Lecture 11
Monetary and Fiscal Policy

Principles of Macroeconomics
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Why the Aggregate-Demand Curve Is Downward Sloping

- The Price Level and Consumption:
  - The Wealth Effect
- The Price Level and Investment:
  - The Interest Rate Effect
- The Price Level and Net Exports:
  - The Exchange-Rate Effect
1. A decrease in aggregate demand . . .

2. . . . causes output to fall in the short run . . .

3. . . . but over time, the short-run aggregate-supply curve shifts . . .

4. . . . and output returns to its natural rate.
TWO CAUSES OF ECONOMIC FLUCTUATIONS

• Shifts in Aggregate Demand
  • In the short run, shifts in aggregate demand cause fluctuations in the economy’s output of goods and services.
  • In the long run, shifts in aggregate demand affect the overall price level but do not affect output.
  • Policymakers who influence aggregate demand can potentially mitigate the severity of economic fluctuations.
Many factors influence aggregate demand besides monetary and fiscal policy.

In particular, desired spending by households and business firms determines the overall demand for goods and services.
The Influence of Monetary and Fiscal Policy on Aggregate Demand

• When desired spending changes, aggregate demand shifts, causing short-run fluctuations in output and employment.
• Monetary and fiscal policy are sometimes used to offset those shifts and stabilize the economy.
HOW MONETARY POLICY INFLUENCES AGGREGATE DEMAND

• The aggregate demand curve slopes downward for three reasons:
  • The wealth effect
  • The interest-rate effect
  • The exchange-rate effect
Why the Aggregate-Demand Curve Is Downward Sloping

• The Price Level and Consumption:
  • The Wealth Effect
    • A higher price level decreases the real value of money and makes consumers less wealthier, which discourages them to spend more.
    • This decrease in consumer spending means smaller quantities of goods and services demanded.
The Theory of Liquidity Preference

- Keynes developed the theory of liquidity preference in order to explain what factors determine the economy’s interest rate.
- According to the theory, the interest rate adjusts to balance the supply and demand for money.
- Liquidity preference theory attempts to explain both nominal and real rates by holding constant the rate of inflation.
The Theory of Liquidity Preference

- **Money Supply**
  - The money supply is controlled by the Central Bank through:
    - Open-market operations
    - Changing the reserve requirements
    - Changing the discount rate
  - Because it is fixed by the CB, the quantity of money supplied does not depend on the interest rate.
  - The fixed money supply is represented by a vertical supply curve.
The Theory of Liquidity Preference

- **Money Demand**
  - Money demand is determined by several factors.
  - According to the theory of liquidity preference, one of the most important factors is the interest rate.
  - People choose to hold money instead of other assets that offer higher rates of return because money can be used to buy goods and services.
  - The opportunity cost of holding money is the interest that could be earned on interest-earning assets.
  - An increase in the interest rate raises the opportunity cost of holding money.
  - As a result, the quantity of money demanded is reduced.
The Theory of Liquidity Preference

• Equilibrium in the Money Market
  • According to the theory of liquidity preference:
    • The interest rate adjusts to balance the supply and demand for money.
    • There is one interest rate, called the equilibrium interest rate, at which the quantity of money demanded equals the quantity of money supplied.
The Theory of Liquidity Preference

• Equilibrium in the Money Market
  • Assume the following about the economy:
    • The price level is stuck at some level.
    • For any given price level, the interest rate adjusts to balance the supply and demand for money.
    • The level of output responds to the aggregate demand for goods and services.
Figure 1 Equilibrium in the Money Market

- **Interest Rate**
- **Money supply**
- **Money demand**
- **Equilibrium interest rate**
- **Quantity fixed by the CB**
- **Quantity of Money**

Equilibrium interest rate: $r_1$ and $r_2$
The Downward Slope of the Aggregate-Demand Curve

• The price level is one determinant of the quantity of money demanded.
• A higher price level increases the quantity of money demanded for any given interest rate.
• Higher money demand leads to a higher interest rate.
• The quantity of goods and services demanded falls.
The Downward Slope of the Aggregate-Demand Curve

• The end result of this analysis is a negative relationship between the price level and the quantity of goods and services demanded.
Figure 2 The Money Market and the Slope of the Aggregate-Demand Curve

(a) The Money Market

1. An increase in the price level $P_1$, $MD_1$.

2. . . . increases the demand for money . . .

3. . . . which increases the equilibrium interest rate . . .

