The Influence of Monetary and Fiscal Policy on Aggregate Demand

PRINCIPLES OF
Economics

N. Gregory Mankiw

Lecture 11

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

- How can the Central Bank use monetary policy to shift the aggregate demand 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

This chapter focuses on the <u>short-run</u> effects of fiscal policy and monetary policy, which work through aggregate demand (AD).

(1) How Monetary Policy Influences 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.

How r Is Determined

Interest rate

MS

r_1

Eq'm interest rate

MD_1

M

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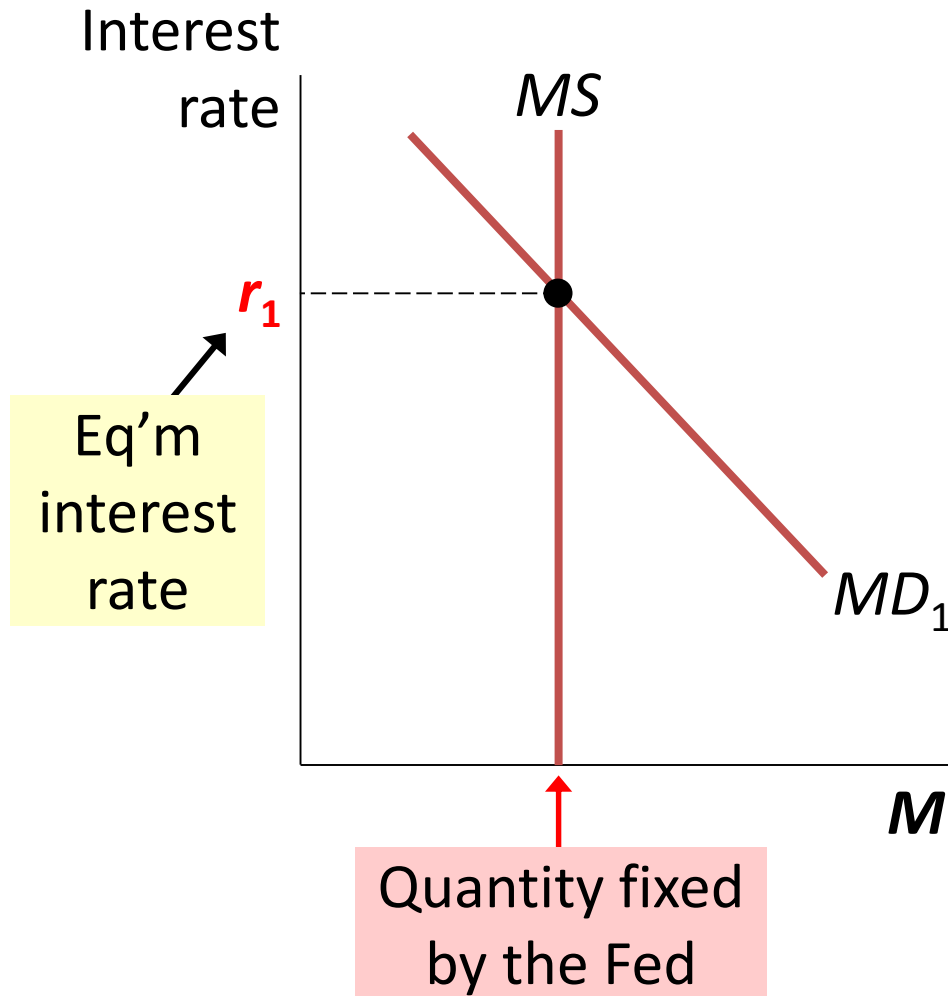
MS curve is vertical: Changes in r do not affect *MS*, which is fixed by the CB.

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

Monetary Policy and Aggregate Demand

- To achieve macroeconomic goals, the Central Bank can use monetary policy to shift the *AD* curve.

- The Central Bank's policy instrument is *MS*.

- The news often reports that the Fed (US Central Bank) 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 Central Bank conducts open market operations to change *MS*.

