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Measuring the Cost of Living

PRINCIPLES OF
ECONOMICS
FOURTH EDITION

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Premium PowerPoint® Slides
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In this chapter, look for the answers to these questions:

§ What is the Consumer Price Index (CPI)?
How is it calculated? What's it used for?

§ What are the problems with the CPI? How serious are they?

§ How does the CPI differ from the GDP deflator?

§ How can we use the CPI to compare dollar amounts from different years? Why would we want to do this, anyway?

§ How can we correct interest rates for inflation?

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The Consumer Price Index (CPI)

§ Measures

§ The basis of

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How the CPI Is Calculated

1. The Bureau of Labor Statistics (BLS) surveys consumers to determine what's in the typical consumer's "shopping basket."
2. The BLS collects data on the prices of all the goods in the basket.
3. Use the prices to compute the total cost of the basket.

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How the CPI Is Calculated

4. **Choose a base year and compute the index.**
The CPI in any year equals
5. **Compute the inflation rate.**
The percentage change in the CPI from the preceding period.

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EXAMPLE

basket: {4 pizzas, 10 lattes}

year	price of pizza	price of latte	cost of basket
2003	\$10	\$2.00	
2004	\$11	\$2.50	
2005	\$12	\$3.00	

Compute CPI in each year using 2003 base year:

2003:

2004:

2005:

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ACTIVE LEARNING 1:
Calculate the CPI

CPI basket:
{10 lbs beef,
20 lbs chicken}

The CPI basket cost \$120
in 2004, the base year.

	price of beef	price of chicken
2004	\$4	\$4
2005	\$5	\$5
2006	\$9	\$6

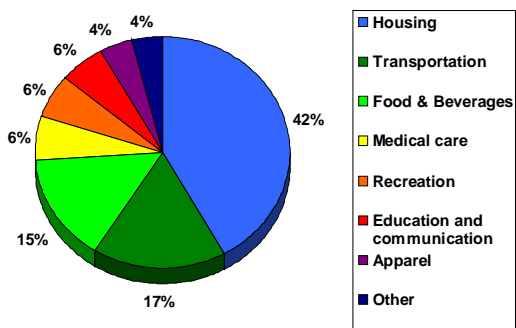
- A.** Compute the CPI in 2005.
B. What was the CPI inflation rate from 2005-2006?

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ACTIVE LEARNING 1:
Answers

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What's in the CPI's Basket?



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ACTIVE LEARNING 2: Substitution bias

CPI basket:
{10 lbs beef,
20 lbs chik}

	beef	chicken	cost of CPI basket
2004	\$4	\$4	\$120
2005	\$5	\$5	\$150
2006	\$9	\$6	\$210

2004-5:
Households

bought CPI basket.

2006: Households bought {5 lbs beef, 25 lbs chik}.

- A. Compute cost of the 2006 household basket.
- B. Compute % increase in cost of household basket over 2005-6, compare to CPI inflation rate.

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ACTIVE LEARNING 2: Answers

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Problems With the CPI: *Substitution Bias*

§ Over time, some prices rise faster than others.

§ Thus, the CPI overstates increases in the cost of living.

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Problems With the CPI:
Introduction of New Goods

§ When new goods become available,

§ The CPI misses this effect because it uses a fixed basket of goods.

§ Thus,

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Problems With the CPI:
Unmeasured Quality Change

§

§ The BLS tries to account for quality changes, but probably misses some, as quality is hard to measure.

§ Thus, the CPI overstates increases in the cost of living.

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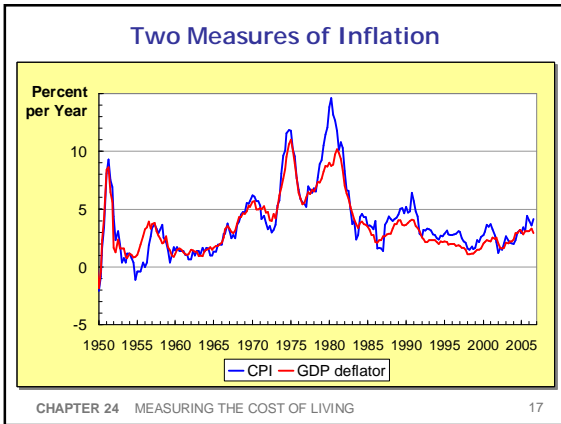
Problems With the CPI

§ Each of these problems causes

§ The BLS has made technical adjustments, but the CPI probably still overstates inflation by about

§ This is important, because

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ACTIVE LEARNING 3:

CPI vs. GDP deflator

In each scenario, determine the effects on the CPI and the GDP deflator.

- A.** Starbucks raises the price of Frappuccinos.
- B.** Caterpillar raises the price of the industrial tractors it manufactures at its Illinois factory.
- C.** Armani raises the price of the Italian jeans it sells in the U.S.

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**Correcting Variables for Inflation:
Comparing Dollar Figures from Different Times**

- § Inflation makes it harder to compare dollar amounts from different times.
- § We can use the CPI to adjust figures so that they can be compared.

EXAMPLE: The High Price of Gasoline

- § Price of a gallon of regular unleaded gas:
\$1.42 in March 1981
\$2.50 in March 2007
- § To compare these figures, we will use the CPI to
- § Multiply the 1981 gas price by
the ratio of the CPI in 2007 to the CPI in 1981.

EXAMPLE: The High Price of Gasoline

date	Price of gas	CPI	Gas price in 2005 dollars
3/1981	\$1.42/gallon	88.5	/gallon
3/2007	\$2.50/gallon	205.1	/gallon

- § 1981 gas price in 2007 dollars
=

- § After correcting for inflation,

ACTIVE LEARNING 4:
Exercise

1980: CPI = 90,
avg starting salary for econ majors = \$24,000

Today: CPI = 180,
avg starting salary for econ majors = \$50,000

Are econ majors better off today or in 1980?

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Correcting Variables for Inflation:
Indexation

For example, the increase in the CPI automatically determines

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Correcting Variables for Inflation:
Real vs. Nominal Interest Rates

The nominal interest rate:

The real interest rate:

Real interest rate

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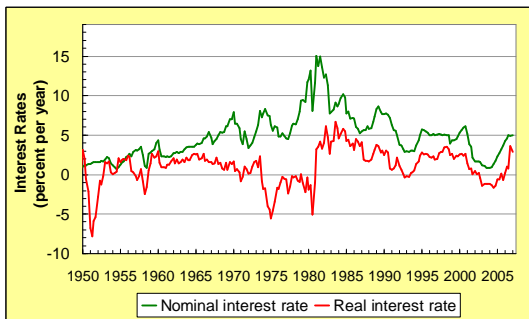
Real and Nominal Interest Rates: EXAMPLE

- § Deposit \$1,000 for one year.
- § Nominal interest rate is 9%.
- § During that year, inflation is 3.5%.
- § Real interest rate

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Real and Nominal Interest Rates in the U.S.



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