Measuring The General Level of Prices and Inflation

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How Economists Measure the General Level of Prices
What is Inflation?
Why is Inflation Costly?
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Inflation in the News

The New York Times
Consumer Prices Edged Up Last Month
by Jack Hagey
Consumer prices edged higher last month after a summertime spate in gasoline and energy prices leveled off, the government reported on Thursday. The report demonstrated that inflation was still a remote concern for the American economy, even as the dollar declined against other global currencies and jittery investors clung to buy gold and oil. The figures backed up the Federal Reserve’s view that inflation will remain low as the economy grapples with high unemployment and low consumer demand.

Recitation Assignment for Week 12

Journal Assignment
Find an article that concerns a macroeconomics or monetary policy issue.
Write 100-200 words explaining what the issue is and why it is important.

Macro Data Assignment
Download written assignment and the excel spreadsheet from the webpage to your laptop.
Bring both to recitation to begin working on the assignment.
Finish the assignment on your own.

How Economists Measure the General Level of Prices

Babe Ruth earned $80,000 in 1930
Barry Bonds earned $15.5 million in 2007

Who was better off?
How can we answer the question?
Let’s put the questions aside for a moment and come back to it.
How Economists Measure the General Level of Prices

A price index is an average of prices of different goods and services.

We will focus on two (of many) price indices:
- The GDP Deflator
- The Consumer Price Index

The GDP Deflator

The GDP Deflator is implicit in the values of nominal and real GDP.

\[
\text{NGDP} = \text{Nominal (current dollar) GDP} \\
\text{RGDP} = \text{Real (base year dollar) GDP}
\]

\[
\text{NGDP} = P \times \text{RGDP}
\]

So...

The GDP Deflator is \( P = \frac{\text{NGDP}}{\text{RGDP}} \)

<table>
<thead>
<tr>
<th>Year</th>
<th>NGDP</th>
<th>RGDP</th>
</tr>
</thead>
<tbody>
<tr>
<td>2005</td>
<td>$1450</td>
<td>$1450</td>
</tr>
<tr>
<td>2006</td>
<td>$1555</td>
<td>$1400</td>
</tr>
<tr>
<td>2007</td>
<td>$1606</td>
<td>$1580</td>
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</table>

<table>
<thead>
<tr>
<th>Year</th>
<th>GDP Deflator</th>
</tr>
</thead>
<tbody>
<tr>
<td>2005</td>
<td>1450/1450 = 1</td>
</tr>
<tr>
<td>2006</td>
<td>1555/1400 = 1.11</td>
</tr>
<tr>
<td>2007</td>
<td>1606/1580 = 1.02</td>
</tr>
</tbody>
</table>
### Price Changes in Simple Land

<table>
<thead>
<tr>
<th>Year</th>
<th>Bread</th>
<th>Wine</th>
<th>Daycare</th>
<th>Average Price Growth</th>
<th>GDP Deflator</th>
</tr>
</thead>
<tbody>
<tr>
<td>2005</td>
<td>$2.00</td>
<td>$10.00</td>
<td>$3.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2006</td>
<td>$2.10 (1.05)</td>
<td>$12.00 (1.20)</td>
<td>$3.25 (1.083)</td>
<td>11%</td>
<td>1.11</td>
</tr>
<tr>
<td>2007</td>
<td>$2.40 (1.143)</td>
<td>$8.00 (0.667)</td>
<td>$3.40 (1.046)</td>
<td>-4.8%</td>
<td>1.02</td>
</tr>
</tbody>
</table>

Suppose the GDP Deflator of Simple Land is 1.00 in 2005, 1.07 in 2006, and 1.05 in 2007. Then...

B. Prices in Simple Land rose by about 12 percent between 2005 and 2007.
C. Simple Land experienced a large rate of inflation in 2006 and a small rate of inflation in 2007.

The Bottom Line is that...

The GDP Deflator is a weighted average of prices in the economy with weights given by the relative importance of each component of GDP.
The Consumer Price Index

The CPI Measures...

The cost of a standard basket of goods and services
Relative to
The cost of the same basket of goods and services in a fixed year, called the base year.

The Consumer Price Index

The CPI basket is based on consumption of the typical urban household.

The items in the basket change slowly so that changes in the CPI are estimates of changes in the "cost of living."