4. . . . which in turn reduces the quantity of goods and services demanded.

(b) The Aggregate-Demand Curve

1. An increase in the price level $P_1$, $MD_1$.

2. . . . increases the equilibrium interest rate . . .

3. . . . which increases the demand for money . . .

4. . . . which in turn reduces the quantity of goods and services demanded.
Why the Aggregate-Demand Curve Is Downward Sloping

• The Price Level and Investment:
  • The Interest Rate Effect
    • A higher price level increases the real interest rate and makes borrowing more expensive, which discourages spending on investment goods.
    • This decrease in investment spending means a smaller quantity of goods and services demanded.
Why the Aggregate-Demand Curve Is Downward Sloping

• The Price Level and Net Exports:
  • The Exchange-Rate Effect
    • A lower price level in Switzerland causes (Swiss interest rates to fall and) the real exchange rate to depreciate, which stimulates Swiss net exports.
    • The increase in net export spending means a larger quantity of goods and services demanded.
Changes in the Money Supply

- The CB can shift the aggregate demand curve when it changes monetary policy.
- An increase in the money supply shifts the money supply curve to the right.
- Without a change in the money demand curve, the interest rate falls.
- Falling interest rates increase the quantity of goods and services demanded.
1. When the CB increases the money supply...

2. ...the equilibrium interest rate falls...

3. ...which increases the quantity of goods and services demanded at a given price level.
Changes in the Money Supply

• When the CB increases the money supply, it lowers the interest rate and increases the quantity of goods and services demanded at any given price level, shifting aggregate-demand to the right.

• When the CB decreases the money supply, it raises the interest rate and reduces the quantity of goods and services demanded at any given price level, shifting aggregate-demand to the left.
The Role of Interest-Rate Targets in CB Policy

• Monetary policy can be described either in terms of the money supply or in terms of the interest rate.

• Changes in monetary policy can be viewed either in terms of a changing target for the interest rate or in terms of a change in the money supply.

• A target for the federal funds rate affects the money market equilibrium, which influences aggregate demand.
HOW FISCAL POLICY INFLUENCES AGGREGATE DEMAND

• *Fiscal policy* refers to the government’s choices regarding the overall level of government purchases or taxes.
• Fiscal policy influences saving, investment, and growth in the long run.
• In the short run, fiscal policy primarily affects the aggregate demand.
Changes in Government Purchases

- When policymakers change the money supply or taxes, the effect on aggregate demand is indirect—through the spending decisions of firms or households.
- When the government alters its own purchases of goods or services, it shifts the aggregate-demand curve directly.
Changes in Government Purchases

• There are two macroeconomic effects from the change in government purchases:
  • The multiplier effect
  • The crowding-out effect
The Multiplier Effect

• Government purchases are said to have a multiplier effect on aggregate demand.
  • Each Frank spent by the government can raise the aggregate demand for goods and services by more than a Frank.
  • The *multiplier effect* refers to the additional shifts in aggregate demand that result when expansionary fiscal policy increases income and thereby increases consumer spending.
1. An increase in government purchases of CHF20 billion initially increases aggregate demand by CHF20 billion...

2. ... but the multiplier effect can amplify the shift in aggregate demand.
A Formula for the Spending Multiplier

The formula for the multiplier is:

- Multiplier = $1/(1 - \text{MPC})$
- An important number in this formula is the marginal propensity to consume (MPC).
  - It is the fraction of extra income that a household consumes rather than saves.
A Formula for the Spending Multiplier

• If the MPC = 3/4, then the multiplier will be:
  \[ \text{Multiplier} = \frac{1}{1 - \frac{3}{4}} = 4 \]

• In this case, a CHF20 billion increase in government spending generates CHF80 billion of increased demand for goods and services.

• A larger MPC means a larger multiplier in an economy.

• The multiplier effect is not restricted to changes in government spending.
The Crowding-Out Effect

- Fiscal policy may not affect the economy as strongly as predicted by the multiplier.
- An increase in government purchases causes the interest rate to rise.
- A higher interest rate reduces investment spending.
The Crowding-Out Effect

• This reduction in demand that results when a fiscal expansion raises the interest rate is called the *crowding-out effect*.

• The crowding-out effect tends to dampen the effects of fiscal policy on aggregate demand.
Figure 5 The Crowding-Out Effect

(a) The Money Market

1. When an increase in government purchases increases aggregate demand . . .

2. . . . the increase in spending increases money demand . . .

