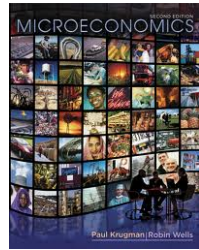


Economics 202 Principles Of Macroeconomics

Professor Yamin Ahmad

Lecture 11

- Economic Policy:
 - Fiscal Policy
 - Monetary Policy
- Supplemental (Background) Notes (accompanies this set of lecture notes)



Big Concepts

- Fiscal Policy
 - Effects of Fiscal Policy on Economy
 - Multipliers
- Monetary Policy
 - Effects of Monetary Policy on Economy
 - Demand/Supply of Money
- Short Run vs. Long Run Effects: Crowding Out

Note: These lecture notes are incomplete without having attended lectures

The Federal Budget

- The **federal budget** is the annual statement of the federal government's expenditures and tax revenues.
- **Fiscal policy** is the use of the federal budget to achieve macroeconomic objectives, such as full employment, sustained long-term economic growth, and price level stability.

Note: These lecture notes are incomplete without having attended lectures

The Federal Budget

- The federal government's budget balance equals tax revenue minus expenditure.
 - If tax revenues exceed expenditures, the government has a **budget surplus**.
 - If expenditures exceed tax revenues, the government has a **budget deficit**.
 - If tax revenues equal expenditures, the government has a **balanced budget**.

Note: These lecture notes are incomplete without having attended lectures

Fiscal Policy Multipliers

- **Automatic fiscal policy** is a change in fiscal policy triggered by the state of the economy.
- **Discretionary fiscal policy** is a policy action that is initiated by an act of Congress.
- To enable us to focus on the principles of fiscal policy multipliers, we first study discretionary fiscal policy in a model economy that has only lump-sum taxes.
- **Recall: Lump-sum taxes** are taxes that do not vary with real GDP.

Note: These lecture notes are incomplete without having attended lectures

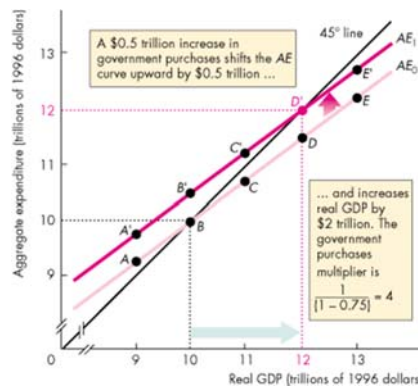
The Government Purchases Multiplier

- The **government purchases multiplier** is the magnification effect of a change in government purchases of goods and services on equilibrium aggregate expenditure and real GDP.
- A multiplier exists because government purchases are a component of aggregate expenditure; an increase in government purchases increases aggregate income, which induces additional consumption expenditure.

Note: These lecture notes are incomplete without having attended lectures

Fiscal Policy Multipliers

- Figure 1 illustrates the government purchases multiplier in the aggregate expenditure diagram.
- The government purchases multiplier is $1/(1 - MPC)$ where MPC is the marginal propensity to consume (absent induced taxes and imports).



Note: These lecture notes are incomplete without having attended lectures

The Lump-Sum Tax Multiplier

- The **lump-sum tax multiplier** is the magnification effect a change in lump-sum taxes has on equilibrium aggregate expenditure and real GDP.
- An increase in lump-sum taxes decreases disposable income, which decreases consumption expenditure and decreases aggregate expenditure and real GDP.

Note: These lecture notes are incomplete without having attended lectures

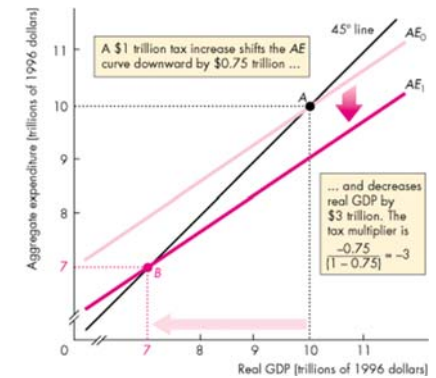
Fiscal Policy Multipliers

- The amount by which a tax increase lowers consumption expenditure is determined by the *MPC*.
- A \$1 tax increase lowers consumption expenditure by \$1 \times *MPC*, and this amount gets multiplied by the standard autonomous expenditures multiplier.
- The lump-sum tax multiplier is $-MPC/(1 - MPC)$.
- It is negative because an increase in lump-sum taxes decreases equilibrium expenditure.

