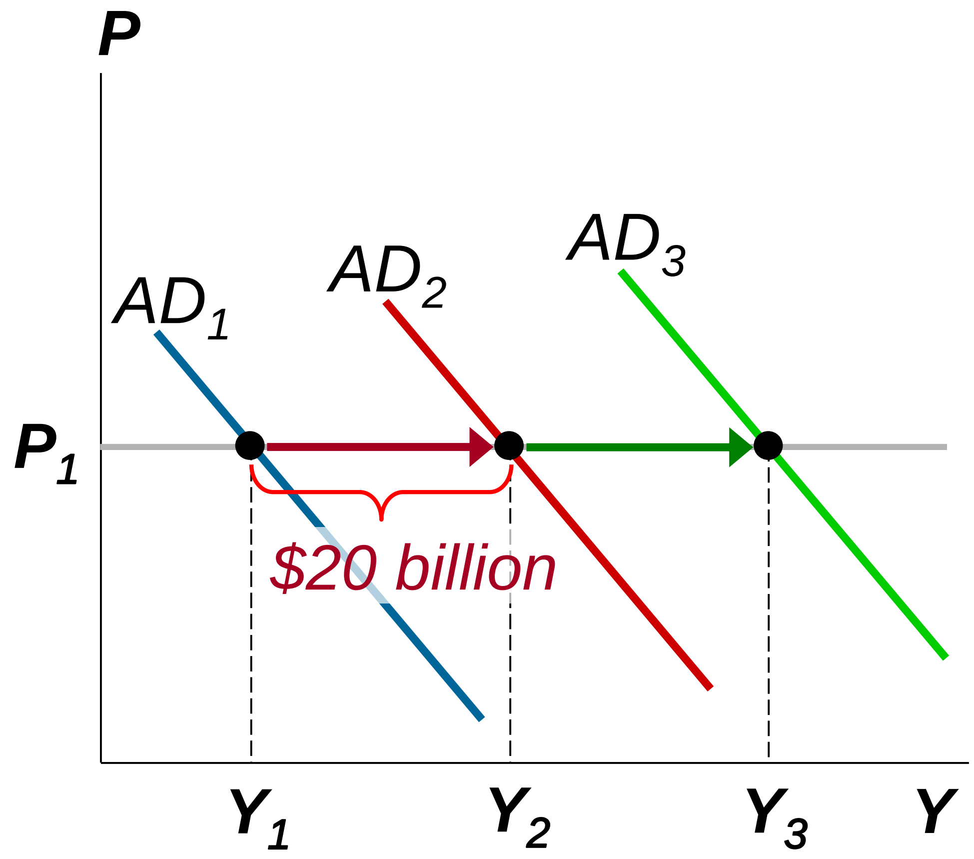
- If the govt buys $20b of planes from Boeing, Boeing's revenue increases by $20b.
- This is distributed to Boeing's workers (as wages) and owners (as profits or stock dividends).
- These people are also consumers and will spend a portion of the extra income.
- This extra consumption causes further increases in aggregate demand.

Multiplier effect: the additional shifts in AD that result when fiscal policy increases income and thereby increases consumer spending

1. The Multiplier Effect

A \$20b increase in ***G*** initially shifts *AD* to the right by \$20b.

The increase in ***Y*** causes ***C*** to rise, which shifts *AD* further to the right.



Marginal Propensity to Consume

- How big is the multiplier effect?
  It depends on how much consumers respond to increases in income.
- **Marginal propensity to consume (MPC)**:
  the fraction of extra income that households consume rather than save

  E.g., if $MPC = 0.8$ and income rises \$100,
  C rises \$80.

A Formula for the Multiplier

Notation: ΔG is the change in G,

ΔY and ΔC are the ultimate changes in Y and C

$Y = C + I + G + NX$ identity

$\Delta Y = \Delta C + \Delta G$ I and NX do not change

$\Delta Y = MPC\ \Delta Y + \Delta G$ because $\Delta C = MPC\ \Delta Y$

$$\Delta Y = \boxed{\frac{1}{1 - MPC}} \Delta G$$ solved for ΔY

The multiplier

A Formula for the Multiplier

The size of the multiplier depends on *MPC*.

E.g.,	if *MPC* = 0.5	multiplier = 2
	if *MPC* = 0.75	multiplier = 4
	if *MPC* = 0.9	multiplier = 10

$$\Delta Y = \boxed{\frac{1}{1 - MPC}}\,\Delta G$$

The multiplier

A bigger MPC means changes in **Y** cause bigger changes in **C.**

Other Applications of the Multiplier Effect

- The multiplier effect:
  Each \$1 increase in G can generate more than a \$1 increase in agg demand.
- Also true for the other components of GDP.

  Example: Suppose a recession overseas reduces demand for U.S. net exports by \$10b.

  Initially, agg demand falls by \$10b.

