Economics 302 (Sec. 001)  
Intermediate Macroeconomic Theory and Policy  
(1/23/12)

Instructor: Prof. Menzie Chinn  
UW Madison  
Spring 2012
Administrative Issues

• Course website:  
  http://www.ssc.wisc.edu/~mchinn/web302_s12.html
• OH: MW 4-5, 7418 Soc Sci
• Textbook: Blanchard, *Macroeconomics*
• Additional Readings: from WWW, Econbrowser, CBO
• *NYT, FT, WSJ, Economist*
Administrative Issues

- Grading: 20% PS, 50% 2×MTs, 30% Final
- Dates:
  - MT1 on Wed, 2/22
  - MT2 on Wed, 4/11
  - Final on **Tue. 5/15, 7:25PM**
- Make-ups: **None**. Points are re-allocated *if* you have a legitimate excuse. **No** late assignments accepted (must be handed in during lecture)
Context: GDP Growth

\[
\left( \frac{\text{GDP05/GDP05(-1)}}{4-1} \right)^4 - 1
\]

\[
\left( \frac{\text{GDP05WSJ\_JAN12/GDP05WSJ\_JAN12(-1)}}{4-1} \right)^4 - 1
\]
Employment

Source: BLS, Employment Situation, Dec. 2011 release
Unemployment Rate

Unemployment Rate

Unemployment rates, in %, SA

Unemployed & underemployed

Official

Long-term (over 27 weeks)

Source: BLS, Employment Situation, Dec. 2010 release
Inflation

Monetary Policy

Interest rates, in %

Source: St. Louis Fed FRED II database
Fed interventions

http://www.clevelandfed.org/research/data/credit_easing/index.cfm
Consumption

Source: BEA, 2011Q3 2nd release; Fed *Flow of Funds*
House Prices

Case Shiller Composite Indices SA (Nominal)

Source: Calculated Risk, 12/27/2011
Net Exports and the Dollar

Source: Federal Reserve Board, and BEA, 2011Q3 GDP 2nd release
Oil Prices

Source: St. Louis FRED II. Relative price is deflated by Core CPI, 2010=0
Long Term Log GDP

Source: Historical Statistics, and BEA, 2011Q3 GDP 2nd release, rebased to Ch.00$
2-1 Aggregate Output

• National income and product accounts are an accounting system used to measure aggregate economic activity.

GDP: Production and Income

The measure of aggregate output in the national income accounts is gross domestic product, or GDP.
There are three ways of defining GDP:

1. GDP is the value of the final goods and services produced in the economy during a given period.
   - A **final** good is a good that is destined for final consumption.
   - An **intermediate good** is a good used in the production of another good.
2-1 Aggregate Output

GDP: Production and Income

There are three ways of defining GDP:

2. GDP is the sum of value added in the economy during a given period.

- Value added equals the value of a firm’s production minus the value of the intermediate goods it uses in production.
2-1 Aggregate Output

GDP: Production and Income

There are three ways of defining GDP:

3. GDP is the sum of incomes in the economy during a given period.

<table>
<thead>
<tr>
<th>Table 2-1</th>
<th>The Composition of GDP by Type of Income, 1960 and 2006</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1960</td>
</tr>
<tr>
<td>Labor income</td>
<td>66%</td>
</tr>
<tr>
<td>Capital income</td>
<td>26%</td>
</tr>
<tr>
<td>Indirect taxes</td>
<td>8%</td>
</tr>
</tbody>
</table>
Nominal and Real GDP

• Nominal GDP is the sum of the quantities of final goods produced multiplied by their current price.

• Nominal GDP increases over time because:
  – The production of most goods increases over time.
  – The prices of most goods also increase over time.