Note: These lecture notes are incomplete without having attended lectures

Fiscal Policy Multipliers

- Figure 2 illustrates the effect of an increase in lump-sum taxes.
- The lump-sum transfer payments multiplier and the lump-sum tax multiplier are the same except for their signs—the transfer payments multiplier is positive.



Note: These lecture notes are incomplete without having attended lectures

Induced Taxes and Entitlement Spending

- Taxes that vary with real GDP are called **induced taxes**.
- Most transfer payments are **entitlement spending**, which also vary with real GDP.
- During a recession, induced taxes fall and entitlement spending rises; and during an expansion, induced taxes rise and entitlement spending falls.
- Both effects diminish the size of the government purchases and lump-sum tax multipliers.

Note: These lecture notes are incomplete without having attended lectures

Fiscal Policy Multipliers

- The extent to which induced taxes and entitlement spending decrease the multiplier depends on the marginal tax rate, which is the fraction of an additional dollar of real GDP that flows to the government in net taxes.
- The higher the marginal tax rate, the larger is the fraction of an additional dollar of income that flows to the government and the smaller is the induced change in consumption expenditure.
- The smaller the induced change in consumption expenditure the smaller are the government purchases and lump-sum tax multipliers.

Note: These lecture notes are incomplete without having attended lectures



International Trade and Fiscal Policy Multipliers

- Imports decrease the fiscal policy multipliers.
- The larger the marginal propensity to import, the smaller is the magnitude of the government purchases and lump-sum tax multipliers.

Note: These lecture notes are incomplete without having attended lectures



Automatic Stabilizers

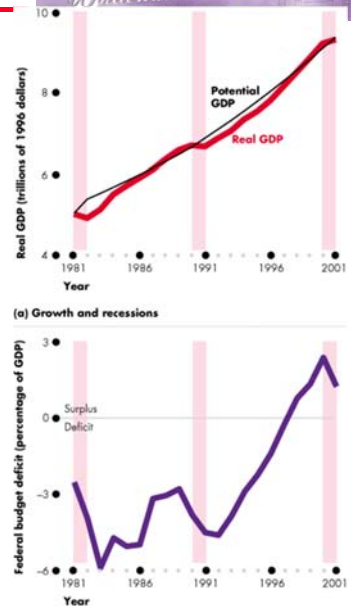
- **Automatic stabilizers** are mechanisms that stabilize real GDP without explicit action by the government.
- Income taxes and transfer payments are automatic stabilizers.
- Because income taxes and transfer payments change with the business cycle, the government's budget deficit also varies with this cycle.
- In a recession, taxes fall, transfer payments rise, and the deficit grows; in an expansion, taxes rise, transfers fall, and deficit shrinks (see supplement for more details...)

Note: These lecture notes are incomplete without having attended lectures



Fiscal Policy Multipliers

- Figure 3 shows the budget deficit over the business cycle for 1981–2001.
- Recessions are highlighted.

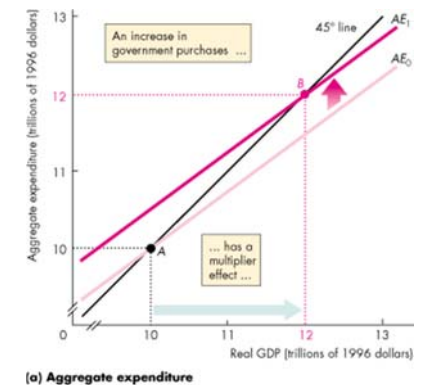


Note: These lecture notes are incomplete without having attended lectures. (b) Federal budget deficit



Fiscal Policy Multipliers and the Price Level

- Fiscal Policy and Aggregate Demand
 - Figure 4 illustrates the effects of fiscal policy on aggregate demand.
 - An increase in government purchases shifts the AE curve upward and shifts the AD curve rightward.

