

Ex: Calculate the inflation rate from 1989 to 2003

Solution:

$$IR = \frac{CPI_{2003} - CPI_{1989}}{CPI_{1989}} = \frac{184 - 124}{124} \approx .48$$

which is 48%

How do we adjust prices for inflation?

Given the cost in USD for year X, the same price/cost in USD for year Y is given by:

$$\text{Price in Year Y} = (\text{Price in year X}) \times \frac{CPI_Y}{CPI_X}$$

Ex: Suppose in 2005 you had a salary of 50,000 USD. How much is this in 1985 USD?

Solution:

$$\begin{aligned} \text{price in 1985} &= (\text{Price in 2005}) \times \frac{CPI_{1985}}{CPI_{2005}} \\ &= 50,000 \text{ USD}_{2005} \times \frac{107.6}{195.3} \approx \\ &27,500 \text{ USD}_{1985} \end{aligned}$$

### §3E Deception With Numbers

Simpson's Paradox. How you divide sets into groups can influence the results of analysis on those sets.

This is best illustrated with examples:

### Ex: Batting Averages

	Hits	At-bats	Average	
Josh	50	150	.333	First Half
Jude	10	50	.200	

	Hits	At-bats	Average	
Josh	35	70	.500	Second Half
Jude	70	150	.467	

Who had the highest first-half average?

Josh

Who had the highest second-half average?

Josh

Who had the highest overall batting average?

Solution: Josh had  $50 + 35 = 85$  hits

Josh batted  $150 + 70 = 220$  at-bats

His average:  $\frac{85}{220} = .39 = 39\%$

Jude had  $70 + 10 = 80$  hits

Jude batted  $150 + 50 = 200$  at-bats

His average:  $\frac{80}{200} = 40\%$

So, Jude has the best overall batting average.