Introduction to Macroeconomics

Intermediate Macroeconomic Theory
Macroeconomic Analysis

University of North Texas
Outline

1. What Macroeconomists Study

2. The Data of Macroeconomics
   - Measuring the Value of Aggregate Economic Activity
   - Measuring the Cost of Living
   - Measuring Joblessness

3. How Economists Think
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3. How Economists Think
Macroeconomics, the study of the economy as a whole, attempts to answer the following issues:

1. Economic growth
2. Inflation
3. Unemployment

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1. Economic growth rate: \( g = \% \Delta \text{ value of aggregate economic activity (} Y \text{)} \)

2. Inflation rate: \( \pi = \% \Delta \text{ cost of living (} P \text{)} \)

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Nominal GDP ($P \times Y$): the value of goods and services measured at current prices

- Changes in nominal GDP can be due to
  1. changes in prices
  2. changes in quantities of output produced

$\Rightarrow$ Not a good measure of economic well-being

Real GDP ($Y$): the value of goods and services measured at constant prices

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The Bureau of Economic Analysis (http://www.bea.doc.gov)

Real GDP per person \((y = \frac{Y}{N})\): income of the average person in the economy

U.S. real GDP per person in 1996 dollars
Measuring the Value of Aggregate Economic Activity
RGDP per person

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Stylized Facts

1. Long-run upward trend
2. Short-run fluctuations
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1. Consumer Price Index (CPI)
2. Producer Price Index (PPI)
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How the BLS constructs the CPI:

Most price indexes, like CPI, are computed by pricing a standard market basket of goods in subsequent periods.
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How the BLS constructs the CPI:

1. Survey consumers to determine composition of the typical consumer’s basket of goods.
2. Every month, collect data on prices of all items in the basket; compute cost of basket.
3. CPI in any month equals
   \[ \frac{\text{cost of basket in that month}}{\text{cost of basket in base period}} \times 100 \]

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The composition of the U.S. CPI’s basket

- Food and bev. 16.2%
- Housing 40.0%
- Apparel 4.5%
- Transportation 17.6%
- Medical care 5.8%
- Recreation 5.9%
- Education 2.8%
- Communication 2.5%
- Other goods and services 4.8%
- Other goods and services 16.2%
Inflation rate ($\pi = \% \Delta P$): the percentage change in the average level of prices from the year before.
Deflating: the process of finding the real value of some monetary magnitude by dividing by some appropriate price index

A price index \((P)\) can be used to

1. measure inflation
2. deflate nominal values to adjust for inflation

\[
\text{real wage in 2000} = \frac{\text{money wage in 2000}}{\text{CPI of 2000}} \times 100
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Measuring the Cost of Living

GDP Deflator

- GDP Deflator: price index used to deflate GDP

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\text{real GDP} = \frac{\text{nominal GDP}}{\text{GDP deflator}} \times 100
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- The GDP deflator includes the price of airplanes, government service, other goods purchased by business.

- Different price indexes, such as the CPI and the GDP deflator, will show different measures of inflation because they use different market basket.

- However, the discrepancy is usually minor.
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Measuring the Cost of Living

CPI versus GDP Deflator

- Two measures of inflation
Unemployment: the macroeconomic problem that affects people most directly and severely

How well an economy uses its resources

Unemployment rate is calculated and announced each month by the BLS (http://www.bls.gov)

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U.S. unemployment rate

- There is always some unemployment (even in the LR)
- Short-run fluctuations

Diagram showing the U.S. unemployment rate from 1900 to 2000 with key events such as World War I, Great Depression, World War II, Korean War, Vietnam War, First oil price shock, and Second oil price shock.
Measuring Joblessness
Unemployment Rate

- U.S. unemployment rate

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Okun’s Law

- Employed workers help produce GDP, while unemployed workers do not.
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Okun’s Law states that a one-percent decrease in unemployment is associated with two percentage points of additional growth in real GDP.
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Economists use “model” to illustrate the essence of the real economy and to help explain economic variables.

Economic variables

1. **Endogenous** variables: those that the model explains
2. **Exogenous** variables: those that come from outside the model

An economic model can show how the exogenous variables affect the endogenous variables.

1. The model of supply and demand
2. The circular flow of dollars through the economy
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