

First Principles

1. In each of the following situations, identify which of the twelve principles is at work.
 - a. You choose to shop at the local discount store rather than paying a higher price for the same merchandise at the local department store.
 - b. On your spring break trip, your budget is limited to \$35 a day.
 - c. The student union provides a website on which departing students can sell items such as used books, appliances, and furniture rather than giving them away to their roommates as they formerly did.
 - d. After a hurricane did extensive damage to homes on the island of St. Crispin, homeowners wanted to purchase many more building materials and hire many more workers than were available on the island. As a result, prices for goods and services rose dramatically across the board.
 - e. You buy a used textbook from your roommate. Your roommate uses the money to buy songs from iTunes.
 - f. You decide how many cups of coffee to have when studying the night before an exam by considering how much more work you can do by having another cup versus how jittery it will make you feel.
 - g. There is limited lab space available to do the project required in Chemistry 101. The lab supervisor assigns lab time to each student based on when that student is able to come.
 - h. You realize that you can graduate a semester early by forgoing a semester of study abroad.
 - i. At the student union, there is a bulletin board on which people advertise used items for sale, such as bicycles. Once you have adjusted for differences in quality, all the bikes sell for about the same price.
 - j. You are better at performing lab experiments, and your lab partner is better at writing lab reports. So the two of you agree that you will do all the experiments, and she will write up all the reports.
 - k. State governments mandate that it is illegal to drive without passing a driving exam.
 - l. Your parents' after-tax income has increased because of a tax cut passed by Congress. They therefore increase your allowance, which you spend on a spring break vacation.

Solution

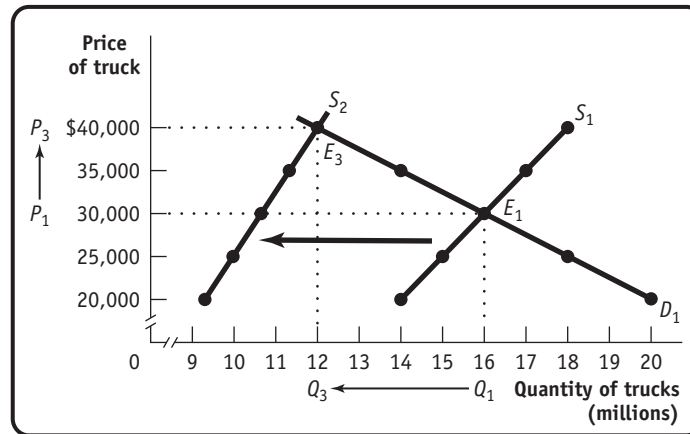
1.
 - a. People usually exploit opportunities to make themselves better off. In this case, you make yourself better off by buying merchandise at a lower price.
 - b. Resources are scarce. Since you have only \$35 a day, your resources are limited (scarce).
 - c. Markets usually lead to efficiency. The market here is represented by the buyers and sellers who use the student union website to trade goods, in contrast to the "nonmarket" of simply giving items away to one's roommate. The market is efficient because it enables people who want to sell items to find those who want to buy those items. This is in contrast to a system in which items are simply left with a roommate, who may have little or no desire to have them.

- d. Overall spending sometimes gets out of line with the economy's productive capacity. The spending by St. Crispin homeowners on building materials and workers fell short of the economy's ability to produce those goods and services. As a result, prices on the island rose across the board (inflation).
 - e. One person's spending is another person's income. Your spending on the used textbook is your roommate's income.
 - f. "How much" is a decision at the margin. Your decision is one of "how much" coffee to consume, and you evaluate the trade-off between keeping yourself awake and becoming more jittery from one more cup of coffee.
 - g. Resources should be used as efficiently as possible to achieve society's goals. Allocating scarce lab space according to when each student can use that space is efficient.
 - h. The real cost of something is what you must give up to get it. The real cost of a semester abroad is giving up the opportunity to graduate early.
 - i. Markets move toward equilibrium. Any bicycle a buyer chooses will leave him or her equally well off. That is, a buyer who chooses a particular bicycle cannot change actions and find another bicycle that makes him or her better off. Also, no seller can take a different action that makes him or her better off: no seller can charge a higher price for a bicycle of similar quality, since no one would buy that bicycle.
 - j. There are gains from trade. If each person specializes in what he or she is good at (that is, in comparison with others that person has an advantage in producing that good), then there will be gains from specialization and trade.
 - k. When markets don't achieve efficiency, government intervention can improve society's welfare. Unsafe drivers don't take into account the dangers they pose to others and often to themselves. So when unsafe drivers are allowed to drive, everyone is made worse off. Government intervention improves society's welfare by assuring a minimum level of competence in driving.
 - l. Government policies can change spending. In this case, a tax cut has increased spending.
2. Describe some of the opportunity costs when you decide to do the following.
- a. Attend college instead of taking a job
 - b. Watch a movie instead of studying for an exam
 - c. Ride the bus instead of driving your car

