

EC 202: Principles of Macroeconomics

Week 3: Macroeconomic Goals Continued

- I. Economic Growth
- II. Low Unemployment
- III. **Stable Prices**



Stable Prices

∞ The third major Macroeconomic goal is low stable prices. The key indicator of stable prices is a “low inflation rate.”

- Inflation is defined as the percent increase in the “price level.”
- What is the “price level.”
- The most commonly used measure of the “price level” is the Consumer Price Index (CPI).
- Since the CPI only includes consumer prices, a special measure is used to calculate real GDP from nominal GDP – the “GDP deflator.”

Consumer Price Index

- ✎ The CPI is a number that is carefully constructed to be a measure of the “cost-of-living.”
- ✎ Prices are “weighted” according to the quantities typically purchased by the average consumer.
 - For example, if you buy 20 gallons of gasoline per month but you buy only 1 concert ticket, then the price of gasoline is more important to you than the price of concert tickets.
 - The CPI includes this relative importance in its calculation.
 - Since the quantities that consumers buy differs, the “weights” are averages based on surveys. This means that the CPI may not measure your cost-of-living exactly.

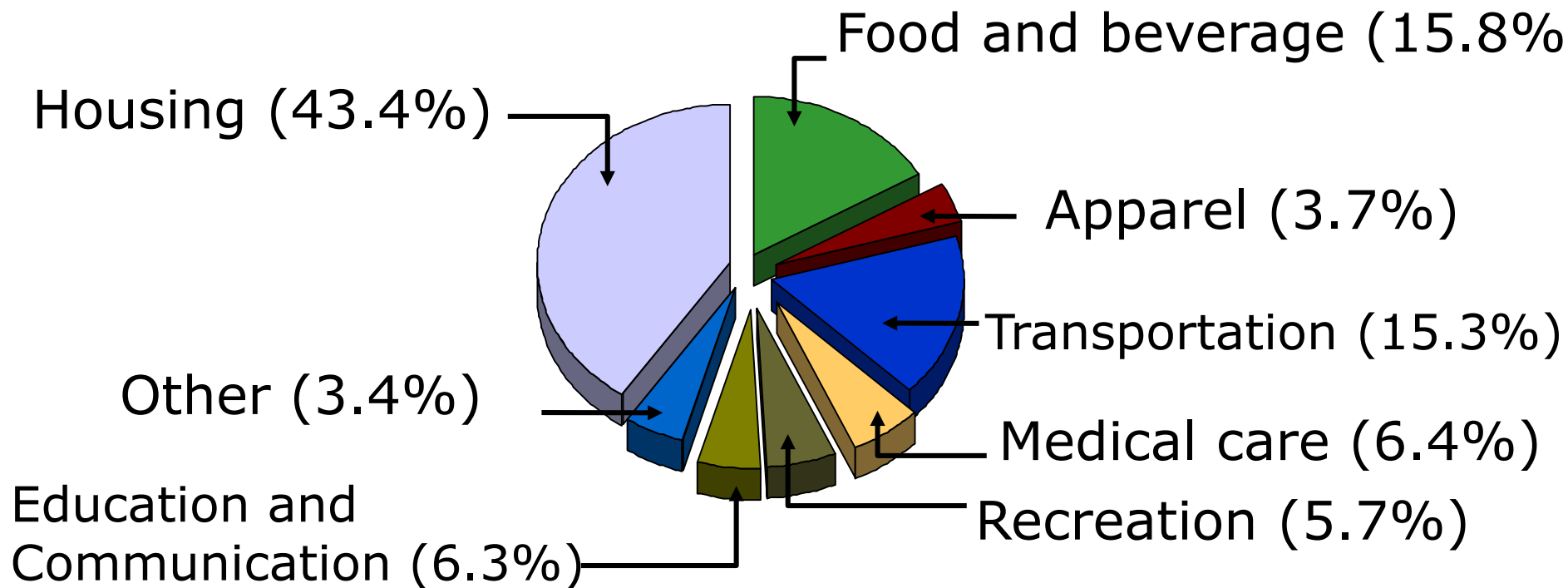
The Consumer Price Index

- ✎ The Consumer Price Index measures the cost of the basket of goods and services bought by a typical consumer.
- ✎ This “basket” is based on surveys. Since most of the population lives in urban areas, this “basket” will be more accurate for individuals in cities than for those in rural areas.
- ✎ For more info about the CPI, see link <http://www.bls.gov/cpi/cpifaq.htm>



Composition of CPI

6-5



The Consumer Price Index

❧ How is the CPI calculated?

