



24

生活费用的衡量 Measuring the Cost of Living



生活费用的衡量

Measuring the Cost of Living

- **通货膨胀**描述经济的价格总水平上升的情形。 **Inflation** refers to a situation in which the economy's overall price level is rising.
- **通货膨胀率**是从上一个时期以来价格水平的百分比变化。

The **inflation rate** is the percentage change in the price level from the previous period.

- **消费者价格指数**的百分比变化衡量了通货膨胀率。

The percentage change in the **consumer price index** measures the



消费者价格指数

The Consumer Price Index

- 消费者价格指数（或译消费物价指数）（CPI）衡量一个普通消费者购买的物品和服务的总费用。

The **consumer price index (CPI)** is a measure of the overall cost of the goods and services bought by a typical consumer.

- 美国劳工统计局每月发布 CPI （中国：国家统计局）。

The **Bureau of Labor Statistics** reports the CPI each month.

- 它用来监测生活费用随时间的变化。

It is used to monitor changes in the cost of living over time.

如何计算消费者价格指数

How the Consumer Price Index Is Calculated

- **确定固定篮子：** 确定哪些物品的价格对普通消费者而言是最为重要的。

Fix the Basket: Determine what prices are most important to the typical consumer.

- 确认普通消费者购买的物品和服务的一个市场篮子。 The Bureau of Labor Statistics (BLS) identifies a market basket of goods and services the typical consumer buys.
- 进行消费者调查，以便为那些物品和服务的价格设定权重。

The BLS conducts consumer surveys to set the weights for the prices of those goods and services.

如何计算消费者价格指数

How the Consumer Price Index Is Calculated

- **寻找价格：**找到在每一时点、篮子中每一物品和服务的价格。

Find the Prices: Find the prices of each of the goods and services in the basket for each point in time.

如何计算消费者价格指数

How the Consumer Price Index Is Calculated

- **计算这一篮子（物品）的费用：**使用价格数据来计算不同时间这一篮子物品和服务的费用。

Compute the Basket's Cost:

Use the data on prices to calculate the cost of the basket of goods and services at different times.

如何计算消费者价格指数

How the Consumer Price Index Is Calculated

- **选择一个基年并计算指数**
Choose a Base Year and Compute the Index:

- 将某一年指定为基年，将其作为与其他各年比较的基准。

Designate one year as the base year, making it the benchmark against which other years are compared.

- 用某一年该篮子的价格除以其在基年的价格，再乘以 100，算得这一指数。

Compute the index by dividing the price of the basket in one year by the price in the base year and multiplying by 100.

如何计算消费者价格指数

How the Consumer Price Index Is Calculated

- **计算通货膨胀率：**通货膨胀率是从上一时期以来价格指数变化的百分比。
Compute the inflation rate: The **inflation rate** is the percentage change in the price index from the preceding period.



通货膨胀率

The Inflation Rate

通货膨胀率计算如下：

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

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

$$\text{第 2 年的通货膨胀率} = \frac{\text{第 2 年的 CPI} - \text{第 1 年的 CPI}}{\text{第 1 年的 CPI}} \times 100$$

计算消费者价格指数和通货膨胀率：一个例子

Calculating the Consumer Price Index and the Inflation Rate: An Example

第 1 步：调查消费者以确定一个固定的物品篮子

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

4 hot dogs, 2 hamburgers

4 个热狗， 2 个汉堡

计算消费者价格指数和通货膨胀率：一个例子

Calculating the Consumer Price Index and the Inflation Rate: An Example

第 2 步：找到每一年每种物品的价格

Step 2: Find the Price of Each Good in Each Year

年份 Year	Price of Hot dogs 热狗 价格	Price of Hamburgers 汉堡 价格
2001	\$1	\$2
2002	\$2	\$3
2003	\$3	\$4

计算消费者价格指数和通货膨胀率：一个例子

Calculating the Consumer Price Index and the Inflation Rate: An Example

第 3 步：计算每一年这一篮子物品的费用

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

2001	$(\$1 \text{ per hot dog} \times 4 \text{ hot dogs}) + (\$2 \text{ per hamburger} \times 2 \text{ hamburgers}) = \textbf{\$8}$
2002	$(\$2 \text{ per hot dog} \times 4 \text{ hot dogs}) + (\$3 \text{ per hamburger} \times 2 \text{ hamburgers}) = \textbf{\$14}$
2003	$(\$3 \text{ per hot dog} \times 4 \text{ hot dogs}) + (\$4 \text{ per hamburger} \times 2 \text{ hamburgers}) = \textbf{\$20}$

热狗

汉堡

计算消费者价格指数和通货膨胀率：一个例子

Calculating the Consumer Price Index and the Inflation Rate: An Example

第 4 步：选择一年作为基年（2001）

并计算各年的消费者价格指数

Step 4: Choose One Year as the Base Year (2001) and Compute the Consumer Price Index in Each Year

2001	$(\$8/\$8) \times 100 = \mathbf{100}$
2002	$(\$14/\$8) \times 100 = \mathbf{175}$
2003	$(\$20/\$8) \times 100 = \mathbf{250}$

计算消费者价格指数和通货膨胀率：一个例子

Calculating the Consumer Price Index and the Inflation Rate: An Example

第 5 步：使用消费者价格指数来计算相对上一年的通货膨胀率
Step 5: Use the Consumer Price Index to Compute the Inflation Rate from Previous Year

2002	$(175-100)/100 \times 100 = \mathbf{75\%}$
2003	$(250-175)/175 \times 100 = \mathbf{43\%}$



其他价格指数

Other Price Indexes

- 其他的价格指数

The BLS calculates other prices indexes:

- 一国内不同地域的指数

The index for different regions within the country.

