

Chapter 1

Preliminaries

■ Questions for Review

1. **It is often said that a good theory is one that can be refuted by an empirical, data-oriented study. Explain why a theory that cannot be evaluated empirically is not a good theory.**

A theory is useful only if it succeeds in explaining and predicting the phenomena it was intended to explain. If a theory cannot be evaluated or tested by comparing its predictions to known facts and data, then we have no idea whether the theory is valid. If we cannot validate the theory, we cannot have any confidence in its predictions, and it is of little use.

2. **Which of the following two statements involves positive economic analysis and which normative? How do the two kinds of analysis differ?**

- a. **Gasoline rationing (allocating to each individual a maximum amount of gasoline that can be purchased each year) is poor social policy because it interferes with the workings of the competitive market system.**

Positive economic analysis is concerned with explaining *what is* and predicting *what will be*. Normative economic analysis describes *what ought to be*. Statement (a) is primarily normative because it makes the normative assertion (i.e., a value judgment) that gasoline rationing is “poor social policy.” There is also a positive element to statement (a), because it claims that gasoline rationing “interferes with the workings of the competitive market system.” This is a prediction that a constraint placed on demand will change the market equilibrium.

- b. **Gasoline rationing is a policy under which more people are made worse off than are made better off.**

Statement (b) is positive because it predicts how gasoline rationing affects people without making a value judgment about the desirability of the rationing policy.

3. **Suppose the price of regular-octane gasoline were 20 cents per gallon higher in New Jersey than in Oklahoma. Do you think there would be an opportunity for arbitrage (i.e., that firms could buy gas in Oklahoma and then sell it at a profit in New Jersey)? Why or why not?**

Oklahoma and New Jersey represent separate geographic markets for gasoline because of high transportation costs. There would be an opportunity for arbitrage if transportation costs were less than 20 cents per gallon. Then arbitrageurs could make a profit by purchasing gasoline in Oklahoma, paying to transport it to New Jersey and selling it in New Jersey. If the transportation costs were 20 cents or higher, however, no arbitrage would take place.

4. **In Example 1.3, what economic forces explain why the real price of eggs has fallen while the real price of a college education has increased? How have these changes affected consumer choices?**

The price and quantity of goods (e.g., eggs) and services (e.g., a college education) are determined by the interaction of supply and demand. The real price of eggs fell from 1970 to 2010 because of either a reduction in demand (e.g., consumers switched to lower-cholesterol food), an increase in supply due perhaps to a reduction in production costs (e.g., improvements in egg production technology), or both. In response, the price of eggs relative to other foods decreased. The real price of a college education rose because of either an increase in demand (e.g., the perceived value of a college education increased, population increased, etc.), a decrease in supply due to an increase in the cost of education (e.g., increase in faculty and staff salaries), or both.

- 5. Suppose that the Japanese yen rises against the U.S. dollar—that is, it will take more dollars to buy a given amount of Japanese yen. Explain why this increase simultaneously increases the real price of Japanese cars for U.S. consumers and lowers the real price of U.S. automobiles for Japanese consumers.**

As the value of the yen grows relative to the dollar, it takes more dollars to purchase a yen, and it takes fewer yen to purchase a dollar. Assume that the costs of production for both Japanese and U.S. automobiles remain unchanged. Then using the new exchange rate, the purchase of a Japanese automobile priced in yen requires more dollars, so for U.S. consumers the real price of Japanese cars in dollars increases. Similarly, the purchase of a U.S. automobile priced in dollars requires fewer yen, and thus for Japanese consumers the real price of a U.S. automobile in yen decreases.

- 6. The price of long-distance telephone service fell from 40 cents per minute in 1996 to 22 cents per minute in 1999, a 45% (18 cents/40 cents) decrease. The Consumer Price Index increased by 10% over this period. What happened to the real price of telephone service?**

Let the *CPI* for 1996 equal 100 and the *CPI* for 1999 equal 110, which reflects a 10% increase in the overall price level. Now let's find the real price of telephone service (in 1996 dollars) in each year. The real price in 1996 is 40 cents. To find the real price in 1999, divide CPI_{1996} by CPI_{1999} and multiply the result by the nominal price in 1999. The result is $(100/110) \times 22 = 20$ cents. The real price therefore fell from 40 to 20 cents, a 50% decline.

■ Exercises

- 1. Decide whether each of the following statements is true or false and explain why:**
- a. Fast food chains like McDonald's, Burger King, and Wendy's operate all over the United States. Therefore the market for fast food is a national market.**

This statement is false. People generally buy fast food locally and do not travel large distances across the United States just to buy a cheaper fast food meal. Because there is little potential for arbitrage between fast food restaurants that are located some distance from each other, there are likely to be multiple fast food markets across the country.