❧ *Step 1: Survey Consumers to Determine a Fixed Basket of Goods*

- Simplified Example:

4 hot dogs

2 hamburgers

The Consumer Price Index

- *Step 2: Find the price of each good in each year.*

| Year | Price of Hog Dogs | Price of Hamburgers |
|------|-------------------|---------------------|
| 2008 | \$1 | \$2 |
| 2009 | \$2 | \$3 |
| 2010 | \$3 | \$4 |

The Consumer Price Index

- *Step 3: Compute the Cost of the Basket of Goods in Each Year*

| | | | |
|------|------------------|--------------------|--------|
| 2008 | \$1 X 4 hot dogs | \$2 X 2 hamburgers | = \$8 |
| 2009 | \$2 X 4 hot dogs | \$3 X 2 hamburgers | = \$14 |
| 2010 | \$3 X 4 hot dogs | \$4 X 2 hamburgers | = \$20 |

The Consumer Price Index

❧ *Step 4: Choose One Year as the Base Year.*

❧ The base year is the benchmark against which other years are compared.

❧ 2008 will be the base year in this example.

❧ Note: The actual CPI uses an average of 2 years in order to smooth out monthly variations.

The Consumer Price Index

Step 5: Compute the index:

- Divide the cost of each year's basket by the cost in the base year
- Cost of Basket in 2008 = \$8
- Multiply by 100.

| | |
|------|------------------------------------|
| 2008 | $\$8/\$8 = 1 \times 100 = 100$ |
| 2009 | $\$14/\$8 = 1.75 \times 100 = 175$ |
| 2010 | $\$20/\$8 = 2.5 \times 100 = 250$ |

Inflation

∞ Inflation

- A continuing rise in the price level

∞ Deflation

- A falling price level.

∞ Inflation or Deflation rate

- The annual percentage change in a price index.

The Inflation Rate

∞ The **inflation rate** is calculated as follows:

$$\text{Inflation Rate in Year 2} = \frac{\text{CPI in Year 2} - \text{CPI in Year 1}}{\text{CPI in Year 1}} \times 100$$

The Inflation Rate

∞ Example:

- CPI in 2008 = 215.3
- CPI in 2007 = 207.3

$$(215.3 - 207.3) / 207.3 = 0.038591$$

Inflation rate = 3.9%

The Consumer Price Index vs. the GDP Deflator

∞ Consumer Price Index

- compares the price of a ***fixed basket*** of goods and services to the price of the basket in the base year (only occasionally does the BLS change the basket)...
- ***It only includes consumer goods.***
- The purpose of the CPI is to measure the cost of living for individuals and households.

∞ GDP deflator

- compares the price of ***currently produced*** goods and services to the price of the same goods and services in the base year.
- ***It includes ALL goods included in GDP.***
- The purpose of the GDP deflator is to measure changes in actual output (real GDP) rather than changes in output plus price changes (nominal GDP)