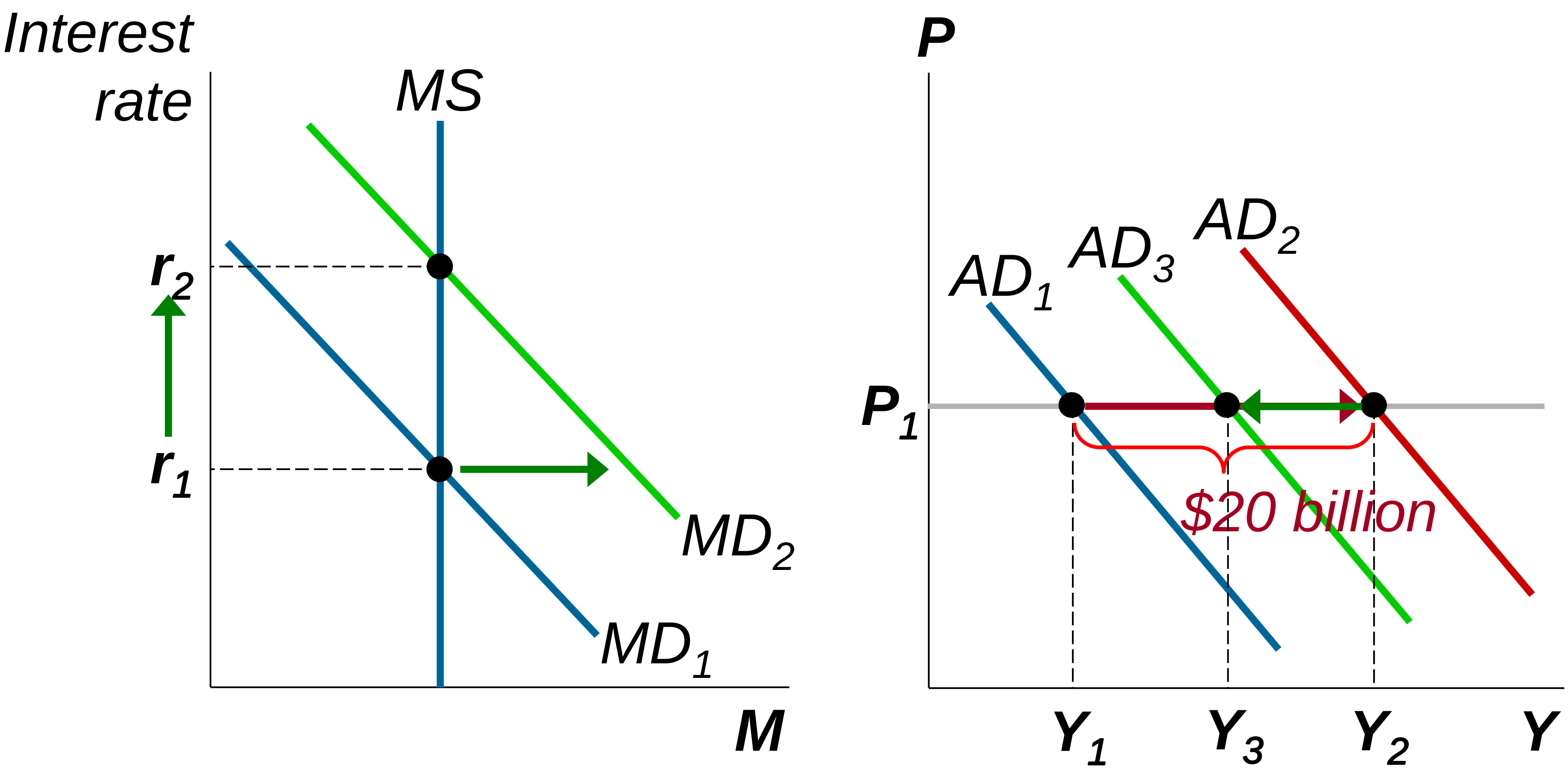
  The fall in Y causes C to fall, which further reduces agg demand and income.

2. The Crowding-Out Effect

- Fiscal policy has another effect on *AD* that works in the opposite direction.
- A fiscal expansion raises ***r***,
  which reduces investment,
  which reduces the net increase in agg demand.
- So, the size of the *AD* shift may be smaller than the initial fiscal expansion.
- This is called the **crowding-out effect**.

How the Crowding-Out Effect Works

*A $20b increase in **G** initially shifts AD right by $20b*



*But higher **Y** increases MD and **r**, which reduces AD.*

Changes in Taxes

- A tax cut increases households' take-home pay.
- Households respond by spending a portion of this extra income, shifting *AD* to the right.
- The size of the shift is affected by the multiplier and crowding-out effects.
- Another factor: whether households perceive the tax cut to be temporary or permanent.
  - A permanent tax cut causes a bigger increase in ***C***—and a bigger shift in the *AD* curve—than a temporary tax cut.

ACTIVE LEARNING 3

Fiscal policy effects

The economy is in recession.
Shifting the *AD* curve rightward by $200b would end the recession.

A. If *MPC* = .8 and there is no crowding out, how much should Congress increase ***G*** to end the recession?

B. If there is crowding out, will Congress need to increase ***G*** more or less than this amount?

ACTIVE LEARNING **3**

Answers

The economy is in recession.
Shifting the *AD* curve rightward by $200b would end the recession.