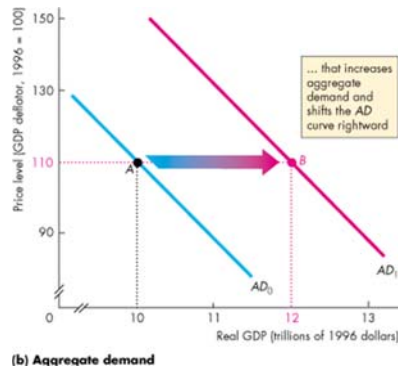


Note: These lecture notes are incomplete without having attended lectures



Fiscal Policy Multipliers and the Price Level

- The magnitude of the shift in the *AD* curve equals the government purchases multiplier times the increase in government purchases.
- When lump-sum taxes decrease, the rightward shift in the *AD* curve equals the lump-sum tax multiplier times the reduction in taxes.



Note: These lecture notes are incomplete without having attended lectures



Fiscal Policy Multipliers and the Price Level

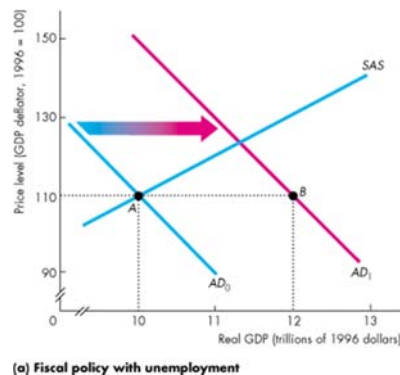
- **Expansionary fiscal policy**, an increase in government expenditures or a decrease in tax revenues, shifts the *AD* curve rightward.
- **Contractionary fiscal policy**, a decrease in government expenditures or an increase in tax revenues, shifts the *AD* curve leftward.

Note: These lecture notes are incomplete without having attended lectures



Fiscal Policy Multipliers and the Price Level

- Figure 5(a) illustrates the effect of an expansionary fiscal policy on real GDP and the price level when real GDP is below potential GDP.
- The rightward shift in the *AD* curve equals the multiplied increase in aggregate expenditure.

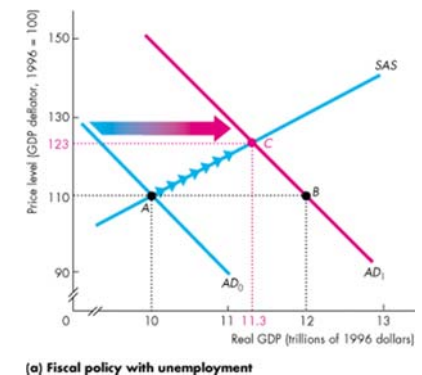


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Fiscal Policy Multipliers and the Price Level

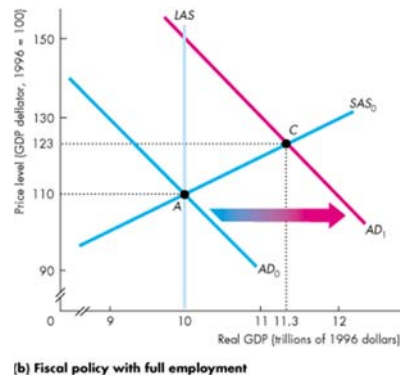
The increase in GDP is less than the multiplied increase in aggregate expenditure because the price level rises.



Note: These lecture notes are incomplete without having attended lectures

Fiscal Expansion at Potential GDP

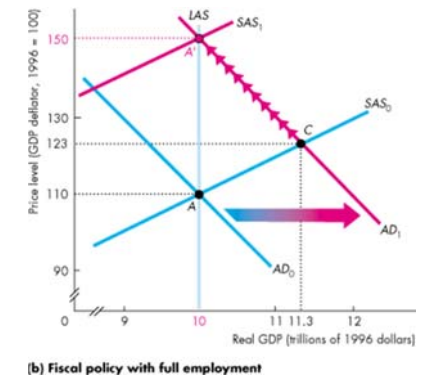
In Figure 5(b) illustrates the effects of an expansionary fiscal policy at full employment.



Note: These lecture notes are incomplete without having attended lectures

Fiscal Policy Multipliers and the Price Level

In the long run, fiscal policy multipliers are zero because real GDP equals potential GDP and a change in aggregate demand changes the money wage rate, the SAS curve, and the price level.



