More specifically

We begin (in this chapter) by studying how to measure gains from trade and how to determine whether trade is efficient (in the sense that it would be impossible to make anybody better off without making someone worse off). Then (in Chapter 2), we consider what actually happens in markets and look at the effect of a tax.

Studying what is “socially optimal” (efficient) and then what actually happens or what a profit-maximizing firm would do is a pattern that repeats itself in this book.

1. Understanding the socially efficient outcome is of interest in itself. For example, when markets are inefficient, any unrealized gains from trade are simply lost and go to no one. Even a profit-maximizing firm would like to figure out how to generate such gains from trade and appropriate at least part of them for itself.

2. Understanding efficiency is—pedagogically—a good first step toward understanding market outcomes or the profit-maximizing solution.

We first introduce the valuation of a buyer, the cost of a seller, and the surplus that a trader gets from a transaction. Then we consider what it takes for trade between a single buyer and a single seller to be efficient. The answer is easy: trade should take place if the buyer’s valuation exceeds the seller’s cost and should not take place if the opposite is true.

When there are several buyers and sellers, trade is efficient if it maximizes the total surplus: the total valuation of the buyers minus the total cost of the sellers. The marginal condition for maximizing total surplus is that marginal valuation be equal to marginal cost. We illustrate these ideas graphically.

1.2 Efficiency

We often take the point of view of one of the market participants in our models. For example, what would or should you do if you were the manager of one of the firms? However, we will also find it useful to evaluate outcomes from the point of view of a third-party observer. We use a fairly weak and inconclusive criterion called “efficiency” (for short) or “social efficiency” (to emphasize that we are taking into account everyone’s preferences rather than just those of a particular market participant) or “Pareto efficiency” (named after the 19th-century Italian economist Vilfredo Pareto, 1848–1923).

For example, suppose that Yakov lives next to a factory that is owned by Zahra. (To keep things simple, there are no other residents or factories in the vicinity.) Zahra’s factory could make a lot of noise using a low-cost technology or less noise using a technology that costs $200/month extra. Suppose that the noise of the low-cost technology is so much that Yakov would be willing to pay $300/month to reduce the noise. Consider these two outcomes: