
Agenda
- The Problem of Unemployment.
- The Problem of Inflation.

Business Cycle Analysis: A Preview
- What explains business cycle fluctuations?
  - 2 major components of business cycle theories:
    - A description of the shocks.
    - A model of how the economy responds to shocks.
  - 2 major business cycle theories:
    - Classical theory.
    - Keynesian theory.

Business Cycle Analysis: A Preview
- What explains business cycle fluctuations?
  - Both theories can be studied in an aggregate demand-aggregate supply (AD-AS) framework.
  - The AD-AS model has 3 main components:
    - An aggregate demand (AD) curve,
    - A short-run aggregate supply (SRAS) curve, and
    - A long-run aggregate supply (LRAS) curve.
Business Cycle Analysis: A Preview

- **AD and AS**—A brief introduction:

  - The aggregate demand (AD) curve:
    - Shows quantity of goods and services demanded (Y) for any price level (P).
    - A higher P means less aggregate demand (lower Y),
      - The aggregate demand curve slopes downward.
    - An increase in aggregate demand for a given P shifts the aggregate demand curve to the right.

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The Aggregate Demand Curve

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Business Cycle Analysis: A Preview

- **AD and AS**—A brief introduction:

  - The short-run aggregate supply (SRAS) curve:
    - The short-run aggregate supply curve shows how much output (Y) producers are willing to supply in the short-run at any given price level (P).
    - The short-run aggregate supply curve is horizontal.
      - We assume the prices are fixed in the short run.

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The Short-run Aggregate Supply Curve
Business Cycle Analysis: A Preview

- **AD and AS**—A brief introduction:
  - Equilibrium in the AD—AS model:
    - **Short-run equilibrium**: At the $Y$ and $P$ where the aggregate demand ($AD$) curve intersects the short-run aggregate supply ($SRAS$) curve.
    - **Long-run equilibrium**: At the $Y$ and $P$ level where the aggregate demand ($AD$) curve intersects the long-run aggregate supply ($LRAS$) curve.

The Long-run Aggregate Supply Curve

The long-run aggregate supply ($LRAS$) curve:
- The long-run aggregate supply curve shows how much output ($Y$) producers are willing to supply in the long-run at any given price level ($P$).
- The long-run aggregate supply curve is vertical at the full-employment level of output.

The AD-AS Model
Business Cycle Analysis: A Preview

- Business cycles occur because of:
  - Aggregate demand shocks:
    - A positive AD shock shifts the AD curve to the right.
    - A negative AD shock shifts the AD curve to the left.
  - (Permanent) Aggregate supply shocks:
    - A positive (permanent) AS shock shifts the LRAS curve to the right.
    - A negative (permanent) AS shock shifts the LRAS curve to the left.

- Example: A negative AD shock:
  - The aggregate demand curve shifts to the left:
    - Short-run equilibrium occurs where the AD curve intersects the SRAS curve; \( Y \) falls, \( P \) is unchanged.
    - Long-run equilibrium occurs where the AD curve intersects the LRAS curve; \( Y \) is unchanged, \( P \) falls.

- A Negative AD Shock

  - How long does it take to get to the long run?
    - Classical theory: prices adjust rapidly.
      - So recessions are short-lived and
      - There is no need for government intervention.
    - Keynesian theory: prices and wages adjust slowly.
      - Adjustment may take several years and
      - The government can fight recessions by taking action to shift the AD curve.
Business Cycle Analysis: A Preview

• Example: A negative (permanent) \( AS \) shock:
  
  ➢ Permanent aggregate supply shocks shift the \( LRAS \) curve.
    • Permanent changes in productivity or labor supply can cause supply shocks.
  
  ➢ Classicals view \( LRAS \) shocks as the main cause of fluctuations in output.
    • Keynesians also recognize the importance of supply shocks.

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A Negative Permanent \( AS \) Shock

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Business Cycle Analysis: A Preview

• Example: A negative (permanent) \( AS \) shock:
  
  ➢ A permanent, negative aggregate supply shock reduces full-employment output and shifts the \( LRAS \) curve to the left.
    • The new long-term equilibrium is lower output and a higher price level.
      – A recession is accompanied by higher price level.

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Business Cycle Analysis: A Preview

• Business cycles are caused by both aggregate demand and aggregate supply shocks hitting the economy.
  