The Effects of Reducing the Money Supply

The Central Bank can raise *r* by reducing the money supply.
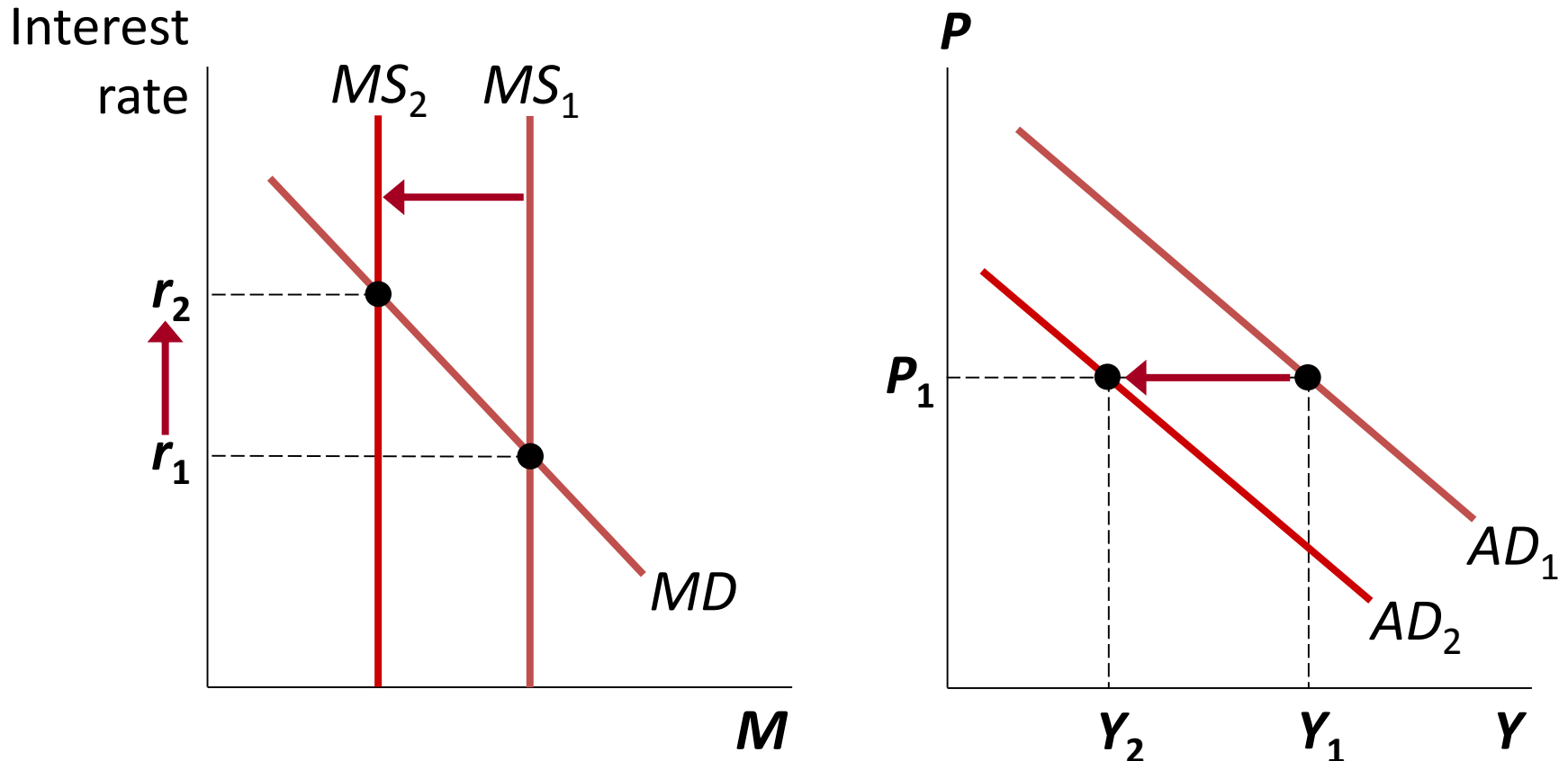
An increase in *r* reduces the quantity of g&s demanded (at any price level); i.e., leads to a shift of AD to the left.