• Real GDP is constructed as the sum of the quantities of final goods multiplied by constant (rather than current) prices.
## 2-1 Aggregate Output

### Nominal and Real GDP

<table>
<thead>
<tr>
<th>Year</th>
<th>Quantity of Cars</th>
<th>Price of cars</th>
<th>Nominal GDP</th>
<th>Real GDP (in 2000 dollars)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1999</td>
<td>10</td>
<td>$20,000</td>
<td>$200,000</td>
<td>$240,000</td>
</tr>
<tr>
<td>2000</td>
<td>12</td>
<td>$24,000</td>
<td>$288,000</td>
<td>$288,000</td>
</tr>
<tr>
<td>2001</td>
<td>13</td>
<td>$26,000</td>
<td>$338,000</td>
<td>$312,000</td>
</tr>
</tbody>
</table>

To construct real GDP, multiply the number of cars in each year by a *common* price. Suppose we use the price of the car in 2000 as the common price. This approach gives us, in effect, real GDP in chained (2000) dollars.
2-1 Aggregate Output

Nominal and Real GDP

Figure 2-1

Nominal and Real U.S. GDP, Since 1960

From 1960 to 2006, nominal GDP increased by a factor of 25. Real GDP increased by a factor of about 4.5.
The terms nominal GDP and real GDP each have many synonyms:

- Nominal GDP is also called **dollar GDP or GDP in current dollars**.
- Real GDP is also called **GDP in terms of goods, GDP in constant dollars, GDP adjusted for inflation, or GDP in 2000 dollars**.
- GDP will refer to **real GDP**, and \( Y_t \) will denote **real GDP in year \( t \)**.
- Nominal GDP and variables measured in current dollars will be denoted by a dollar sign in front of them—for example, \( \$Y_t \) for nominal GDP in year \( t \).
2-1 Aggregate Output

GDP: Level Versus Growth Rate

- Real GDP per capita is the ratio of real GDP to the population of the country.

- GDP growth equals: \( \frac{Y_t - Y_{t-1}}{Y_{t-1}} \)

  - Periods of positive GDP growth are called expansions.

  - Periods of negative GDP growth are called recessions.
Since 1960, the U.S. economy has gone through a series of expansions, interrupted by short recessions.
2-2 The Other Major Macroeconomic Variables

The Unemployment Rate

- Because it is a measure of aggregate activity, GDP is obviously the most important macroeconomic variable. But two other variables tell us about other important aspects of how an economy is performing:

  - Unemployment
  - Inflation
The Other Major Macroeconomic Variables

The Unemployment Rate

• Employment is the number of people who have a job.

• Unemployment is the number of people who do not have a job but are looking for one.

• The labor force is the sum of employment and unemployment:

  \[ L = N + U \]

  • Labor force = Employment + Unemployment
2-2 The Other Major Macroeconomic Variables

The Unemployment Rate

• The unemployment rate is the ratio of the number of people who are unemployed to the number of people in the labor force:

\[ u = \frac{U}{L} \]

Unemployment rate = \( \frac{\text{Unemployment}}{\text{Labor force}} \)

In the United States, estimates based on the CPS show that:

\[ u_{2006} = \frac{7.0}{144.4 + 7.0} = 4.6\% \]
2-2 The Other Major Macroeconomic Variables

The Unemployment Rate

• The Current Population Survey (CPS) is used to compute the unemployment rate.

• Only those looking for work are counted as unemployed. Those not working and not looking for work are not in the labor force.

• People without jobs who give up looking for work are known as discouraged workers.

• Participation rate

\[ \text{participation rate} = \frac{\text{labor force}}{\text{population of working age}} \]
2-2 The Other Major Macroeconomic Variables

The Unemployment Rate

Figure 2 - 3

U.S. Unemployment Rate Since 1960

Since 1960, the U.S. unemployment rate has fluctuated between 3% and 10%, going down during expansions and going up during recessions.
Why Do Economists Care About Unemployment?

- Economists care about unemployment for two reasons:
  - Because of its direct effects on the welfare of the unemployed.
  - Because it provides a signal that the economy may not be using some of its resources efficiently.
The Inflation Rate

Inflation is a sustained rise in the general level of prices—the price level.

The inflation rate is the rate at which the price level increases.