- 某些物品和服务的分类指数

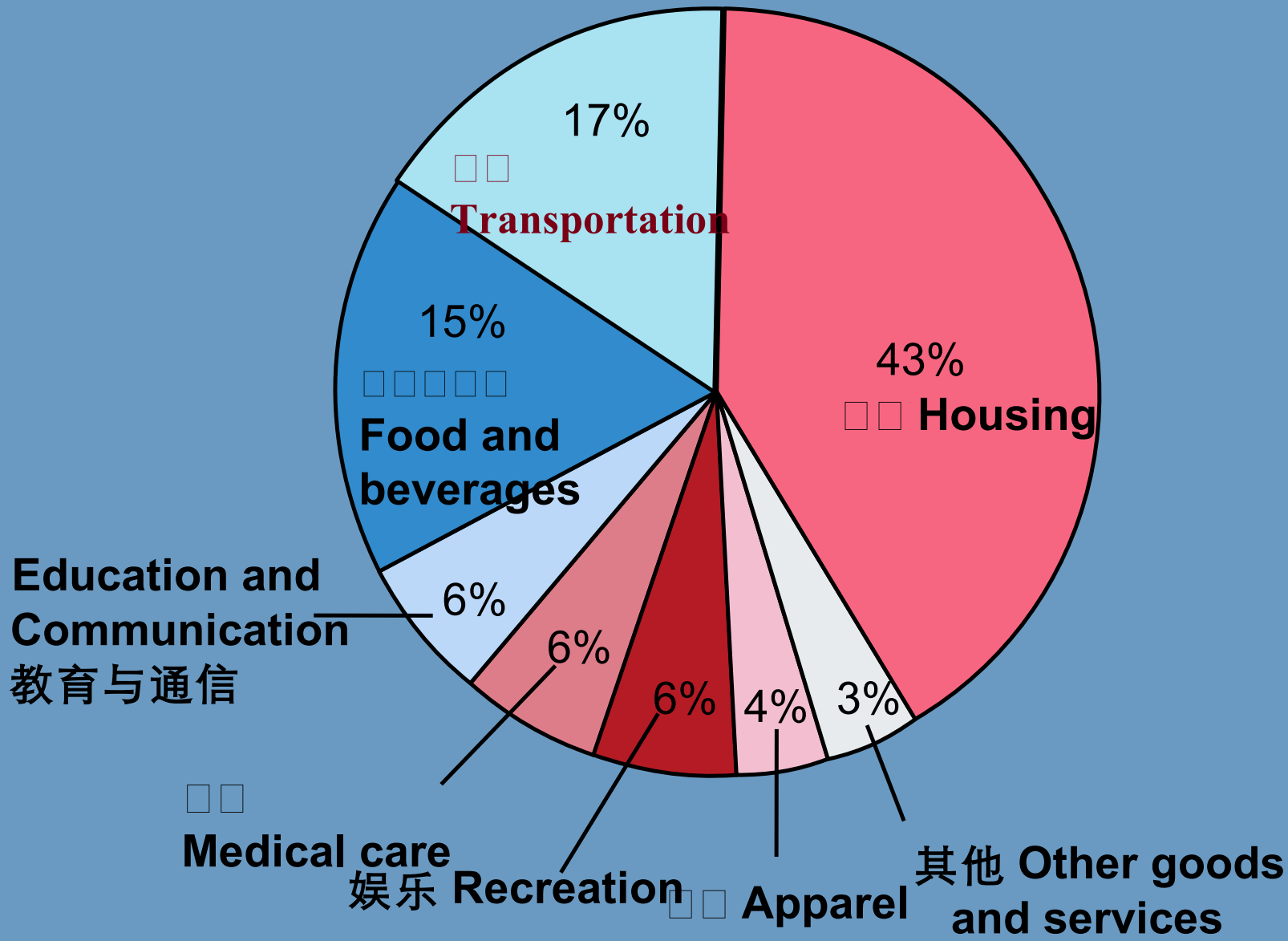
The index for some narrow categories of goods and services

- 生产者价格指数（PPI），衡量企业而非消费者购买一篮子物品和服务的费用

The producer price index (PPI), which measures the cost of a basket of goods and services bought by firms rather than consumers.