(2) How Fiscal Policy Influences Aggregate Demand

Fiscal Policy and Aggregate Demand

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

(A) The Multiplier Effect

- Example: If US government buys $20b of planes from Boeing, Boeing's revenue rises 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

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.
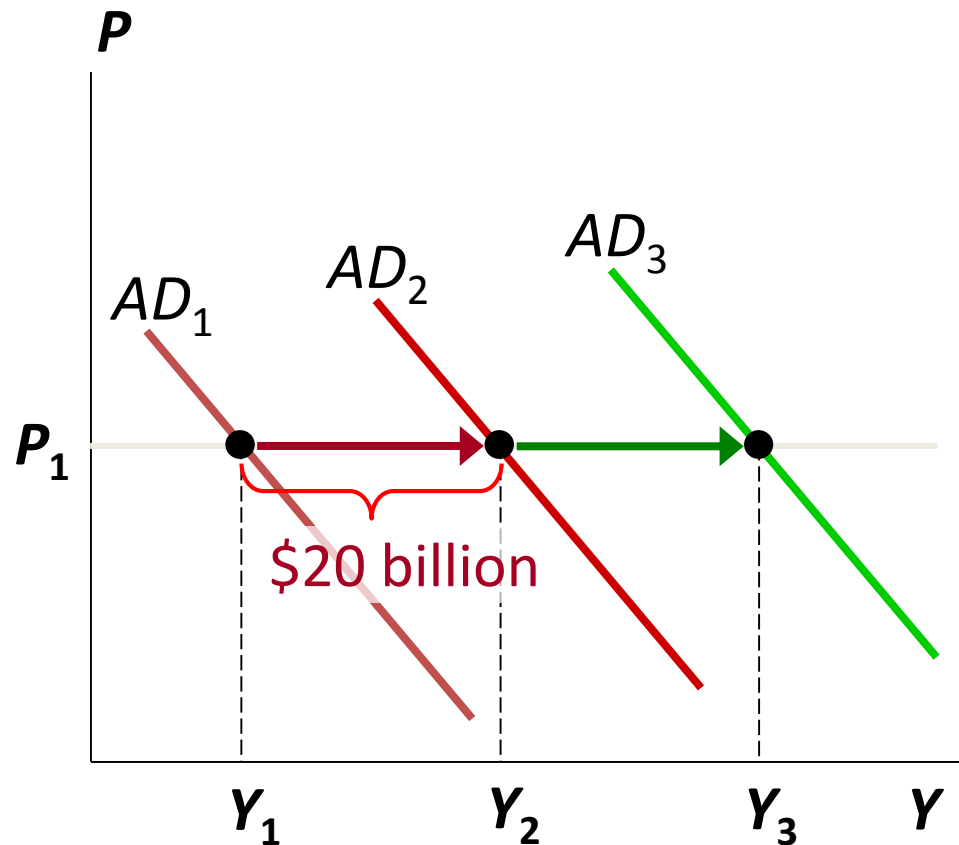
Marginal Propensity to Consume

- 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 $\Delta C = MPC\ \Delta Y$

$\Delta Y = \boxed{\dfrac{1}{1 - MPC}} \Delta G$ 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 = 1/(1-0.5) = 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**, which in turn cause more changes in **Y**.

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 net exports of D.E. by $10b.

  Initially, agg demand falls by $10b.

