

Chapter 2: Thinking Like an Economist

Chapter Objectives

Little Picture: exploring two basic economic models and some fundamentals of economic thinking before examining the scientific side of economics.

Big Picture: learning the scientific aspects of economics toward building a better understanding of microeconomics, i.e., what forces determine individual and household economic decisions and what forces determine the price of a good or service.

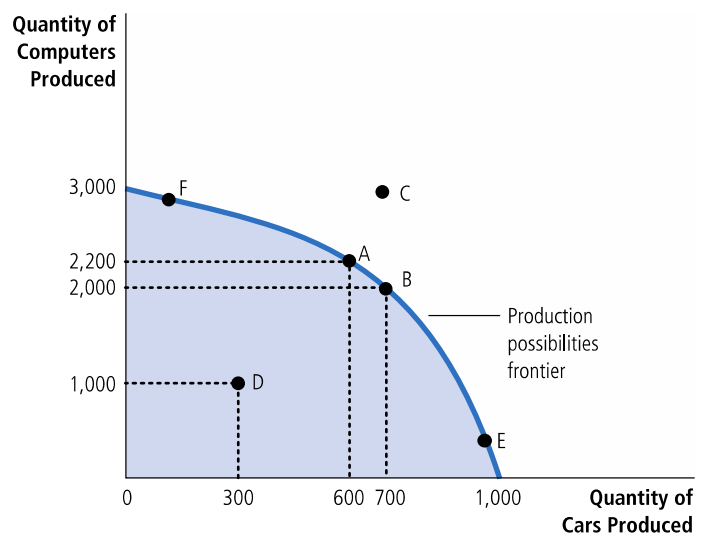
This chapter emphasizes the scientific aspects of economics. It explores the standards that must be met to make a discipline a science and how economics attempts to satisfy those standards. Once economics is established as a science, models (graphical and mathematical simplifications of the real world) are discussed. Mankiw discusses two models in the first section of this chapter, the **circular-flow diagram** and the **production possibilities frontier (PPF)**. Although he presents them as graphical models, they can be mathematically represented as well by equations.

The circular-flow diagram is pretty intuitive and doesn't need much elaboration. The production-possibilities frontier (PPF) is more important and less intuitive. Let's try to improve your understanding of it by seeing a slightly different version of it than Mankiw provides (since you've already read his version).

FIGURE 2

The Production Possibilities Frontier

The production possibilities frontier shows the combinations of output—in this case, cars and computers—that the economy can possibly produce. The economy can produce any combination on or inside the frontier. Points outside the frontier are not feasible given the economy's resources. The slope of the production possibilities frontier measures the opportunity cost of a car in terms of computers. This opportunity cost varies, depending on how much of the two goods the economy is producing.



The first thing to understand about the PPF is what the bowed dark-blue curve running through points F, A, B, and E represents. It is the maximum efficient production of an economy for two goods. The second thing to understand is what this implies for the different points on or around the frontier. Points F, A, B, and E are points of *efficiency*, meaning that when the economy is at any of these aforementioned points--

indeed, any location on the dark blue frontier--the economy is getting the most efficient use of its resources. It is producing at the absolute maximum that an economy can, given its available resources.

Any point located below the dark-blue frontier line and in the light-blue quarter-circle portion of the graph above is in the region of *inefficiency*. Point D is located in this region. At point D and all other points in the light-blue region, the economy is not getting the most efficient use of its resources. There is some waste, and given where point D is located, it looks like there is much waste occurring at point D. If point D were closer to the dark-blue frontier, there would be less waste. If it were closer to the origin [point (0,0)] than it already is, there would be even more waste than there is at point D.

Point C, since it lies beyond the frontier, is neither efficient nor inefficient. It is **unattainable** given current resources. However, it will one day become attainable if the economy and the technology it employs continue in their growth and development. Technological development shifts the PPF outward so that points such as C and beyond become attainable. Just as today's 4K smart TVs and streaming video players and their production levels were a distant fantasy in the 1970s, production levels that seem outlandish today may eventually become attainable.

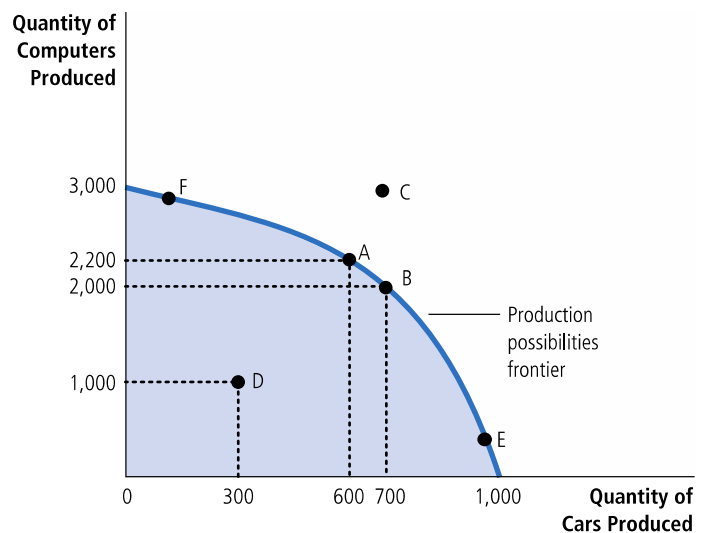
Opportunity Cost on the PPF

The most important concept with respect to the frontier is **opportunity cost**. Earlier in chapter 1 you first learned about opportunity cost. Here it is illustrated on the PPF.