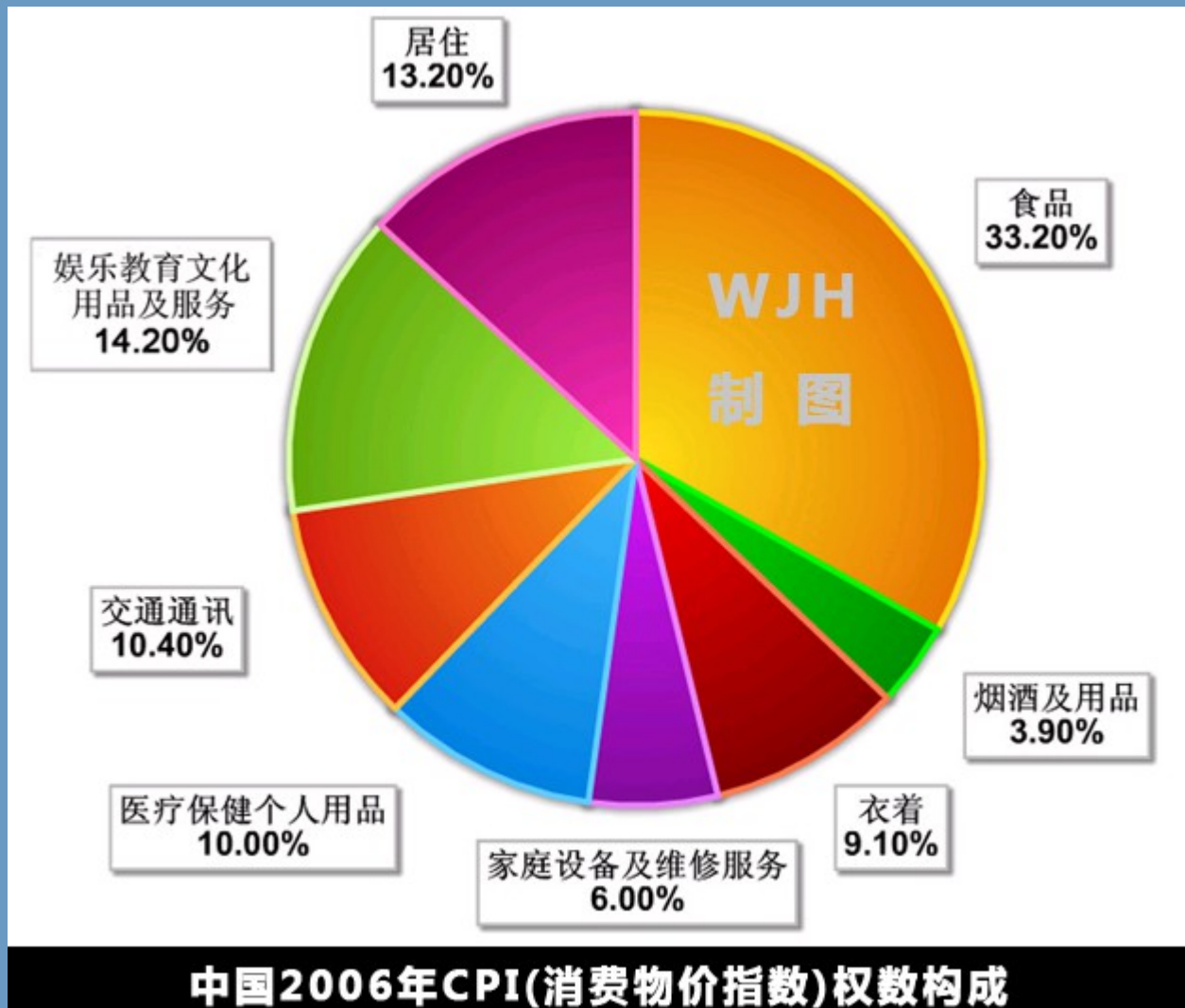
CPI 的篮子里是什么：美国

What's in the CPI's Basket?



CPI 的篮子里是什么：中国

What's in the CPI's Basket?





生活费用衡量中的问题

Problems in Measuring The Cost of Living

CPI 试图衡量，为了维持不变的生活水平，收入（或支出）必须增加多少

The consumer price index tries to gauge how much incomes (or expenditures) must rise *to maintain a constant standard of living.*



生活费用衡量中的问题

Problems in Measuring The Cost of Living

CPI 是对构成典型消费组合的选定物品（费用）的准确衡量，但不是生活费用的完美衡量指标。

**The
CPI is an accurate measure of the
selected goods that make up the typical
bundle, but it is not a perfect measure
of the cost of living.**



生活费用衡量中的问题

Problems in Measuring The Cost of Living

- **替代偏差 Substitution bias**
- **新物品的引入 Introduction of new goods**
- **无法衡量的质量变动
Unmeasured quality changes**

替代偏差

Substitution Bias

- 篮子未能调整以反映消费者对相对价格变动所作出的反应。

The basket does not change to reflect consumer reaction to changes in relative prices.

- 消费者用变得相对便宜的物品来替换固定篮子中的物品。

Consumers substitute toward goods that have become relatively less expensive.

- 本指数未考虑消费者替代，从而高估了生活费用的增加。

The index overstates the increase in cost of living by not considering consumer substitution.