Solution

2. a. One of the opportunity costs of going to college is not being able to take a job. By choosing to go to college, you give up the income you would have earned on the job and the valuable on-the-job experience you would have acquired. Another opportunity cost of going to college is the cost of tuition, books, supplies, and so on. Alternatively, the benefit of going to college is being able to find a better, more highly paid job after graduation in addition to the joy of learning.
- b. Watching the movie gives you a certain benefit, but allocating your time (a scarce resource) to watching the movie also involves the opportunity cost of not being able to study for the exam. As a result, you will likely get a lower grade on the exam—and all that that implies.
- c. Riding the bus gets you where you need to go more cheaply than, but probably not as conveniently as, driving your car. That is, some of the opportunity costs of taking the bus involve waiting for the bus, having to walk from the bus stop to where you need to go rather than parking right outside the building, and probably a slower journey. If the opportunity cost of your time is high (your time is valuable), these costs may be prohibitive.

This one-third decrease in the quantity supplied at any given price is shown as a leftward shift of the supply curve from S_1 to S_2 . It results in a new, higher equilibrium price, \$40,000 per truck, and a lower equilibrium quantity, 12 million trucks, as shown by the change of the equilibrium from E_1 to E_3 .



8. Consider the original market for pizza in Collegetown, illustrated in the accompanying table. Collegetown officials decide to impose an excise tax on pizza of \$4 per pizza.

Price of pizza	Quantity of pizza demanded	Quantity of pizza supplied
\$10	0	6
9	1	5
8	2	4
7	3	3
6	4	2
5	5	1
4	6	0
3	7	0
2	8	0
1	9	0

- What is the quantity of pizza bought and sold after the imposition of the tax? What is the price paid by consumers? What is the price received by producers?
- Calculate the consumer surplus and the producer surplus after the imposition of the tax. By how much has the imposition of the tax reduced consumer surplus? By how much has it reduced producer surplus?
- How much tax revenue does Collegetown earn from this tax?
- Calculate the deadweight loss from this tax.

Solution

8. a. The tax drives a wedge between the price paid by consumers and the price received by producers. Consumers now pay \$9, and producers receive \$5. So after the imposition of the tax, the quantity bought and sold will be one pizza.
- b. Consumer surplus is now zero (the one consumer who still buys a pizza at \$9 has a willingness to pay of just \$9, so that the consumer surplus is $\$9 - \$9 = \$0$). Compared to the situation before the imposition of the tax, where the equilibrium price was \$7, consumer surplus has fallen by \$3. Similarly, the producer of the one pizza has a cost of \$5, and this is the price he receives, so producer surplus is also zero. Compared to pre-tax producer surplus, it has fallen by \$3.
- c. Collegetown earns a tax of \$4 per pizza sold, which is a total tax revenue of \$4.
- d. Total surplus has been decreased by \$6. Of that \$6, the town earns \$4 in revenue, but \$2 of surplus is lost. That is the deadweight loss from this tax.
9. The state needs to raise money, and the governor has a choice of imposing an excise tax of the same amount on one of two previously untaxed goods: the state can tax sales of either restaurant meals or gasoline. Both the demand for and the supply of restaurant meals are more elastic than the demand for and the supply of gasoline. If the governor wants to minimize the deadweight loss caused by the tax, which good should be taxed? For each good, draw a diagram that illustrates the deadweight loss from taxation.

