Business Cycles

Agenda

• What is a Business Cycle?
• Business Cycle Facts.
• Business Cycle Analysis: A Preview.

What Is a Business Cycle?

• Business cycles are the short-run fluctuations in aggregate economic activity around its long-run growth path.
What Is a Business Cycle?

• Components of a Business Cycle:
  ➢ Peak,
  ➢ Contraction or Recession,
  ➢ Trough, and
  ➢ Recovery and Expansion.

What Is a Business Cycle?

• Peak:
  ➢ The maximum level that aggregate economic activity reaches.
    • Can only be determined after the fact.
    • Generally, $Y > Y^r$.

What Is a Business Cycle?

• Contractions, Recessions, or Hard Landing:
  ➢ Popular definition:
    • 2 or more consecutive quarters of declining real GDP.
  ➢ Official definition:
    • A period of significant decline in total output, income, employment, and trade,
    • usually lasting from 6 months to a year, and
    • marked by widespread contractions in many sectors of the economy.

What Is a Business Cycle?

• Growth Recession or Soft Landing:
  ➢ Official definition:
    • A recurring period of slow growth in total output, income, employment, and trade,
    • usually lasting a year or more.
  ➢ Actual growth rate is less than natural growth rate, resulting in a rising unemployment rate.
What Is a Business Cycle?

- Depression:
  - A recession that is major in both scale and duration.

- Expansion:
  - Official definition:
    - A period of significant increase in total output, income, employment, and trade,
    - usually lasting 6 months or more, and
    - marked by widespread expansion in many sectors of the economy.

What Is a Business Cycle?

- Trough:
  - The minimum level that aggregate economic activity reaches.
    - Can only be determined after the fact.
    - Generally $Y < Y_n$.

- Boom:
  - An extended economic expansion where aggregate economic activity is high and rising.
    - $Y$ is well above $Y_n$. 
What Is a Business Cycle?

- Expansions and contractions:
  - The sequence from one peak to the next, or from one trough to the next, is a **business cycle**.
  - Peaks and troughs are called **turning points**.
    - Turning points are officially designated by the NBER Business Cycle Dating (BCD) Committee.
    - Typically wait 9 – 24 months after the fact before deciding on turning points.

What is a Business Cycle?

- Main features of a business cycle:
  - Pervasive in nature,
  - Recurrent but not periodic,
  - Persistent, and
  - Each cycle differs in length and severity.
    - Expansions are longer than recessions.

- Business cycle are **pervasive in nature**.
  - Business cycles are fluctuations in aggregate **economic activity**, not fluctuations in a specific economic variable.
    - Significant changes in total output, income, employment, and trade.
What Is a Business Cycle?

- Business cycle are **recurrent**:
  - The pattern of contraction–trough–expansion–peak occurs over and over again.

- Business cycles are **not periodic**:
  - Business cycles do not occur at regular, predictable intervals.

What Is a Business Cycle?

- Business cycles are **persistent**:
  - Declines in aggregate economic activity are followed by further declines; growth in aggregate economic activity is followed by more growth.
  - Because of persistence, forecasting turning points is quite important.

What Is a Business Cycle?

- Business cycles differ in **length** and **severity**:
  - Recessions are fairly short; expansions are fairly long.

![Length of Business Cycle Contractions](chart.png)
What Is a Business Cycle?

• Main points about business cycles:
  ➢ Business cycles are pervasive in nature, i.e., they are fluctuations in aggregate economic activity, not a specific economic variable.
  ➢ Business cycle are recurrent, but not periodic.
  ➢ Business cycles are persistent.
  ➢ Business cycles differ in length and severity.

What Is a Business Cycle?

• Should we care about business cycles?
  ➢ Robert Lucas (University of Chicago): NO
    • The cost of business cycle instability is very low.
      ➢ About one-fifth the cost of having a 10% inflation rate.
    • Suppose the choice is either:
      ➢ Eliminating recessions but having 10% inflation, or
      ➢ Having recessions but no inflation.
    • Lucas argues we should choose the latter.
Business Cycle Facts

• The cyclical behavior of economic variables:

➢ Economic variables show **co-movement**.

• They have **regular** and **predictable** patterns of behavior over the course of the business cycle.

• Macroeconomic variables can be classified by **direction**, **timing**, and **volatility** of their movement with aggregate economic activity.

Business Cycle Facts

• The cyclical behavior of economic variables:

➢ **Direction**:

• What is the direction of a variable’s movement relative to aggregate economic activity?

  ➢ **Pro-cyclical**: moves in the same direction.

  ➢ **Counter-cyclical**: moves in the opposite direction.

  ➢ **Acyclical**: moves with no clear pattern.

Business Cycle Facts

• The cyclical behavior of economic variables:

➢ **Timing**:

• What is the timing of a variable's movements relative to aggregate economic activity?

  ➢ **Leading**: moves in advance.

  ➢ **Coincident**: moves at the same time.

  ➢ **Lagging**: moves afterwards.

Business Cycle Facts

• The cyclical behavior of economic variables:

➢ **Leading indicators** have been used to predict peaks and troughs of the business cycle.

• Generally, several leading variables are combined into an index of leading economic indicators.

• A decline in the index for 3 to 6 months warns of a recession.
Business Cycle Facts

• The cyclical behavior of economic variables:
  ➢ Leading indicators have not been that useful in predicting recessions.
    • Although the data are available promptly, they are often revised.
      – Sometimes signals change without warning.
    • A number of false warnings have been given.
    • Provides little information about the timing or severity of a recession.

Business Cycle Facts

• The cyclical behavior of economic variables:
  ➢ Leading indicators suffer from 2 other issues:
    • Structural changes in the economy necessitate periodic revision of the index.
    • Recessions are often caused by sudden shocks to the economy that leading indicators will not pick up.
Business Cycle Facts

- The cyclical behavior of key macro variables:
  
  - **Countercyclical**: moves in the opposite direction as Y.
    - **Timing is unclassified**: unemployment, the unemployment rate.
  
  - **Acyclical**: moves in no clear pattern with Y.
    - **Timing is not designated**: real interest rates.

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Cyclical Behavior of Key Macro Variables

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Business Cycle Facts

- The cyclical behavior of key macro variables:
  
  - **Volatility**:
    
    - How volatile is a variable relative to the volatility of aggregate economic activity?
      
      - **High volatility**: Durable goods production and spending, investment, inventory investment, net exports.
      
      - **Low volatility**: Nondurable goods and services production and spending, consumption.

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Business Cycle Facts

- International aspects of the business cycle:
  
  - The cyclical behavior of key economic variables in other countries is similar to that in the US.
  
  - Major industrial countries frequently have recessions and expansions at about the same time.
    - In addition, each economy faces small fluctuations that aren't shared with other countries.
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.

The Aggregate Demand Curve
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.

The Short-run Aggregate Supply Curve

Business Cycle Analysis: A Preview

• AD and AS—A brief introduction:
  ➢ 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 Long-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 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.

Business Cycle Analysis: A Preview

- 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.
Business Cycle Analysis: A Preview

- Example: 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.

- 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.
  - 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.
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.