新物品的引入

Introduction of New Goods

- 该篮子未能反映新物品引入导致的购买力的变动。

The basket does not reflect the change in purchasing power brought on by the introduction of new products.

- 新物品使得（消费）更加多样化，从而使得每一美元更有价值。

New products result in greater variety, which in turn makes each dollar more valuable.

- 消费者只需更少的美金，就能维持既定的生活水平 Consumers need fewer dollars to maintain any given standard of living.

无法衡量的质量变动

Unmeasured Quality Changes

- 如果一种物品的质量逐年上升，即使物品的价格保持不变，一美元的价值也上升了。
If the quality of a good rises from one year to the next, the value of a dollar rises, even if the price of the good stays the same.
- 如果一种物品的质量逐年下降，即使物品的价格保持不变，一美元的价值也下降了。
If the quality of a good falls from one year to the next, the value of a dollar falls, even if the price of the good stays the same.

无法衡量的质量变动

Unmeasured Quality Changes

BLS 试图调整价格以反映不变质量，但此类差别难以衡量。

The BLS tries to adjust the price for constant quality, but such differences are hard to measure.

生活费用衡量中的问题

Problems in Measuring the Cost of Living

- **替代偏差，新物品的引入和无法衡量的质量变动（提高）导致 CPI 高估了真实的生活费用。**

The substitution bias, introduction of new goods, and unmeasured quality changes (improvements) cause the CPI to overstate the true cost of living.

- **这一问题相当重要，因为许多的政府计划使用 CPI 来对价格总水平的变动作出调整。**

The issue is important because many government programs use the CPI to adjust for changes in the overall level of prices.

- **CPI 高估了通货膨胀，大约是每年一个百分点。**

The CPI overstates inflation by about 1 percentage point per year.



GDP 平减指数与消费者价格指数

The GDP Deflator versus the Consumer Price Index

GDP 平减指数计算如下：

The GDP deflator is calculated as follows:

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

GDP 平减指数与消费者价格指数

The GDP Deflator versus the Consumer Price Index

- **GDP 平减指数**反映国内生产的所有物品和服务的价格。

The **GDP deflator** reflects the prices of all goods and services produced domestically, whereas...

- ... **消费者价格指数**反映消费者购买的所有物品和服务的价格。

The **consumer price index** reflects the prices of all goods and services bought by consumers.

GDP 平减指数与消费者价格指数

The GDP Deflator versus the Consumer Price Index

- **消费者价格指数** 比较固定篮子的基年价格和（当期）价格（BLS 只是偶尔改变篮子）。

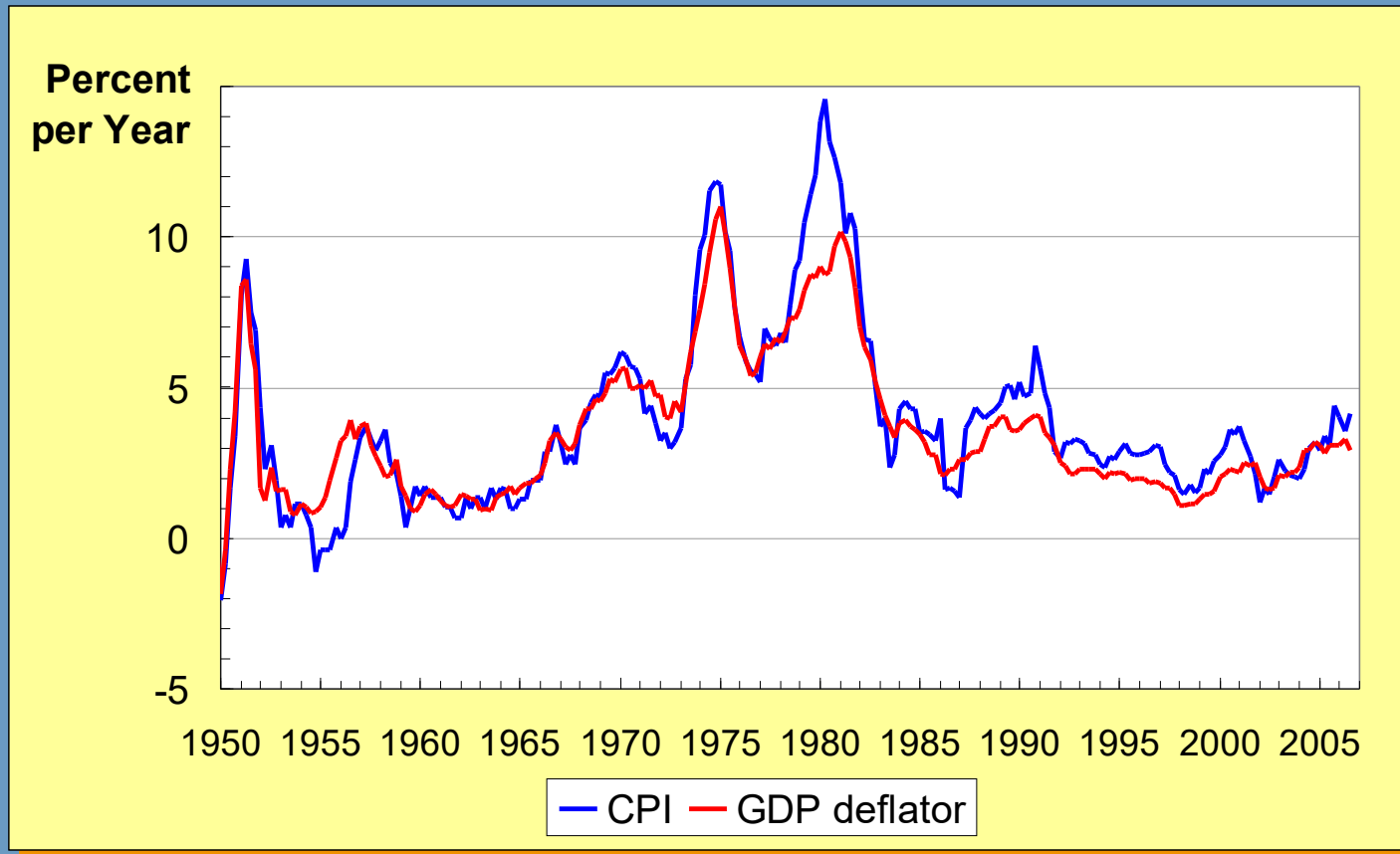
The **consumer price index** compares the price of a *fixed basket* of goods and services to the price of the basket in the base year (only occasionally does the BLS change the basket)...