Note: These lecture notes are incomplete without having attended lectures

Limitations of Fiscal Policy

- Because the short-run fiscal policy multipliers are not zero, fiscal policy can be used to help stabilize the economy.
- But in practice, fiscal policy is hard to use because:
 - Disadvantage: The legislative process is too slow to permit policy actions to be implemented when they are needed (i.e. long *inside* lag).
 - Disadvantage: Potential GDP is hard to estimate, so too much fiscal stimulation might be applied too close to full employment.
 - Advantage: Once implemented, the effects of fiscal policy occur within a short period of time (i.e. short *outside* lag).

Note: These lecture notes are incomplete without having attended lectures

Supply-Side Effects of Fiscal Policy

See Supplemental Lectures Notes
Accompanying This Lecture

Note: These lecture notes are incomplete without having attended lectures

The Federal Reserve System

- The **Federal Reserve System**, or the Fed, is the central bank of the United States.
- A **central bank** is the public authority that regulates a nation's depository institutions and controls the quantity of money.

Note: These lecture notes are incomplete without having attended lectures

The Fed's Goals and Targets

- The Fed conducts the nation's **monetary policy**, which means that it adjusts the quantity of money in circulation.
- The Fed's goals are to keep inflation in check, maintain full employment, moderate the business cycle, and contribute to achieving long-term growth.
- In pursuit of its goals, the Fed pays close attention to interest rates and sets a target that is consistent with its goals for the **federal funds rate**, which is the interest rate that the banks charge each other on overnight loans of reserves.

Note: These lecture notes are incomplete without having attended lectures

The Demand for Money

The Influences on Money Holding

- The quantity of money that people plan to hold depends on four main factors:
 - The price level
 - The interest rate
 - Real GDP
 - Financial innovation

Note: These lecture notes are incomplete without having attended lectures

The Demand for Money: Price Level

- A rise in the price level increases the **nominal** quantity of money but doesn't change the **real** quantity of money that people plan to hold.
- **Nominal money** is the amount of money measured in dollars.
- The quantity of nominal money demanded is proportional to the price level — a 10 percent rise in the price level increases the quantity of nominal money demanded by 10 percent.

Note: These lecture notes are incomplete without having attended lectures

The Demand for Money: Interest Rate

- **The Interest Rate**

- The interest rate is the opportunity cost of holding wealth in the form of money rather than an interest-bearing asset.
- A rise in the interest rate decreases the quantity of money that people plan to hold.

- **Real GDP**

- An increase in real GDP increases the volume of expenditure, which increases the quantity of real money that people plan to hold.

Note: These lecture notes are incomplete without having attended lectures

The Demand for Money

- **Financial innovation**

- Financial innovation that lowers the cost of switching between money and interest-bearing assets decreases the quantity of money that people plan to hold.

Note: These lecture notes are incomplete without having attended lectures

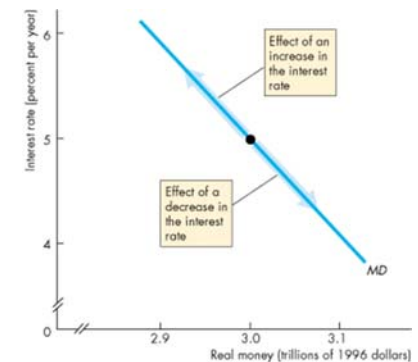
The Demand for Money Curve

The **demand for money curve** is the relationship between the quantity of real money demanded (M/P) and the interest rate when all other influences on the amount of money that people wish to hold remain the same.

Note: These lecture notes are incomplete without having attended lectures

The Demand for Money

- Figure 6 illustrates the demand for money curve.
- The demand for money curve slopes downward—a rise in the interest rate raises the opportunity cost of holding money and brings a decrease in the quantity of money demanded, which is shown by a movement along the demand for money curve.



Note: These lecture notes are incomplete without having attended lectures

Shifts in the Demand for Money Curve

- The demand for money changes and the demand for money curve shifts if real GDP changes or if financial innovation occurs.

