**Answers to Textbook Questions and Problems**

**CHAPTER 1 The Science of Macroeconomics**

**Questions for Review**

1. *Microeconomics* is the study of how individual firms and households make decisions, and how they interact with one another. Microeconomic models of firms and households are based on principles of optimization—firms and households do the best they can given the constraints they face. For example, households choose which goods to purchase in order to maximize their utility, whereas firms decide how much to produce in order to maximize profits. In contrast, *macroeconomics* is the study of the economy as a whole; it focuses on issues such as how total output, total employment, and the overall price level are determined. These economy-wide variables are based on the interaction of many households and many firms; therefore, microeconomics forms the basis for macroeconomics.

2. Economists build models as a means of summarizing the relationships among economic variables. Models are useful because they abstract from the many details in the economy and allow one to focus on the most important economic connections.

3. A market-clearing model is one in which prices adjust to equilibrate supply and demand. Market-clearing models are useful in situations where prices are flexible. Yet in many situations, flexible prices may not be a realistic assumption. For example, labor contracts often set wages for up to three years. Or, firms such as magazine publishers change their prices only every three to four years. Most macroeconomists believe that price flexibility is a reasonable assumption for studying long-run issues. Over the long run, prices respond to changes in demand or supply, even though in the short run they may be slow to adjust.

**Problems and Applications**

1. Monetary policy in the United States and the European Union has been a big topic of conversation in early 2015. The EU embarked upon a quantitative easing policy in March 2015 in an attempt to stimulate growth and prevent deflation. There has been some concern that the inflation rate in Europe will turn negative. In the United States, there is continued discussion and speculation concerning when the Federal Reserve might choose to increase the target federal funds rate. Also in the United States, the unemployment rate has declined to about 5.5 percent and this suggests that wages may begin to increase. The Federal Reserve will be watching for wage and price increases as they decide when to increase interest rates.

2. Many philosophers of science believe that the defining characteristic of a science is the use of the scientific method of inquiry to establish stable relationships. Scientists examine data, often provided by controlled experiments, to support or disprove a hypothesis. Economists are more limited in their use of experiments. They cannot conduct controlled experiments on the economy; they must rely on the natural course of developments in the economy to collect data. To the extent that economists use the scientific method of inquiry, that is, developing hypotheses and testing them, economics has the characteristics of a science.

3. We can use a simple variant of the supply-and-demand model for pizza to answer this question. Assume that the quantity of ice cream demanded depends not only on the price of ice cream and income, but also on the price of frozen yogurt:

 *Q*d = *D*(*P*IC, *P*FY, *Y*).

We expect that demand for ice cream rises when the price of frozen yogurt rises, because ice cream and frozen yogurt are substitutes. That is, when the price of frozen yogurt goes up, I consume less of it and, instead, fulfill more of my frozen dessert urges through the consumption of ice cream.

 The next part of the model is the supply function for ice cream, *Q*s = *S*(*P*IC). Finally, in equilibrium, supply must equal demand, so that *Q*s = *Q*d. *Y* and *P*FY are the exogenous variables, and *Q* and *P*IC are the endogenous variables. Figure 1-1 uses this model to show that a fall in the price of frozen yogurt results in an inward shift of the demand curve for ice cream. The new equilibrium has a lower price and quantity of ice cream.



4. The price of haircuts changes rather infrequently. From casual observation, hairstylists tend to charge the same price over a one- or two-year period irrespective of the demand for haircuts or the supply of cutters. A market-clearing model for analyzing the market for haircuts has the unrealistic assumption of flexible prices. Such an assumption is unrealistic in the short run when we observe that prices are inflexible. Over the long run, however, the price of haircuts does tend to adjust; a market-clearing model is therefore appropriate.