Measuring Inflation and Unemployment

ECO 120: Global Macroeconomics

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1.1 Goals

Goals

- Specific Goals
  - Learn about different types of unemployment.
  - Learn another measure of the aggregate price level.
- Learning Outcomes
  - LO 3: Define, compute, and explain limitations to measures of the macroeconomy, including gross domestic product, inflation, and unemployment.
  - GELO 1: Students will be able to use mathematical and logical methods to solve problems.

1.2 Reading

Reading

- Measuring employment: Modules 12 and 13
- Measuring prices: Module 15

2 Unemployment

2.1 Labor Force

Labor force

- **Labor force**: people in the population who are willing and able to work.
- The labor force does *not* include:
  - Children

  - People who are institutionalized.
  - People legally not allowed to work.
  - People not employed who are not looking to be employed (eg. retired people).
  - **Discouraged workers**: people who were unemployed and left the labor force.

- Labor force participation rate: percentage of people who are able to work who are in the labor force.

2.2 Types of Unemployment

Unemployment

- **Unemployment rate**: percentage of people *in the labor force* who are not employed.
- Three types of unemployment: frictional, structural, and cyclical.
- **Frictional unemployment**: unemployment caused by delays in job search, job candidate search.
- **Structural unemployment**: caused by changes in demand for types of work.
  - Changes in technology makes some types of jobs obsolete.
  - Changes in international trade shrink some industries.
  - Changes in tastes and preferences.
- **Cyclical unemployment**: caused by declines in total spending in the economy.
  - Unemployment that increases during recessions, decreases during expansions.

Full employment

- Full employment: when there is zero *cyclical unemployment*.
- **Natural rate of unemployment**: whatever unemployment rate that is associated with zero cyclical unemployment.

2.3 Stephen Colbert

Stephen Colbert

`http://www.colbertnation.com/the-colbert-report-videos/164056/march-17-2008/the-word---the-audacity-of-hopelessness`

Stephen Colbert - March 17, 2008 - “Audacity of Hopelessness”

3 Inflation

3.1 Consumer Price Index

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: percentage change in CPI.

$$\text{inflation}_t = \frac{\text{CPI}_t - \text{CPI}_{t-1}}{\text{CPI}_{t-1}}\,(100\%)$$

3.2 Example

Example

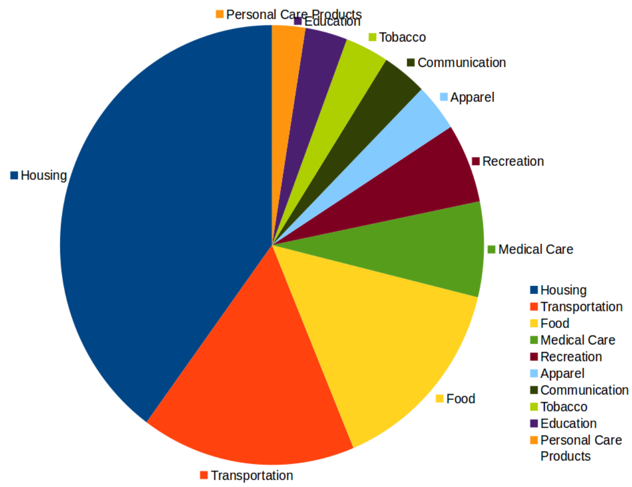
- Suppose a country consumed only brats, cheese, and beer, and the CPI basket was given by,
  - Brats: 40%
  - Cheese: 25%
  - Beer: 35%
- Suppose the following data for 2006 and 2007:

	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.

3.3 More about the CPI

CPI Basket



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

Biases with CPI

- New goods bias: how do you compare the price of a computer today with the price of the same good in 1970?
  - Comparing new goods with old goods that were cheaper causes an overestimate of inflation.
- Change in quality bias: prices rise in part because quality improves. This overstates inflation.
- Commodity substitution bias: CPI basket remains fixes, but people's consumption decisions do not.
  - An increase in prices have a smaller effect when people substitute away from the more expensive goods.
  - Keeping a constant basket overestimates inflation.
- Outlet substitution bias: when consumers go to discount stores when prices increase.
- Congressional Advisory Commission estimated in 1996 that the CPI overestimated inflation by about 1.1%.

What is the CPI?

- 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 subpopulations 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.