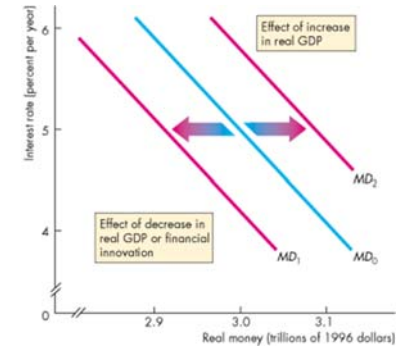
Note: These lecture notes are incomplete without having attended lectures

The Demand for Money

Figure 7 illustrates an increase and a decrease in the demand for money.

A decrease in real GDP or a financial innovation decreases the demand for money and shifts the demand curve leftward.

An increase in real GDP increases the demand for money and shifts the demand curve rightward.



Note: These lecture notes are incomplete without having attended lectures

Interest Rate Determination

- An interest rate is the percentage yield on a financial security such as a bond or a stock.
- The price of a bond and the interest rate are inversely related.
 - If the price of a bond falls, the interest rate on the bond rises.
 - If the price of a bond rises, the interest rate on the bond falls.
- We can study the forces that determine the interest rate in the market for money.

Note: These lecture notes are incomplete without having attended lectures

Money Market Equilibrium

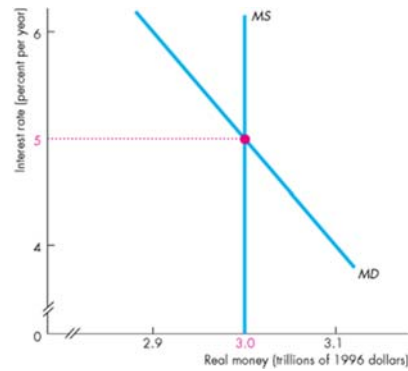
- The Fed determines the quantity of money supplied and on any given day, that quantity is fixed.
- The supply of money curve is vertical at the given quantity of money supplied.
- Money market equilibrium determines the interest rate.

Note: These lecture notes are incomplete without having attended lectures



Interest Rate Determination

Figure 9 illustrates the equilibrium interest rate.

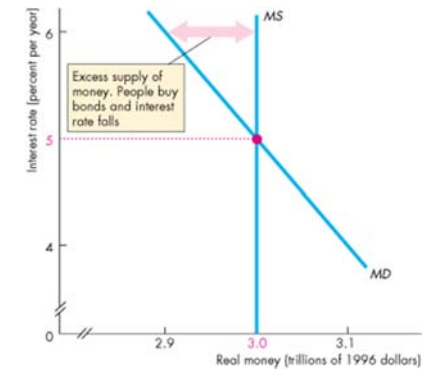


Note: These lecture notes are incomplete without having attended lectures



Interest Rate Determination

- If the interest rate is above the equilibrium interest rate, the quantity of money that people are willing to hold is less than the quantity supplied.
- They try to get rid of their “excess” money by buying financial assets.
- This action raises the price of these assets and lowers the interest rate.

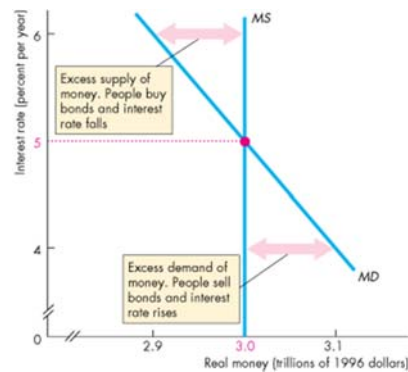


Note: These lecture notes are incomplete without having attended lectures



Interest Rate Determination

- If the interest rate is below the equilibrium interest rate, the quantity of money that people want to hold exceeds the quantity supplied.
- They try to get more money by selling financial assets.
- This action lowers the price of these assets and raises the interest rate.

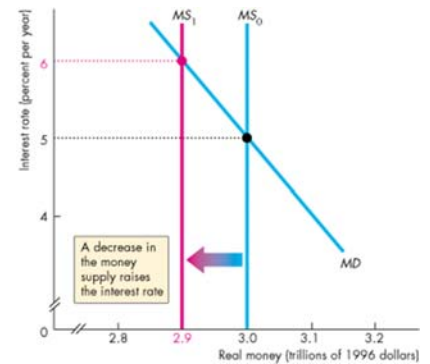


Note: These lecture notes are incomplete without having attended lectures



Changing the Interest Rate

- Figure 10 shows how the Fed changes the interest rate.
- If the Fed conducts an **open market sale**, they sell bonds to households and firms in the economy, the money supply decreases. As the money supply curve shifts leftward, the interest rate rises.