- b. People generally buy clothing in the city in which they live. Therefore there is a clothing market in, say, Atlanta that is distinct from the clothing market in Los Angeles.**

This statement is false. Although consumers are unlikely to travel across the country to buy clothing, they can purchase many items online. In this way, clothing retailers in different cities compete with each other and with online stores such as L.L. Bean. Also, suppliers can easily move clothing from one part of the country to another. Thus, if clothing is more expensive in Atlanta than Los Angeles, clothing companies can shift supplies to Atlanta, which would reduce the price in Atlanta. Occasionally, there may be a market for a specific clothing item in a faraway

market that results in a great opportunity for arbitrage, such as the market for blue jeans in the old Soviet Union.

- c. **Some consumers strongly prefer Pepsi and some strongly prefer Coke. Therefore there is no single market for colas.**

This statement is false. Although some people have strong preferences for a particular brand of cola, the different brands are similar enough that they constitute one market. There are consumers who do not have strong preferences for one type of cola, and there are consumers who may have a preference, but who will also be influenced by price. Given these possibilities, the price of cola drinks will not tend to differ by very much, particularly for Coke and Pepsi.

2. **The following table shows the average retail price of butter and the Consumer Price Index from 1980 to 2010, scaled so that the $CPI = 100$ in 1980.**

	1980	1990	2000	2010
<i>CPI</i>	100	158.56	208.98	218.06
Retail price of butter (salted, grade AA, per lb.)	\$1.88	\$1.99	\$2.52	\$2.88

- a. **Calculate the real price of butter in 1980 dollars. Has the real price increased/decreased/stayed the same from 1980 to 2000? From 1980 to 2010?**

$$\text{Real price of butter in year } t = \frac{CPI_{1980}}{CPI_t} \times \text{nominal price of butter in year } t.$$

	1980	1990	2000	2010
Real price of butter (1980 \$)	\$1.88	\$1.26	\$1.21	\$1.32

The real price of butter decreased from \$1.88 in 1980 to \$1.21 in 2000, and it increased from \$1.88 in 1980 to \$1.32 in 2010, although it did increase between 2000 and 2010.

- b. **What is the percentage change in the real price (1980 dollars) from 1980 to 2000? From 1980 to 2010?**

Real price decreased by \$0.67 ($1.88 - 1.21 = 0.67$) between 1980 and 2000. The percentage change in real price from 1980 to 2000 was therefore $(-0.67/1.88) \times 100\% = -35.6\%$. The decrease was \$0.56 between 1980 and 2000 which, in percentage terms, is $(-0.56/1.88) \times 100\% = -29.8\%$.

- c. **Convert the CPI into 1990 = 100 and determine the real price of butter in 1990 dollars.**

To convert the CPI into 1990 = 100, divide the CPI for each year by the CPI for 1990 and multiply that result by 100. Use the formula from part a and the new CPI numbers below to find the real price of milk in 1990 dollars.

	1980	1990	2000	2010
New CPI	63.07	100	131.80	137.53
Real price of butter (1990 \$)	\$2.98	\$1.99	\$1.91	\$2.09

- d. **What is the percentage change in the real price (1990 dollars) from 1980 to 2000? Compare this with your answer in (b). What do you notice? Explain.**

Real price decreased by \$1.07 ($2.98 - 1.91 = 1.07$). The percentage change in real price from 1980 to 2000 was therefore $(-1.07/2.98) \times 100\% = -35.9\%$. This answer is the same (except for rounding error) as in part b. It does not matter which year is chosen as the base year when calculating percentage changes in real prices.

- 3. At the time this book went to print, the minimum wage was \$7.25. To find the current value of the CPI, go to <http://www.bls.gov/CPI/home.htm>. Click on “CPI Tables,” which is found on the left side of the web page. Then, click on “Table Containing History of CPI-U U.S. All Items Indexes and Annual Percent Changes from 1913 to Present.” This will give you the CPI from 1913 to the present.**

- a. With these values, calculate the current real minimum wage in 1990 dollars.**

The last year of data available when these answers were prepared was 2010. Thus, all calculations are as of 2010. You should update these values for the current year.

$$\text{Real minimum wage in 2010} = \frac{CPI_{1990}}{CPI_{2010}} \times \text{minimum wage in 2010} = \frac{130.7}{218.056} \times \$7.25 = \$4.35.$$

So, as of 2010, the real minimum wage in 1990 dollars was \$4.35.

- b. Stated in real 1990 dollars, what is the percentage change in the real minimum wage from 1985 to the present?**

The minimum wage in 1985 was \$3.35. You can get a complete listing of historical minimum wage rates from the Department of Labor, Wage and Hour Division at <http://www.dol.gov/whd/minwage/chart.htm>.

$$\text{Real minimum wage in 1985} = \frac{CPI_{1990}}{CPI_{1985}} \times \$3.35 = \frac{130.7}{107.6} \times \$3.35 = \$4.07.$$

The real minimum wage therefore increased slightly from \$4.07 in 1985 to \$4.35 in 2010 (all in 1990 dollars). This was an increase of $\$4.35 - 4.07 = \0.28 , so the percentage change was $(0.28/4.07) \times 100\% = 6.88\%$.