A. If *MPC* = .8 and there is no crowding out, how much should Congress increase ***G*** to end the recession?

Multiplier = 1/(1 – .8) = 5

Increase ***G*** by $40b
to shift agg demand by 5 x $40b = $200b.

ACTIVE LEARNING **3**

Answers

The economy is in recession.
Shifting the *AD* curve rightward by $200b would end the recession.

B. If there is crowding out, will Congress need to increase ***G*** more or less than this amount?

Crowding out reduces the impact of ***G*** on *AD*.

To offset this, Congress should increase ***G*** by a larger amount.

Fiscal Policy and Aggregate Supply

- Most economists believe the short-run effects of fiscal policy mainly work through agg demand.
- But fiscal policy might also affect agg supply.
- A cut in the tax rate gives workers incentive to work more, so it might increase the quantity of g&s supplied and shift *AS* to the right.
- People who believe this effect is large are called "Supply-siders."

Fiscal Policy and Aggregate Supply

- Govt purchases might affect agg supply. Example:
  - Govt increases spending on roads.
  - Better roads may increase business productivity, which increases the quantity of g&s supplied, shifts *AS* to the right.
- This effect is probably more relevant in the long run: it takes time to build the new roads and put them into use.

Using Policy to Stabilize the Economy

- Since the Employment Act of 1946, economic stabilization has been a goal of U.S. policy.
- Economists debate how active a role the govt should take to stabilize the economy.

The Case for Active Stabilization Policy

- Keynes: "Animal spirits" cause waves of pessimism and optimism among households and firms, leading to shifts in aggregate demand and fluctuations in output and employment.
- Also, other factors cause fluctuations, e.g.,
  - booms and recessions abroad
  - stock market booms and crashes
- If policymakers do nothing, these fluctuations are destabilizing to businesses, workers, consumers.

The Case for Active Stabilization Policy

- Proponents of active stabilization policy believe the govt should use policy to reduce these fluctuations:
  - When GDP falls below its natural rate, use expansionary monetary or fiscal policy to prevent or reduce a recession.
  - When GDP rises above its natural rate, use contractionary policy to prevent or reduce an inflationary boom.

Keynesians in the White House

1961:
John F Kennedy pushed for a tax cut to stimulate agg demand. Several of his economic advisors were followers of Keynes.

2009:
Barack Obama pushed for spending increases and tax cuts to increase agg demand in the face of a deep recession.

The Case Against Active Stabilization Policy

- Monetary policy affects economy with a long lag:
  - Firms make investment plans in advance, so I takes time to respond to changes in r.
  - Most economists believe it takes at least 6 months for mon policy to affect output and employment.
- Fiscal policy also works with a long lag:
  - Changes in G and T require acts of Congress.
  - The legislative process can take months or years.

The Case Against Active Stabilization Policy

- Due to these long lags, critics of active policy argue that such policies may destabilize the economy rather than help it:

  By the time the policies affect agg demand, the economy's condition may have changed.

- These critics contend that policymakers should focus on long-run goals like economic growth and low inflation.

Automatic Stabilizers

- **Automatic stabilizers**:
  changes in fiscal policy that stimulate
  agg demand when economy goes into recession,
  without policymakers having to take any deliberate
  action

Automatic Stabilizers: Examples

- The tax system
  - In recession, taxes fall automatically, which stimulates agg demand.
- Govt spending
  - In recession, more people apply for public assistance (welfare, unemployment insurance).
  - Govt spending on these programs automatically rises, which stimulates agg demand.

CONCLUSION

- Policymakers need to consider all the effects of their actions. For example,
  - When Congress cuts taxes, it should consider the short-run effects on agg demand and employment, and the long-run effects
    on saving and growth.
  - When the Fed reduces the rate of money growth, it must take into account not only the long-run effects on inflation but the short-run effects on output and employment.

SUMMARY

- In the theory of liquidity preference, the interest rate adjusts to balance the demand for money with the supply of money.
- The interest-rate effect helps explain why the aggregate-demand curve slopes downward: an increase in the price level raises money demand, which raises the interest rate, which reduces investment, which reduces the aggregate quantity of goods & services demanded.

SUMMARY

- An increase in the money supply causes the interest rate to fall, which stimulates investment and shifts the aggregate demand curve rightward.
- Expansionary fiscal policy—a spending increase or tax cut—shifts aggregate demand to the right. Contractionary fiscal policy shifts aggregate demand to the left.

SUMMARY

- When the government alters spending or taxes, the resulting shift in aggregate demand can be larger or smaller than the fiscal change:
  - The multiplier effect tends to amplify the effects of fiscal policy on aggregate demand.
  - The crowding-out effect tends to dampen the effects of fiscal policy on aggregate demand.

SUMMARY

- Economists disagree about how actively policymakers should try to stabilize the economy.
- Some argue that the government should use fiscal and monetary policy to combat destabilizing fluctuations in output and employment.
- Others argue that policy will end up destabilizing the economy because policies work with long lags.