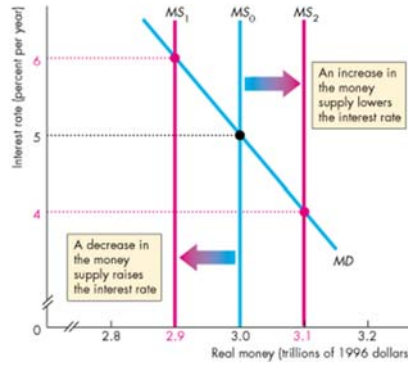


Note: These lecture notes are incomplete without having attended lectures



Interest Rate Determination

If the Fed conducts an **open market purchase**, where they buy bonds from the private sector, the money supply increases. As the money supply curve shifts rightward, the interest rate falls.



Note: These lecture notes are incomplete without having attended lectures



Ripple Effects of Monetary Policy

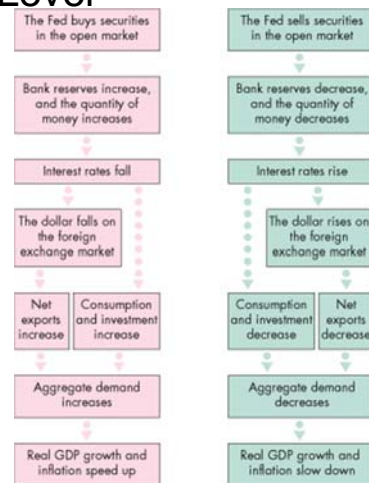
- If the Fed increases the interest rate, three events follow:
 - Investment and consumption expenditures decrease.
 - The dollar rises and net exports decrease.
 - A multiplier process unfolds (see supplemental notes on what happens...)

Note: These lecture notes are incomplete without having attended lectures



Monetary Policy, Real GDP, and the Price Level

Figure 11 summarizes these ripple effects.

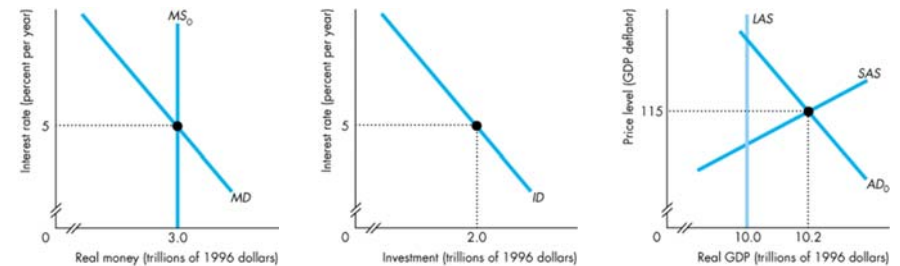


Note: These lecture notes are incomplete without having attended lectures



Monetary Policy in the AS-AD Model

Figure 12 illustrates the attempt to avoid inflation.



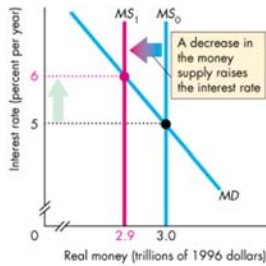
(a) Money market
Note: These lecture notes are incomplete without having attended lectures

(c) Real GDP and the price level



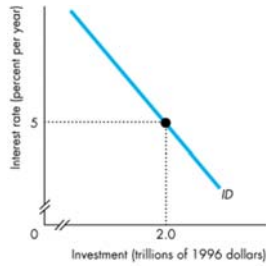
Monetary Policy, Real GDP, and the Price Level

A decrease in the money supply in part (a) raises the interest rate.



(a) Money market

Note: These lecture notes are incomplete without having attended lectures



(b) Investment

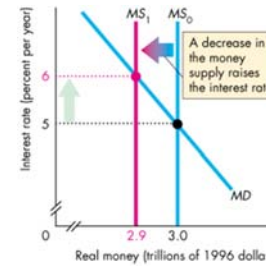


(c) Real GDP and the price level



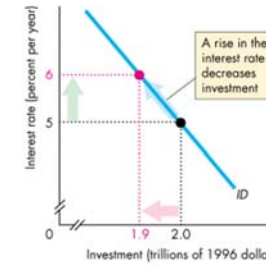
Monetary Policy, Real GDP, and the Price Level

The rise in the interest rate decreases investment in part (b).