Studies show that changes in the CPI somewhat overstate changes in the cost of living because of the availability of substitutes.

Dale Ward’s Contribution to the Consumer Price Index
Dale Ward’s Contribution to the Consumer Price Index

BLS asks Dale the current prices of:
Yamaha Student-Quality Trombone
Pearl Snare Drum Kit
These two instruments are part of the CPI basket.

What is Inflation?
The inflation rate is the growth rate in some price index over some period usually converted to annual terms.
There are lots of ways to compute an inflation rate. Here is one.
\[
\text{Inflation} = \frac{\text{CPI}_t - \text{CPI}_{t-12}}{\text{CPI}_{t-12}}
\]
In words, the inflation rate is the percentage change in prices over one year since CPI is a monthly index.
Zero in on the most recent part of the period. What themes do you see?

Back to Babe and Barry. Use Your Clickers To Answer the Following Graded Question.

If Babe Ruth earned $80,000 in 1930 and Barry Bonds earned $15.5 million in 2007 and if the CPI in 1930 was 16.8 and the CPI in 2007 was 208.3, then...

A. Babe Ruth had a higher standard of living than Barry Bonds.
B. Barry Bonds had a higher standard of living than Babe Ruth.
C. Babe Ruth experienced more inflation than Barry Bonds.
D. Barry Bonds experienced more inflation than Babe Ruth.
Who Lived Larger... Babe or Barry?

<table>
<thead>
<tr>
<th>Player</th>
<th>Year</th>
<th>Earnings</th>
<th>CPI</th>
<th>Earnings in 2007 Dollars</th>
</tr>
</thead>
<tbody>
<tr>
<td>Babe</td>
<td>1930</td>
<td>$80,000.00</td>
<td>16.8</td>
<td>$991,905.00</td>
</tr>
<tr>
<td>Barry</td>
<td>2007</td>
<td>$15,533,970.00</td>
<td>208.3</td>
<td>$15,533,970.00</td>
</tr>
</tbody>
</table>

Preparing for Thanksgiving Table Talk

At each family gathering, your grandfather is fond of pointing out that when he was a boy a loaf of bread only cost $0.10. He decries the fact that the price of bread today is $2.50 and concludes that somehow “times are bad.” Now that you are used to thinking like an economist, how do you respond?

Use Your Clickers to Answer The Following Non-Graded Question.

Which of the following correctly explains to your grandfather why his conclusion about the quality of life is wrong?

A. The higher price of bread today is due to the higher quality of bread today.
B. Today, the US consumes a larger fraction of GDP than it did when grandfather was a boy.
C. Inflation makes it impossible to compare today’s bread price with the price 50 years ago.
D. Today, the ratio of the price of bread to the hourly wage is smaller than it was 50 years ago.
Why is Inflation Costly?

Inflation obscures the information transmitted by prices and reduces the efficiency of the market system. Inflation creates an incentive for agents to use less cash and bear more “shoe leather” costs. Inflation causes changes in real tax burdens when tax rates are not indexed. Inflation makes it difficult to make accurate long run plans.

Fischer et al. Found that in High Inflation Countries...

Real GDP per person fell by an average of 1.6% per year.
Real consumption per person fell by an average of 1.3% per year.
Real investment per person fell by an average of 3.3%

Why is Inflation Costly?

Fischer, Sahay, and Vegh examined 133 market economies for the years 1960-96. They found 45 episodes of high inflation (100% per year or more) in 25 countries.

If inflation comes as a surprise, then it...

Benefits employers at the expense of workers
Benefits debtors at the expense of creditors

The largest debtor in the U.S. is the U. S. government.
Review
Midterm Examination

Midterm Two

Statistics | Grade Thresholds
---|---
Mean | A- | B- | C | D | F
Median | 22.9 | 27 | 22 | 18 | 16 | <16
SD | 23 | 20% | 46% | 25% | 7% | 3%

What Have We Learned?

The General Level of Prices and Inflation
Currently, inflation appears to be a remote concern for the US economy. Economists measure the general level of prices as a weighted average of prices with different weights for the GDP deflator and the CPI.
Inflation is growth in the general level of prices.
Inflation is costly primarily because it makes it hard for people to plan their future.