Symmetrically, deflation is a sustained decline in the price level. It corresponds to a negative inflation rate.
2-2 The Other Major Macroeconomic Variables

The Inflation Rate

The GDP Deflator

The GDP deflator in year $t$, $P_t$, is defined as the ratio of nominal GDP to real GDP in year $t$:

$$P_t = \frac{\text{Nominal GDP}_t}{\text{Real GDP}_t} = \frac{\$Y_t}{Y_t}$$

The GDP deflator is what is called an index number—set equal to 100 in the base year.
The Other Major Macroeconomic Variables

The Inflation Rate

The GDP Deflator

The rate of change in the GDP deflator equals the rate of inflation:

\[
\frac{(P_t - P_{t-1})}{P_{t-1}}
\]

Nominal GDP is equal to the GDP deflator multiplied by real GDP:

\[
$Y_t = P_t Y_t
\]
2-2 The Other Major Macroeconomic Variables

The Inflation Rate

The Consumer Price Index

• The GDP deflator measures the average price of output, while the consumer price index, or CPI, measures the average price of consumption, or equivalently, the cost of living.

• The CPI gives the cost in dollars of a specific list of goods and services over time, which attempts to represent the consumption basket of a typical urban consumer.
2-2 The Other Major Macroeconomic Variables

The Inflation Rate

The Consumer Price Index

The set of goods produced in the economy is not the same as the set of goods purchased by consumers, for two reasons:

- Some of the goods are sold to firms, to the government, or to foreigners.

- Some of the goods are not produced domestically but are imported from abroad.
2-2 The Other Major Macroeconomic Variables

The Inflation Rate

The Consumer Price Index

Figure 2-4

U.S. Inflation Rate, Using the CPI and the GDP Deflator
Since 1960

The inflation rates, computed using either the CPI or the GDP deflator, are largely similar.
2-2 The Other Major Macroeconomic Variables

The Inflation Rate

The Consumer Price Index

Figure 2-4 yields two conclusions:

- The CPI and the GDP deflator move together most of the time. In most years, the two inflation rates differ by less than 1%.

- There are clear exceptions, however. In 1979 and 1980, the increase in the CPI was significantly larger than the increase in the GDP deflator.
The Inflation Rate

Why Do Economists Care About Inflation?

Economists care about inflation for two reasons:

- During periods of inflation, not all prices and wages rise proportionately, inflation affects income distribution.
- Inflation leads to other distortions.
The Short Run, the Medium Run, and the Long Run

The level of aggregate output in an economy is determined by:

- demand in the short run, say, a few years,
- the level of technology, the capital stock, and the labor force in the medium run, say, a decade or so,
- factors such as education, research, saving, and the quality of government in the long run, say, a half century or more.
2-4 A Tour of the Book

Figure 2 - 5

The Organization of the Book

Introduction
A tour of the world (Chapter 1)
A tour of the book (Chapter 2)

The Core
The short run (IS-LM)
Chapters 3 to 5
The medium run (AS-AD)
Chapters 6 to 9
The long run
Chapters 10 to 13

Extension
Expectations
Chapters 14 to 17

Extension
Pathologies
Chapters 22 and 23

Extension
The open economy
Chapters 18 to 21

Back to policy
Chapters 24 to 26

Epilogue
Chapter 27
The book is organized into three parts:

- A core which has three parts – the short run, the medium run, and the long run.

- Three extensions which explore the role of expectations, closed economies, and expansion and recessions.

- A deeper look at the role of microeconomic policy.
Key Terms

- national income and product accounts
- aggregate output
- gross domestic product, (GDP)
- gross national product, (GNP)
- intermediate good
- final good
- value added
- nominal GDP
- real GDP
- real GDP in chained (2000) dollars
- dollar GDP, GDP in current dollars
- GDP in terms of goods, GDP in constant dollars, GDP adjusted for inflation, GDP in 2000 dollars
- real GDP per capita
- GDP growth
- expansions
- recessions
- hedonic pricing
- employment
- unemployment
- labor force
- unemployment rate
- Current Population Survey (CPS)
- not in the labor force
- discouraged workers
- participation rate
- underground economy
- inflation
- price level
- inflation rate
- deflation
- GDP deflator
- index number
- cost of living
- consumer price index (CPI)
- short run
- medium run
- long run
- base year