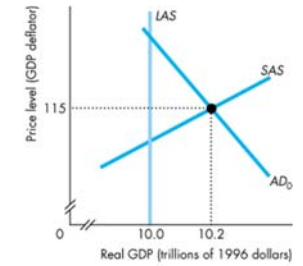


(a) Money market

Note: These lecture notes are incomplete without having attended lectures



(b) Investment

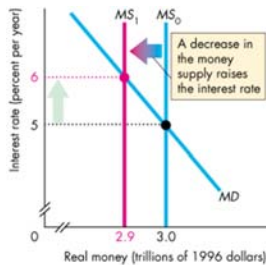


(c) Real GDP and the price level



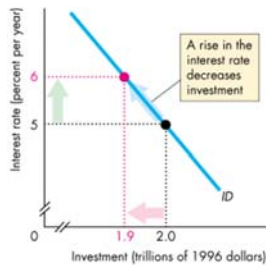
Monetary Policy, Real GDP, and the Price Level

The decrease in investment shifts the AD curve leftward with a multiplier effect in part (c).

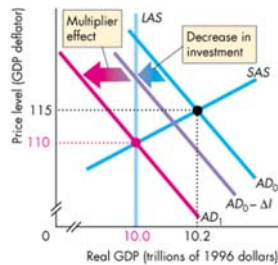


(a) Money market

Note: These lecture notes are incomplete without having attended lectures



(b) Investment

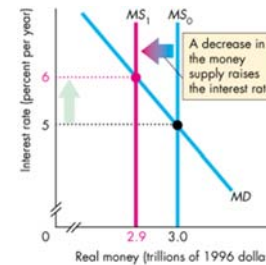


(c) Real GDP and the price level



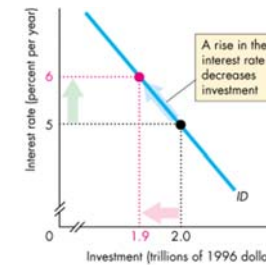
Monetary Policy, Real GDP, and the Price Level

Real GDP decreases and the price level falls.

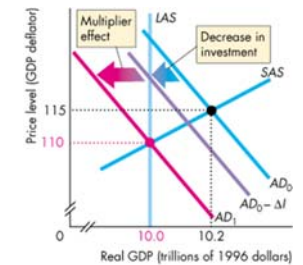


(a) Money market

Note: These lecture notes are incomplete without having attended lectures



(b) Investment

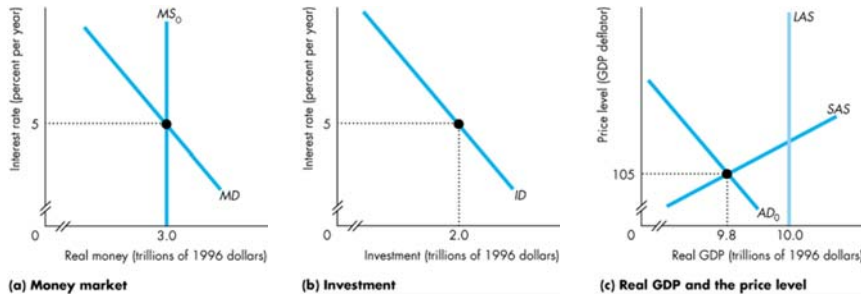


(c) Real GDP and the price level



Monetary Policy, Real GDP, and the Price Level

Figure 13 illustrates the attempt to avoid recession.

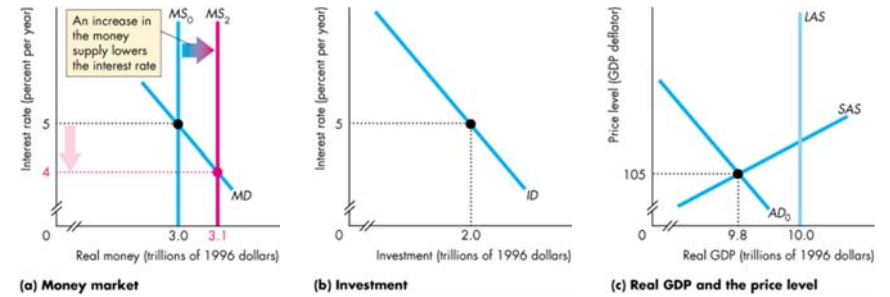


Note: These lecture notes are incomplete without having attended lectures



Monetary Policy, Real GDP, and the Price Level

An increase in the money supply in part (a) lowers the interest rate.