Solution

2. There are three ways in which you can differentiate your product: by style or type, by location, and by quality.

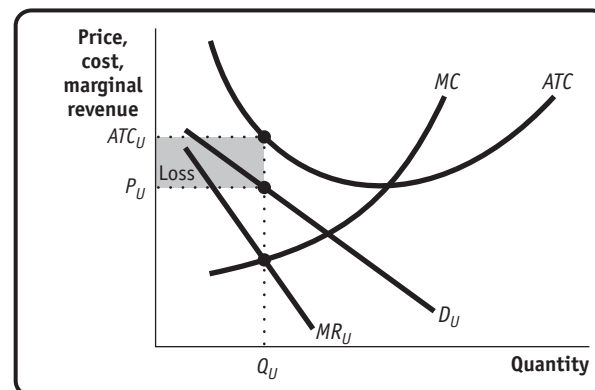
If you decide to copy Starbucks both in style (for example, you copy the décor of the shop and the service) and in quality (for example, you serve coffee made from the same coffee beans, brewed in exactly the same way), you will still most likely differentiate your product by location: your coffee shop will be closer for some people than any of the other shops, and that gives you some degree of market power.

But you could further differentiate your product by style (for example, you could serve coffee in porcelain cups brought to the table by waiters) or by quality (for example, you could serve only organic, shade-grown coffee). All these will help you create a differentiated product that gives you more market power—that is, the power to raise prices. You would, of course, need to determine whether it allows you to raise prices sufficiently to cover the cost of paying for waiters and higher-quality coffee.

3. The market structure of the local gas station industry is monopolistic competition. Suppose that currently each gas station incurs a loss. Draw a diagram for a typical gas station to show this short-run situation. Then, in a separate diagram, show what will happen to the typical gas station in the long run. Explain your reasoning.

Solution

3. Each gas station will produce the output, and so charge the price, that maximizes its profit or minimizes its loss. That is, it will produce quantity Q_U , where marginal cost equals marginal revenue, and so charge price P_U . Since the price P_U is lower than average total cost at the quantity Q_U , ATC_U , each gas station incurs a loss. That is, the situation for the typical gas station looks like the accompanying diagram.



Savings, Investment Spending, and the Financial System

1. Given the following information about the closed economy of Brittania, what is the level of investment spending and private savings, and what is the budget balance? What is the relationship among the three? Is national savings equal to investment spending? There are no government transfers.

$$\text{GDP} = \$1,000 \text{ million} \quad T = \$50 \text{ million}$$

$$C = \$850 \text{ million} \quad G = \$100 \text{ million}$$

Solution

1. In a closed economy, investment spending is equal to GDP minus consumer spending minus government purchases of goods and services. In Brittania, investment spending is \$50 million:

$$I = \text{GDP} - C - G$$

$$I = \$1,000 \text{ million} - \$850 \text{ million} - \$100 \text{ million} = \$50 \text{ million}$$

Private savings is equal to disposable income (income net of taxes—and recall that there are no government transfers) minus consumer spending. In Brittania, private savings is \$100 million:

$$\text{Private savings} = \text{GDP} - T - C = \$1,000 \text{ million} - \$50 \text{ million} - \$850 \text{ million} = \$100 \text{ million}$$

The budget balance is equal to tax revenue minus government purchases of goods and services. In Brittania, the government is running a budget deficit of \$50 million:

$$\text{Budget balance} = T - G = \$50 \text{ million} - \$100 \text{ million} = -\$50 \text{ million}$$

National savings is the sum of private savings and the budget balance; that is, it is \$100 million – \$50 million = \$50 million. So investment spending does equal national savings.

2. Given the following information about the open economy of Regalia, what is the level of investment spending and private savings, and what are the budget balance and net capital inflow? What is the relationship among the four? There are no government transfers. (Hint: net capital inflow equals the value of imports (*IM*) minus the value of exports (*X*).)

$$\text{GDP} = \$1,000 \text{ million} \quad G = \$100 \text{ million}$$

$$C = \$850 \text{ million} \quad X = \$100 \text{ million}$$

$$T = \$50 \text{ million} \quad \text{IM} = \$125 \text{ million}$$

Solution

2. In an economy with capital inflows or outflows, investment spending is equal to GDP minus consumer spending minus government purchases of goods and services plus net capital inflow, the value of imports minus the value of exports. In Regalia, investment spending is \$75 million:

$$I = (\text{GDP} - C - G) + (\text{IM} - X)$$

$$I = (\$1,000 \text{ million} - \$850 \text{ million} - \$100 \text{ million}) + (\$125 \text{ million} - \$100 \text{ million})$$

$$I = \$50 \text{ million} + \$25 \text{ million} = \$75 \text{ million}$$