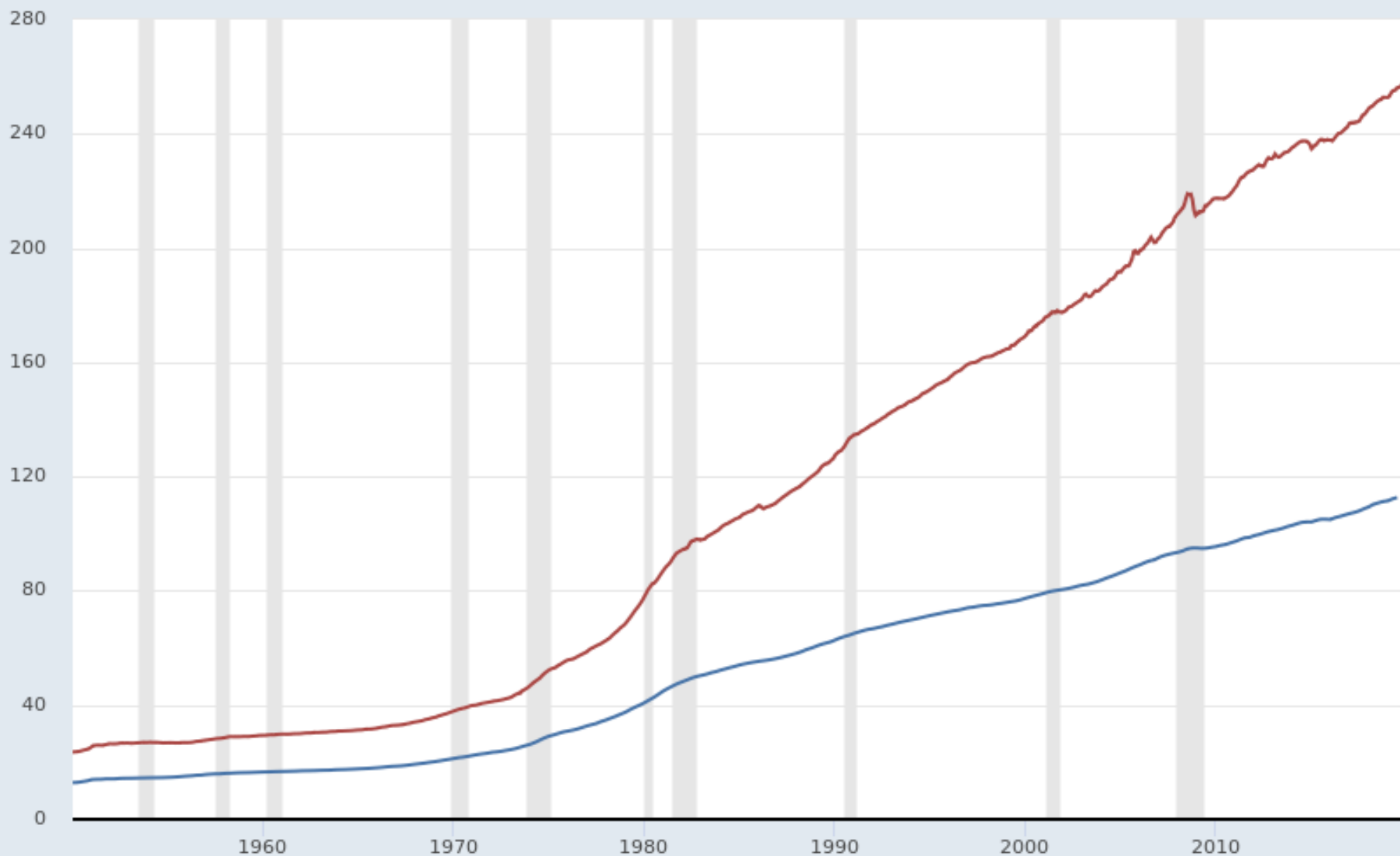
The GDP Deflator

∞ The GDP deflator

$$\text{GDP deflator} = \frac{\text{Nominal GDP}}{\text{Real GDP}} \times 100$$

— Gross Domestic Product: Implicit Price Deflator
 — Consumer Price Index for All Urban Consumers: All Items in U.S. City Average

Index 2012=100 , Index 1982-1984=100



Using the CPI

- ∞ Babe Ruth made \$80,000 in 1931. How does his salary compare to baseball players today?
- ∞ The minimum wage in 1965 was \$1.25. How does it compare to today's minimum wage?

Using the CPI

∞ Convert Babe Ruth's wages in
1931 dollars to 2018 dollars:

$$\text{Salary}_{2018} = \text{Salary}_{1931} \times \frac{\text{CPI in 2018}}{\text{CPI in 1931}}$$

$$= \$80,000 \times \frac{251.107}{15.2}$$

$$= \$1,321,615.79$$

Using the CPI

↻ Convert minimum wage in 1965 dollars to 2018 dollars.

$$\text{Wage}_{2018} = \text{Wage}_{1965} \times \frac{\text{CPI in 2018}}{\text{CPI in 1965}}$$

$$= \$1.25 \times \frac{251.107}{31.5}$$

$$= \$9.96$$

Using the CPI

- ∞ The BLS has information on CPIs going back to the 1930s.
- ∞ You can convert prices from different years as long as you have the CPI for each year.
 - Note: Put the CPI for the year you are converting *from* in the denominator. Example: if you are trying to see what a wage of \$15 in 2014 would be in 1965 dollars, put the CPI for 2014 in the denominator and the CPI for 1965 in the numerator.
- ∞ If all else fails, just use the handy “inflation calculator.”

<http://data.bls.gov/cgi-bin/cpicalc.pl>