

# Measuring Inflation and Unemployment

ECO 120: Global Macroeconomics

## 1

### 1.1 Goals

#### Goals

- Specific Goals
  - Describe how the Consumer Price Index (CPI) measures aggregate price level.
  - Compute the aggregate price level using the CPI.
  - Describe some drawbacks to using and interpreting the CPI.
- Learning Outcomes
  - LO 3: Define macroeconomic measures of production, prices, inflation, and employment. Students will be able to explain how each is measured and evaluate usefulness and limitations for each measure.
  - GELO 1: Students will be able to use mathematical and logical methods to solve problems.

### 1.2 Reading

#### Reading

- Module 16

## 2 Consumer Price Index

### 2.1 Definition

#### Consumer price index

- **Consumer price index (CPI)**: another measure of the aggregate price level.

- Bureau of Labor Statistics (BLS) chooses a basket of goods: specific goods with specific weights.

$$\text{CPI}_t = \frac{\text{Price of basket at time } t}{\text{Price of same basket in base year}} (100)$$

- CPI inflation rate: Growth rate of the CPI.

## 2.2 Example

### Example

- Suppose a country consumed only brats, cheese, and beer, and the CPI basket was given by,
  - Brats: 40%
  - Cheese: 25%
  - Beer: 35%

- Suppose the following data for 2006 and 2007:

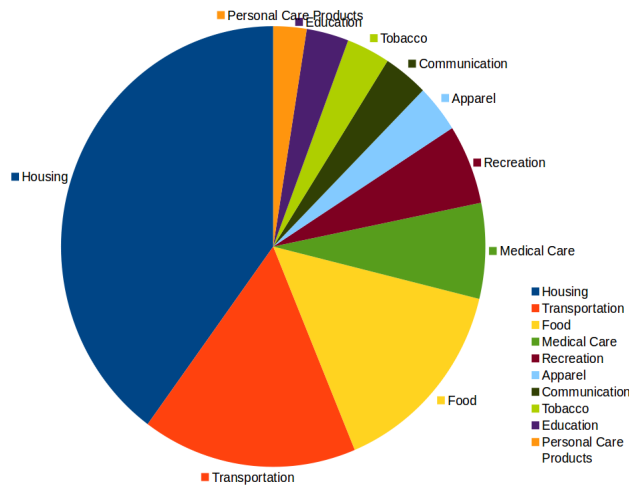
	2006		2007	
	Quantity	Price	Quantity	Price
Brats	400	\$1.50	500	\$1.75
Cheese	150	\$1.00	200	\$1.50
Beer	200	\$2.00	250	\$2.00

- Using 2006 as a base year, compute CPI for the country.
- Using 2006 as a base year, compute the GDP deflator for the country.

## 3 What CPI Measures

### 3.1 U.S CPI Basket

#### CPI Basket



Source: Bureau of Labor Statistics - <http://www.bls.gov/cpi/cpiri2012.pdf>

### 3.2 How Should the CPI be Interpreted?

#### How Should the CPI be Interpreted?

- Who? All urban consumers and urban wage earners and clerical workers, about 87% of the U.S. population.
- It is *not* a cost-of-living index.
  - Does not account proper treatment of public health and safety concerns: crime, education, quality and accessibility of health care, water quality
  - Does not account for substitution effects.
- The CPI is unlikely to reflect prices or baskets of any one individual.
  - Some sub-populations may have special needs - disabled, elderly, chronically ill, poor, etc.
- Taxes associated with purchasing goods and services are counted
  - Sales, excise, and property taxes.
  - Government user fees: tolls, fishing license, state park entry fee, etc.
  - Does not include income taxes, social security taxes.

## 4 Core CPI

### 4.1 All Items Excluding Food and Energy

#### All Items Excluding Food and Energy

- **Core inflation:** Measure of CPI inflation that *excludes* food and energy products from the basket.
- *Arguably*, central banks carefully monitor this measure in addition to the headline CPI when monitoring inflation.
- Energy and food prices are *more volatile* than other prices.
  - Monthly movements in *only* food and energy prices are poor predictors of the long-run behavior in prices.
  - Non-food-and-energy prices are actually better long-run predictors of food and energy prices!
  - Monetary policy (changing the supply of money) can't make food and energy more affordable.

### 4.2 Core vs Headline Inflation in the U.S.

#### U.S. CPI Inflation (Core vs Headline)