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

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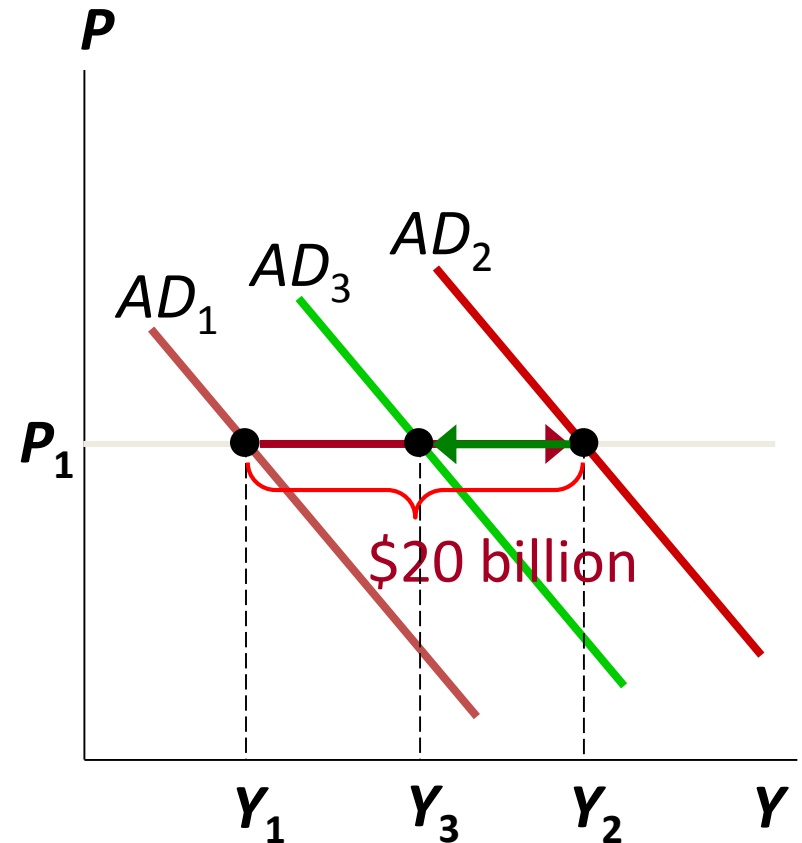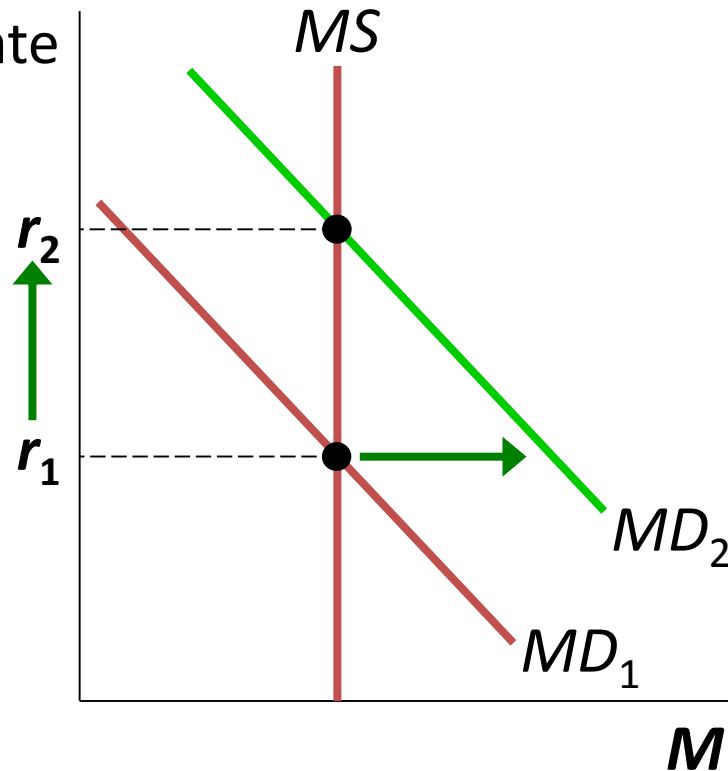
But higher **Y** increases *MD* and **r**, which reduces *AD*.

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.

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?

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.

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.

(C) 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.

- Recall one of the Ten Principles from Chap 1:
  People respond to incentives.

- 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

- Government purchases might affect agg supply. Example:
  - Government 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.

(3) Using Policy to Stabilize the Economy

Using Policy to Stabilize the Economy

- Since the Employment Act of 1946 ("*it is the continuing policy and responsibility of the federal government to … promote full employment and production.*"), economic stabilization has been a goal of U.S. policy.

- Economists debate how active a role the government should take to stabilize the economy.

The Case for Active Stabilization Policy

- Proponents of active stabilization policy believe the government 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.

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 monetary policy to affect output and employment.
- Fiscal policy also works with a long lag usually:
  - In the U.S., 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 (& variable) 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.

CONCLUSION

- Policymakers need to consider all the effects of their actions. For example,

  – When the Legislature 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 Central Bank 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.

CHAPTER 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.

CHAPTER 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.

CHAPTER 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.

CHAPTER 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.