- ... 但 **GDP 平减指数** 比较当期生产的物品和服务与基年同样的物品和服务的价格。

... whereas the **GDP deflator** compares the price of *currently produced* goods and services to the price of the same goods and services in the base year.

通货膨胀的两种衡量方法

Two Measures of Inflation





不同时间的美元数字 Dollar Figures from Different Times

**在比较不同时间的美元数字时，
用价格指数来校正通货膨胀的影响
Price indexes are used to correct
for the effects of inflation when
comparing dollar figures from
different times.**

不同时间的美元数字

Dollar Figures

from Different Times

- 用以下方法将第 T 年的美元价值转换为今天的美元价值。

Do the following to convert dollar values from year T into today's dollars:

$$\text{Amount in today's dollars} = \text{Amount in year T's dollars} \left[\frac{\text{Price level today}}{\text{Price level in year T}} \right]$$

今日美元数 = 第 T 年美元数 × (今天价格水平 / 第 T 年价格水平)

不同时间的美元数字

Dollar Figures from Different Times

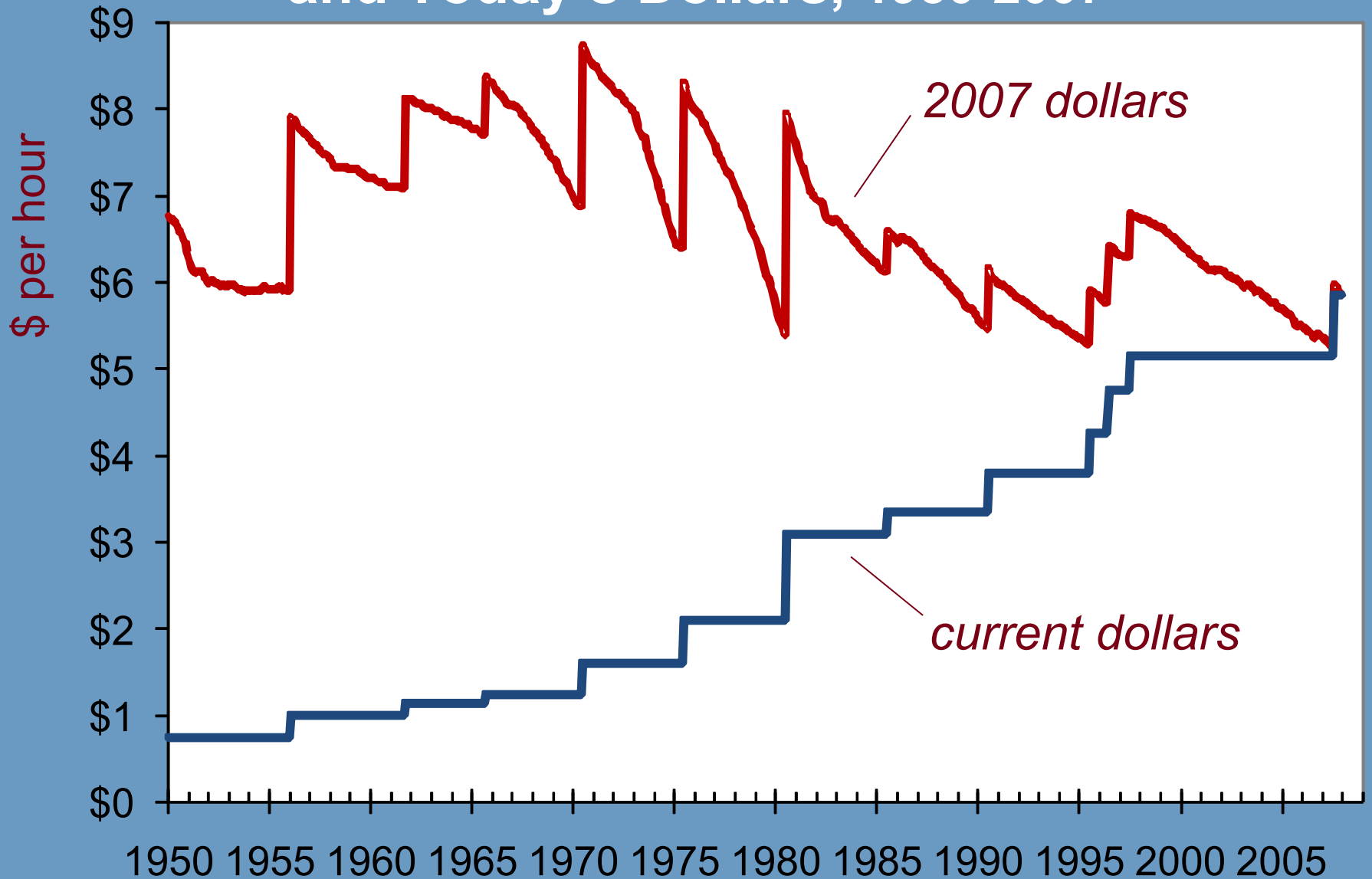
- 按如下方法将棒球明星贝比·卢斯的工资从 1931 年美元转换（膨胀）成 2007 年美元。