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If the economy is located at point A and consumers decide that they want more cars produced and fewer computers, they can move the economy to point B. At point B,

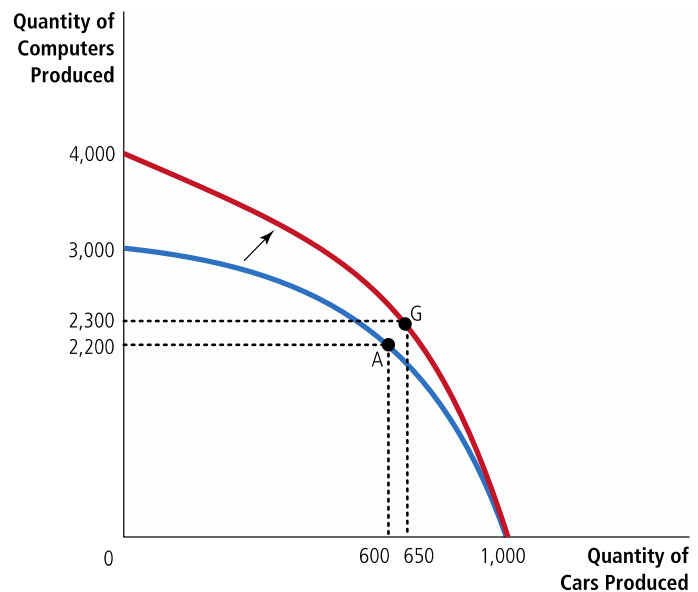
100 more cars are produced along with 200 fewer computers. In other words, the opportunity cost of 100 additional cars is (the loss of) 200 computers. Let's say that consumers decide later on that the move from A to B was a mistake and that they want more computers instead of cars. They move the economy from point B back to point A, gaining 200 computers. The (opportunity) cost of this gain is 100 cars.

Opportunity costs can change with **shifts** or **rotations** in the frontier. A shift is when both endpoints of the frontier increase and the entire curve makes a parallel shift outward with them.

FIGURE 3

A Shift in the Production Possibilities Frontier

A technological advance in the computer industry enables the economy to produce more computers for any given number of cars. As a result, the production possibilities frontier shifts outward. If the economy moves from point A to point G, then the production of both cars and computers increases.



A rotation is what is illustrated above, despite the fact that Mankiw (likely for simplicity) calls it a "shift." Figure 3 above illustrates a rotation where only the endpoint of the vertical axis increases from 3,000 to 4,000 computers.

After explaining the PPF, Mankiw discusses the difference between microeconomics and macroeconomics. There's not much that can be added to his pretty clear discussion. However, there's much more that can be clarified with respect to his discussion of **positive** and **normative statements**. (Mankiw introduces the topic as "Positive Versus Normative Analysis" but there is really no "analysis" here: the positive-normative distinction only really holds on the level of statements, which he acknowledges in the definitions of the two terms he provides. Let's try some more accurate definitions.)

Positive statements are statements that can be shown to be true or false. In other words, they're "empirically testable" (empirical means "real world;" testable means that we can set up an experiment to see whether they accurately describe the real world or not.) Now, just because positive statements are testable in an experiment

doesn't mean that they *have been* tested or *must be* tested to be considered positive.

Example: If we raise the price of Shell 87 octane gasoline from its current price (say, \$2.00) to a price of \$15.00 per gallon, consumers will purchase less Shell gasoline than they are purchasing now.

The preceding is definitely a positive statement because we can (not that we have to, but *can*) visit a Shell station and (station owners willing) raise the price of Shell 87 octane gasoline to \$15.00 per gallon and watch the station customers stop purchasing 87 octane gasoline from that station and patronize other stations instead.

Our example statement above can be shown through experiment to be true or false (not that the particular statement above *has* been, keep in mind, but that it *can* be--i.e., it's "testable"). Normal gas-station owners almost certainly wouldn't let us conduct such an experiment because of the fear that such a whopping price increase would be turned into a highly negative news story and risk a permanent loss of some customers, not to mention invite legal scrutiny from the state attorney general. Most station owners would believe that the positive statement is common sense anyway and thus there would be no need to conduct such an experiment. (Over the years they've probably seen their number of customers decline with rises in prices and increase with declines in prices. Studies show that when gasoline prices decline, consumers drive more.)

Normative statements are statements of opinion, and therefore as such are not testable. They sometimes (but certainly not always) contain words such as "should" or "ought."

Example: Strawberry ice cream is better than mint.