3. . . . which increases the equilibrium interest rate . . .

4. . . . which in turn partly offsets the initial increase in aggregate demand.

(b) The Shift in Aggregate Demand

Price Level

Aggregate demand, $AD_1$

Quantity of Output

CHF20 billion

Money supply

Money demand, $MD_1$

Interest Rate

Quantity fixed by the CB

Quantity of Money

$r_1$

$r_2$

$MD_2$

0
The Crowding-Out Effect

• When the government increases its purchases by CHF20 billion, the aggregate demand for goods and services could rise by more or less than CHF20 billion, depending on whether the multiplier effect or the crowding-out effect is larger.
Changes in Taxes

• When the government cuts personal income taxes, it increases households’ take-home pay.
• Households save some of this additional income.
• Households also spend some of it on consumer goods.
• Increased household spending shifts the aggregate-demand curve to the right.
Changes in Taxes

• The size of the shift in aggregate demand resulting from a tax change is affected by the multiplier and crowding-out effects.

• It is also determined by the households’ perceptions about the permanency of the tax change.
Active Stabilization means:

- The government should avoid being the cause of economic fluctuations.
- The government should respond to changes in the private economy in order to stabilize aggregate demand.
Some economists argue that monetary and fiscal policy destabilize the economy.

Monetary and fiscal policy affect the economy with a substantial lag.

They suggest the economy should be left to deal with the short-run fluctuations on its own.
Automatic Stabilizers

- **Automatic stabilizers** are changes in fiscal policy that stimulate aggregate demand when the economy goes into a recession without policymakers having to take any deliberate action.

- Automatic stabilizers include the tax system and some forms of government spending, such as unemployment benefits.
Growth contributions: Demand components

Source: BFS, KOF
Summary

• All societies experience short-run economic fluctuations around long-run trends.
• These fluctuations are irregular and largely unpredictable.
• When recessions occur, real GDP and other measures of income, spending, and production fall, and unemployment rises.
• Classical economic theory is based on the assumption that nominal variables do not influence real variables. Most economists believe that this is an accurate assumption in the long run, but not in the short run.
Summary

- Economists analyze short-run economic fluctuations using the aggregate demand and aggregate supply model. According to this model, the output of goods and services and the overall level of prices adjust to balance aggregate demand and aggregate supply.
The aggregate-demand curve slopes downward for three reasons: a wealth effect, an interest rate effect, and an exchange rate effect. Any event or policy that changes consumption, investment, government purchases, or net exports at a given price level will shift the aggregate-demand curve.
Summary

• In the long run, the aggregate supply curve is vertical.
• In the short-run, the aggregate supply curve is upward sloping.
• The are three theories explaining the upward slope of short-run aggregate supply: the sticky-wage theory, the sticky-price theory and the misperceptions theory.
• Events that alter the economy’s ability to produce output will shift the short-run aggregate-supply curve.

• Also, the position of the short-run aggregate-supply curve depends on the expected price level.

• One possible cause of economic fluctuations is a shift in aggregate demand.
Summary

- A second possible cause of economic fluctuations is a shift in aggregate supply.
- Stagflation is a period of falling output and rising prices.
Summary

• Keynes proposed the theory of liquidity preference to explain determinants of the interest rate.
• According to this theory, the interest rate adjusts to balance the supply and demand for money.
• An increase in the price level raises money demand and increases the interest rate.
• A higher interest rate reduces investment and, thereby, the quantity of goods and services demanded.
• The downward-sloping aggregate-demand curve expresses this negative relationship between the price-level and the quantity demanded.
Summary

• Policymakers can influence aggregate demand with monetary policy.
• An increase in the money supply will ultimately lead to the aggregate-demand curve shifting to the right.
• A decrease in the money supply will ultimately lead to the aggregate-demand curve shifting to the left.
• Policymakers can influence aggregate demand with fiscal policy.

• An increase in government purchases or a cut in taxes shifts the aggregate-demand curve to the right.

• A decrease in government purchases or an increase in taxes shifts the aggregate-demand curve 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.
• Because monetary and fiscal policy can influence aggregate demand, the government sometimes uses these policy instruments in an attempt to stabilize the economy.

• Economists disagree about how active the government should be in this effort.
  – Advocates say that if the government does not respond the result will be undesirable fluctuations.
  – Critics argue that attempts at stabilization often turn out destabilizing the economy instead.