**Do the following
to convert (inflate) the baseball player Babe Ruth's
wages in 1931 to dollars in 1995:**

$$\begin{aligned}\text{Salary in 2007 dollars} &= \text{Salary in 1931 dollars} \times \\ &\quad \text{Price level in 2007} / \text{Price level in 1931} \\ &= \$80,000 \times 207/15.2 \\ &= \$1,089,474\end{aligned}$$

美国的最低工资

The U.S. Minimum Wage in Current Dollars and Today's Dollars, 1950-2007



所有时期的最卖座电影（通货膨胀调整后） The Most Popular Movies of All Time, Inflation Adjusted

DOMESTIC GROSSES Adjusted for Ticket Price Inflation*

Note: This chart only shows the top 200 movies, regardless of sorting.

Rank	Title (click to view)	Studio	Adjusted Gross	Unadjusted Gross	Year^
1	Gone with the Wind	MGM	\$1,582,009,400	\$198,676,459	1939^
2	Star Wars	Fox	\$1,394,676,400	\$460,998,007	1977^
3	The Sound of Music	Fox	\$1,115,112,400	\$158,671,368	1965
4	E.T.: The Extra-Terrestrial	Uni.	\$1,110,719,400	\$435,110,554	1982^
5	The Ten Commandments	Par.	\$1,025,730,000	\$65,500,000	1956
6	Titanic	Par.	\$1,004,948,300	\$600,788,188	1997^
7	Jaws	Uni.	\$1,002,857,100	\$260,000,000	1975
8	Doctor Zhivago	MGM	\$971,980,600	\$111,721,910	1965
9	The Exorcist	WB	\$865,991,500	\$232,906,145	1973^
10	Snow White and the Seven Dwarfs	Dis.	\$853,470,000	\$184,925,486	1937^
11	101 Dalmatians	Dis.	\$782,352,100	\$144,880,014	1961^
12	The Empire Strikes Back	Fox	\$768,754,400	\$290,475,067	1980^
13	Ben-Hur	MGM	\$767,340,000	\$74,000,000	1959
14	Avatar	Fox	\$761,508,800	\$760,507,625	2009^
15	Return of the Jedi	Fox	\$736,485,200	\$309,306,177	1983^

资料来源: <http://boxofficemojo.com/alltime/adjusted.htm>. Adjusted to the estimated 2012 average ticket price of \$7.83. Inflation-adjustment is mostly done by multiplying estimated admissions by the latest average ticket price. Where admissions are unavailable, adjustment is based on the average ticket price for when each movie was released (taking in to account re-releases where applicable).



指数化 Indexation

某些美元数量依据法律或合同对通货膨胀进行自动调整，就称这一数量被通货膨胀指数化。

When some dollar amount is automatically corrected for inflation by law or contract the amount is said to be indexed for inflation.

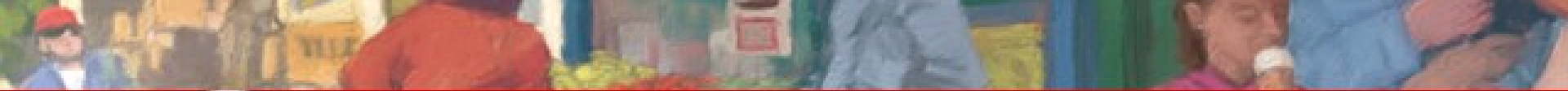


实际和名义利率

Real and Nominal Interest Rates

利率代表用过去的钱换取的
未来的相应回报。

**Interest
represents a payment in the
future for a transfer of money
in the past.**



实际和名义利率

Real and Nominal Interest Rates

- **名义利率**是未经通货膨胀校正的利率。
The **nominal interest rate** is the interest rate not corrected for inflation.
 - 它就是银行支付的利率
It is the interest rate that a bank pays.
- **实际利率**是经过通货膨胀校正的名义利率。
The **real interest rate** is the nominal interest rate that is corrected for inflation.

$$\text{Real interest rate} = (\text{Nominal interest rate} - \text{Inflation rate})$$

$$\text{实际利率} = \text{名义利率} - \text{通胀率}$$

实际和名义利率

Real and Nominal Interest Rates

- 你借了一年期的 1,000 美元。
You borrowed \$1,000 for one year.
- 名义利率是 15 %。
Nominal interest rate was 15%.
- 在这一年中通货膨胀率为 10 %。
During the year inflation was 10%.

实际利率 Real interest rate

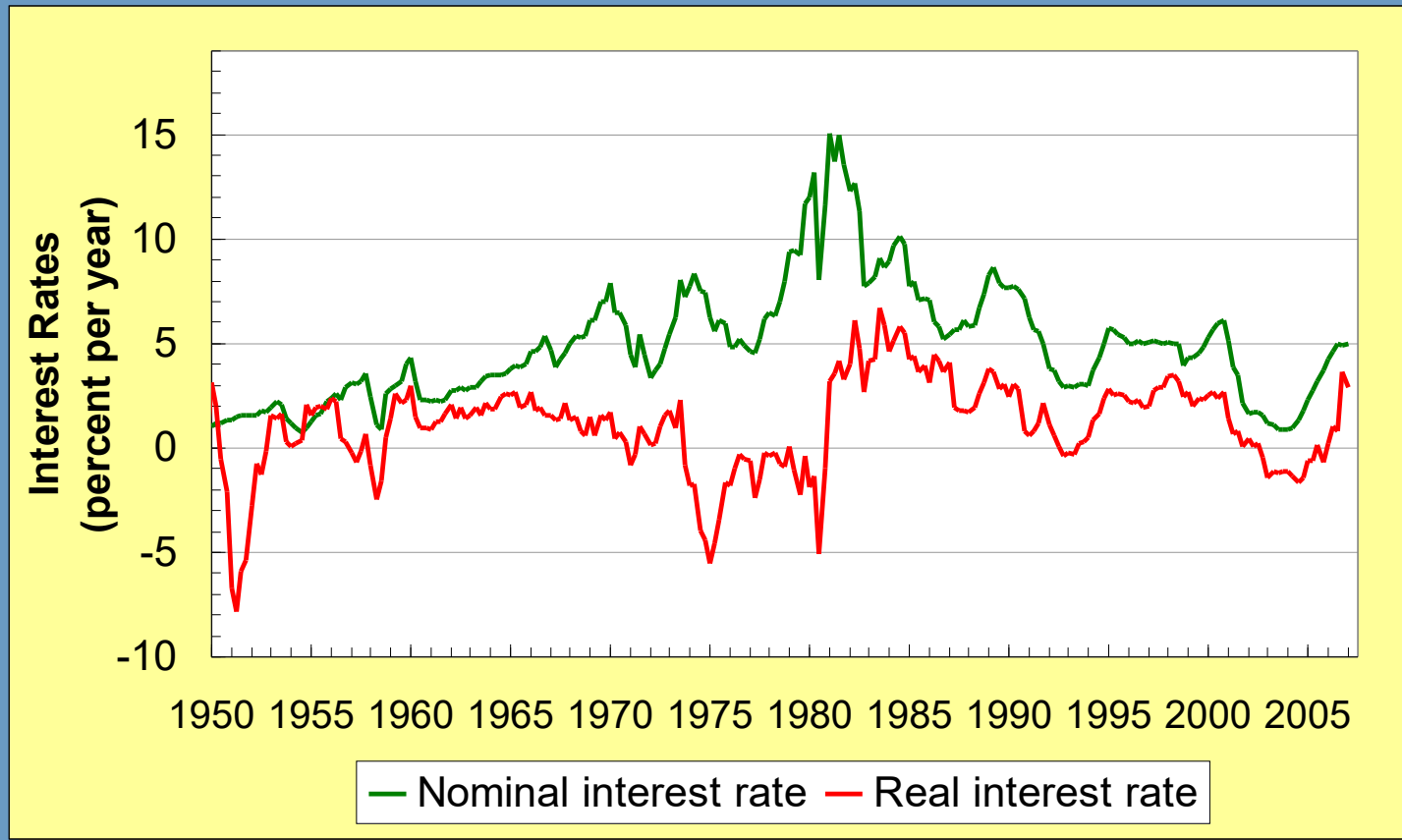
= 名义利率 Nominal interest rate – 通货膨胀率

Inflation

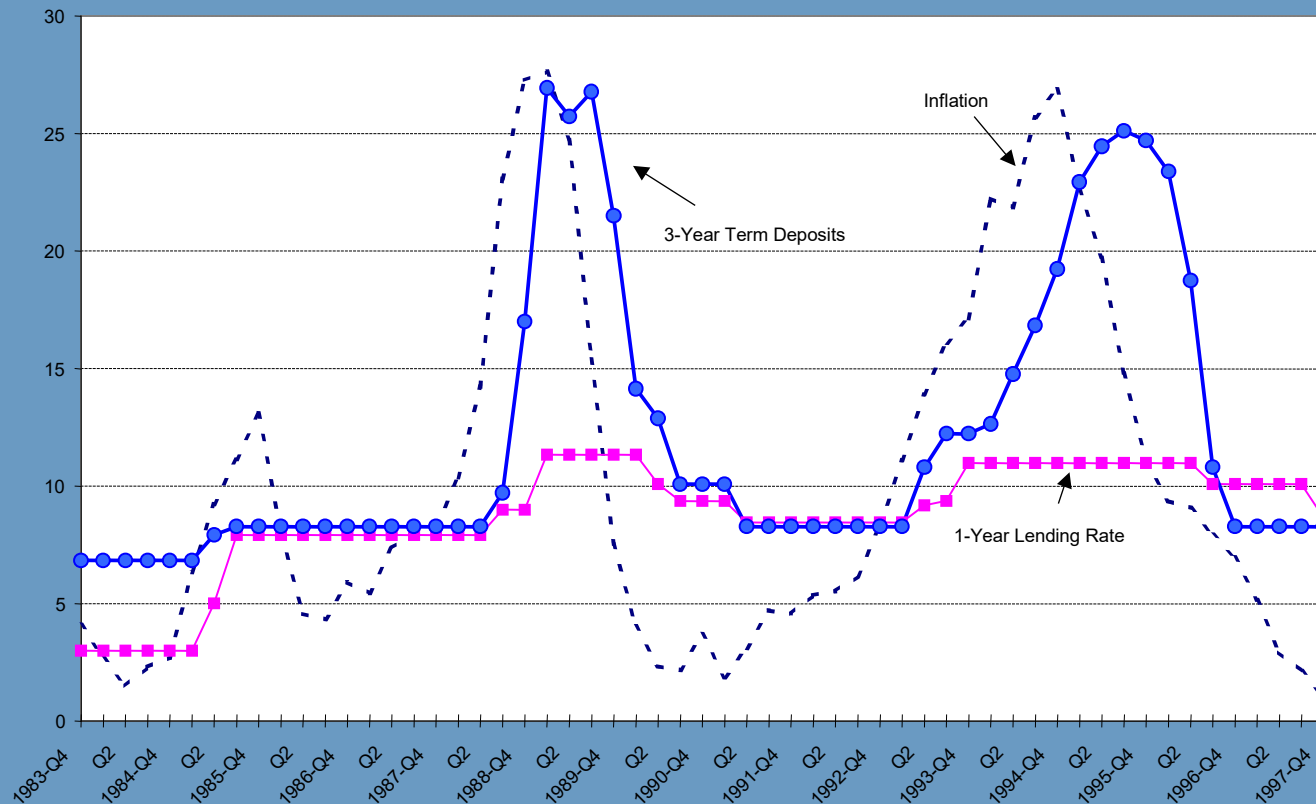
= 15% - 10% = 5%

实际和名义利率

Real and Nominal Interest Rates



中国的“保值储蓄” (1988-90;1992-94)





总结 Summary

- 消费者价格指数表示一篮子物品和服务相对于基年同一篮子的费用。

The consumer price index shows the cost of a basket of goods and services relative to the cost of the same basket in the base year.

- 该指数被用来衡量经济中价格总水平。

The index is used to measure the overall level of prices in the economy.

- CPI 的百分比变动衡量通货膨胀率。

The percentage change in the CPI measures the inflation rate.



总结 Summary

- 消费者价格指数是生活费用不完美的衡量指标，原因有三：替代偏差，新物品的引入和无法衡量的质量变动。

The consumer price index is an imperfect measure of the cost of living for the following three reasons: substitution bias, the introduction of new goods, and unmeasured changes in quality.

- 由于衡量问题，CPI 对年度通货膨胀高估约 1 个百分点。

Because of measurement problems, the CPI overstates annual inflation by about 1 percentage point.



总结 Summary

- **GDP 平减指数不同于 CPI，因为它包括所有生产的物品和服务，而非消费的物品和服务。 The GDP deflator differs from the CPI because it includes goods and services produced rather than goods and services consumed.**
- **此外，CPI 使用物品的固定篮子，而 GDP 平减指数随着 GDP 构成的变动自动调整物品和服务的组合。**

In addition, the CPI uses a fixed basket of goods, while the GDP deflator automatically changes the group of goods and services over time as the composition of GDP changes.



总结 Summary

- 不同时间点的美元数字并不能有效地代表购买力的比较。

Dollar figures from different points in time do not represent a valid comparison of purchasing power.

- 不同的法律和私人合同使用价格指数来校正通货膨胀效应。

Various laws and private contracts use price indexes to correct for the effects of inflation.

- 实际利率等于名义利率减去通货膨胀率。
The real interest rate equals the nominal interest rate minus the rate of inflation.