  ➢ Depending on the type(s) of shock(s), there are a variety of possible outcomes for \( Y \) and \( P \).
    • Higher \( Y \), higher \( P \).
    • Higher \( Y \), lower \( P \).
    • Lower \( Y \), lower \( P \).
    • Lower \( Y \), higher \( P \).
The Problem of Unemployment

• The costs of unemployment:
  ➢ Loss in output from idle resources:
    • If full-employment output is $15 trillion, each percentage point of unemployment sustained for one year costs $300 billion according to Okun’s Law.
      ➢ Each percentage point of cyclical unemployment is associated with a loss equal to 2% of full-employment output.

• The benefits of unemployment:
  ➢ There are some offsetting factors:
    • Unemployment leads to increased job search and acquiring new skills, which may lead to increased future output.
    • Unemployed workers have increased leisure time, though most wouldn’t feel that the increased leisure compensated them for being unemployed.
The Problem of Inflation

• The costs of inflation:

  ➢ **Perfectly anticipated inflation:**
    - No effect if all prices and wages keep up with inflation.
    - Even returns on assets may rise exactly with inflation.

  ➢ **Unanticipated inflation**, when \( \pi - \pi^e = 0 \):
    - Realized real returns differ from expected real returns:
      - Expected: \( r^e = i - \pi \)
      - Actual: \( r = i - \pi \)
      - Actual \( r \) differs from expected \( r \) by \( \pi^e - \pi \)
    - Similar effect on wages and salaries.

  • **Shoe-leather costs**: People spend resources to economize on currency holdings.
    - The estimated cost of 10% inflation is 0.3% of GNP.
  
  • **Menu costs**: the costs of changing prices.
    - May be mitigated somewhat by technology.
The Problem of Inflation

• The costs of inflation:

  ➢ Unanticipated inflation, when $\pi - \pi^e = 0$:
    
    • Loss of valuable signals provided by prices:
      
      – Confusion over changes in aggregate prices vs. changes in relative prices.
      
      – People expend resources to extract correct signals from prices.

• The costs of hyperinflation:

  ➢ The costs of hyperinflation:
    
    • Hyperinflation is a very high, sustained inflation
      
      – Generally, 50% or more per month.
      
      – Hungary in August 1945 had inflation of 19,800% per month.
      
      – Bolivia had annual rates of inflation of 1281% in 1984, 11,750% in 1985, 276% in 1986.

• There are large shoe-leather costs because people minimize cash balances.

• People spend many resources getting rid of money as fast as possible.

• Real tax collections fall because people pay taxes with money whose value has declined sharply.

• Prices become worthless as signals, so markets become extremely inefficient.
The Problem of Inflation

• Fighting inflation:
  ➢ The role of inflationary expectations:
    • If rapid money growth causes inflation, why do central banks allow the money supply to grow rapidly?
      – Developing or war-torn countries may not be able to raise taxes or borrow, so they print money to finance spending.
      – Industrialized countries may try to use expansionary monetary policy to fight recessions, then not tighten monetary policy enough later.

The Problem of Inflation

• Fighting inflation:
  ➢ The role of inflationary expectations:
    • Disinflation is a reduction in the rate of inflation.
      – But disinflations may lead to recessions.
      – An unexpected reduction in actual inflation leads to a rise in unemployment along the Phillips curve.
    • The costs of disinflation could be reduced if expected inflation fell at the same time actual inflation fell.

The Problem of Inflation

• Fighting inflation:
  ➢ The role of inflationary expectations:
    • Rapid versus gradual disinflation:
      – The classical prescription for disinflation is cold turkey—a rapid and decisive reduction in money growth.
      – Proponents argue that the economy will adjust fairly quickly, with low costs of adjustment, if a credible policy is announced well in advance.

The Problem of Inflation

• Fighting inflation:
  ➢ The role of inflationary expectations:
    • Keynesians disagree with rapid disinflation:
      – Price stickiness due to menu costs and wage stickiness due to labor contracts make adjustment slow.
      – Cold turkey disinflation would cause a major recession.
      – The strategy might fail to alter inflation expectations.
      – If the costs of the policy are high, the government might reverse the policy.
The Problem of Inflation

• Fighting inflation:

  ➢ The role of inflationary expectations:

  • The Keynesian prescription for disinflation is gradualism:

    – A gradual approach gives prices and wages time to adjust to the disinflation.

    – Such a strategy will be politically sustainable because the costs are lower than going cold turkey.