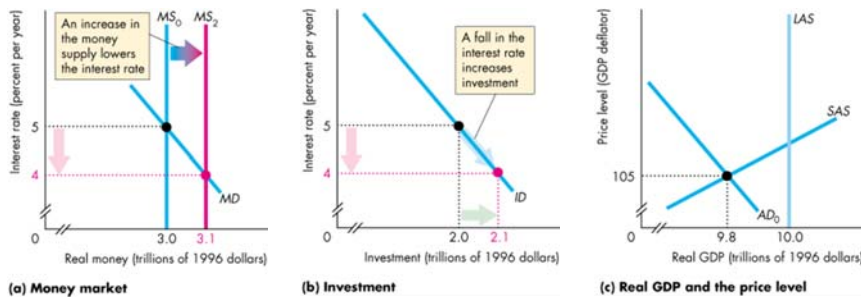


Note: These lecture notes are incomplete without having attended lectures



Monetary Policy, Real GDP, and the Price Level

The fall in the interest rate increases investment in part (b).

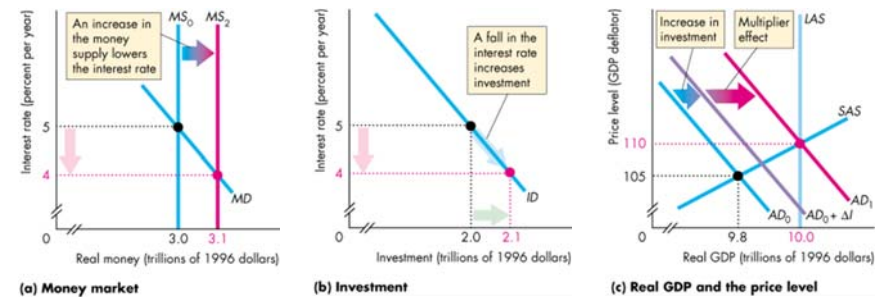


Note: These lecture notes are incomplete without having attended lectures



Monetary Policy, Real GDP, and the Price Level

The increase in investment shifts the AD curve rightward with a multiplier effect in part (c).

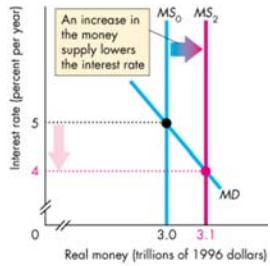


Note: These lecture notes are incomplete without having attended lectures

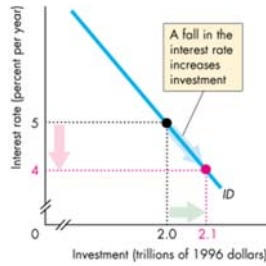


Monetary Policy, Real GDP, and the Price Level

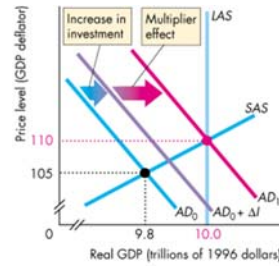
Real GDP increases and the price level rises.



(a) Money market



(b) Investment



(c) Real GDP and the price level

Note: These lecture notes are incomplete without having attended lectures



Monetary Policy, Real GDP, and the Price Level

- The size of the multiplier effect of monetary policy depends on the sensitivity of expenditure plans to the interest rate.
- Advantages/Disadvantages of Monetary Stabilization Policy
 - Advantage: Monetary policy shares the limitations of fiscal policy, **except** that there is no law-making time lag or uncertainty (i.e. short *inside* lag)
 - Disadvantage: It also has the additional limitation that the effects of monetary policy are long, drawn out, indirect, and depend on responsiveness of spending to interest rates (i.e. long *outside* lag).
 - These effects are all variable and hard to predict.

Note: These lecture notes are incomplete without having attended lectures