The above example is clearly normative because it can't be tested. Personally, I agree with the statement because I like strawberry ice cream better than mint, but that's completely irrelevant. My preferences are hardly a verification of such a statement because I can find so many other people (in an attempted test of the statement) who would not agree with the statement and would say that mint is better than strawberry. In other words, normative statements are subjective while positive statements can be (not are, but *can* be) factual (revealed to be true).

Appendix

Everyone should read the appendix to this chapter. It is well written. If you're good at mathematics and are adept at understanding graphical relationships, then you'll finish the appendix quickly and should expect little trouble with graphs later on in the

book given active attention and effort. For those of you not so adept at mathematics, a good amount of active effort will be needed. The three sections "Graphs of Two Variables: the Coordinate System," "Curves in the Coordinate System," and "Slope" are particularly important. Read them at least twice if you are rusty or unfamiliar with the material in those particular sections.

The most important figure in this section is the following. We will definitely return to this in a later chapter:

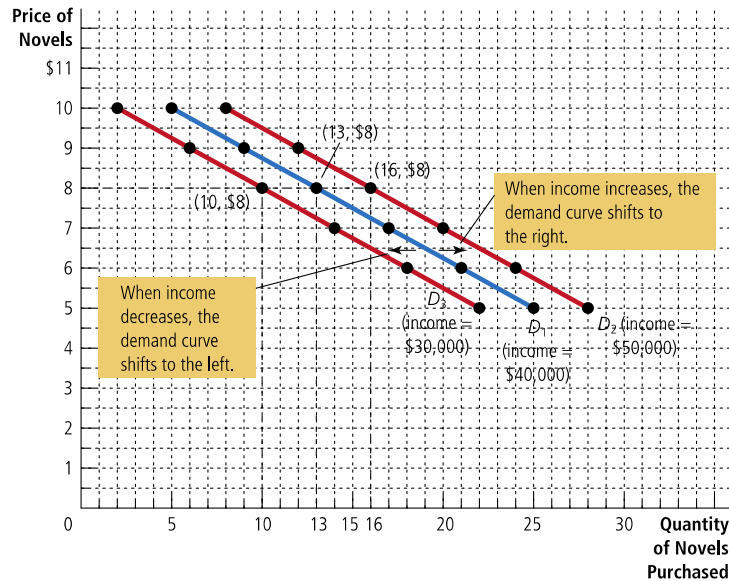


FIGURE A-4

Shifting Demand Curves

The location of Emma's demand curve for novels depends on how much income she earns. The more she earns, the more novels she will purchase at any given price, and the farther to the right her demand curve will lie. Curve D_1 represents Emma's original demand curve when her income is \$40,000 per year. If her income rises to \$50,000 per year, her demand curve shifts to D_2 . If her income falls to \$30,000 per year, her demand curve shifts to D_3 .

One of the most important distinctions for students to understand in economics is that between *movements along a curve* and *shifts of a curve*. Seeing a movement along a curve is the easy part. It's just moving from one point to another on the same curve, much like we did between points A and B on the PPF. In the demand curve for novels (illustrated above), a fall in the price of novels will increase the quantity demanded. Conversely, a rise in the price of novels will decrease the quantity demanded. Remember that *when it comes to demand curves, changes in price cause movements along a curve. When any variable other than price changes, the demand curve will shift.*

A shift in a demand curve is not so difficult in terms of seeing the shift. The hard part is in knowing the cause and direction of the shift. In the example above, an increase in income causes the demand curve to shift outward from demand curve D_1 to demand curve D_2 . A decrease in income would cause a shift in the opposite direction, from demand curve D_1 to demand curve D_3 . Besides changes in income, changes in the prices of related goods, consumer preferences, and expectations (among other variables) can cause a shift in a demand curve as we shall see in further detail in chapter 4. *Again, for the future, remember that changes in price cause movements*

along a demand curve. Changes in any other variable (income, related goods, consumer preferences, etc., as we'll see in chapter 4) cause shifts in a demand curve. This is a good time to begin understanding this distinction as it will appear again and then you should have no problem nailing it down.

Discussion Topics (topics requiring examples are marked with an asterisk *)

Please copy these topics exactly as written--shortening them can cause you to omit follow-up questions and thus lose points.

1. scientific method*
2. What are assumptions, and what are their roles in economic models?
3. factors of production*
4. efficient vs. inefficient (in the context of the production-possibilities frontier [PPF] in Figure 2, provide an example of only one)*
5. opportunity cost (in the context of the production-possibilities frontier)*
6. macroeconomics*
7. normative statement*
8. Complete and explain: "Practical men, who believe themselves to be quite exempt from intellectual influences, are usually the slaves of _____" Who made this statement and what does it mean?
9. Why is the advice of economists not always followed?

Appendix

1. time-series graph*
2. coordinate system*
3. scatterplot*
4. negative correlation*
5. positively related*
6. movements along a curve vs. shifts of a curve* (provide an example of only one)
7. slope* (provide an example using numbers from Figure A-5, but use different numbers from those in the example in the textbook)
8. reverse causality*
9. How can expectations sometimes hinder an accurate understanding of causality?* (provide an original example)