Chapter 5 Supply, Demand, and Price: Applications



Paul Schneiderman, Ph.D., Professor of Finance & Economics, Southern New Hampshire University ©2011 South-Western/Cengage Learning

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Ticket Prices at the Taping of a TV Show

If you go to tvtickets.com, you can request tickets to view the taping of television shows. There is no charge for the ticket; the ticket price is zero. Now ask yourself whether a zero price is the market equilibrium price. Given some degree of positive demand to see the show, you would think that the market equilibrium price would be positive. You would also expect the market equilibrium ticket price to be higher for some shows than for others.

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Ticket Prices at the Taping of a TV Show

➤ To illustrate, suppose the supply of seats in a TV studio is 200 seats. Three shows are taped in the studio. Will the market equilibrium price for the three shows be the same—say, \$20? It could be, but more probably it is not because the demand for each of the three shows is likely to be different. The equilibrium price might be \$100 for one show, \$70 for another show, and \$20 for the third show.

➤ But the market equilibrium price is not charged for any of the three shows. Instead, the price of a ticket is zero for all of them. What follows, then, is that there will be a shortage of tickets for each show, with the shortage being larger for some shows than for others.

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Ticket Prices at the Taping of a TV Show The Supply and Demand for Viewing the Taping of Different TV Shows We show the demand to view the taping of three TV shows. A, B, and C. We also show the supply of seats for each now, if the ticket price for

We show the demand to view the taping of three TV shows. A, 8, and C. We also show the supply of seats for each show. If the ticket price for each show is \$0, then the shortage will be greater for show A than for \$0, and greater for 8 than for C. Also, if an equilibrium price were charged for each show, the equilibrium price for show A would be greater than for show 8 and greater for 8 than C.

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Self-Test

1. How can a television network that produces a number of television shows gauge the popularity of each show from ticket requests and the rate at which tickets sell out?

The more requests for tickets and the faster the tickets sell out, the more popular the show.

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Self-Test

2. Could television networks charge a positive ticket price for the taping of their shows if they wanted to? Explain your

They could charge a positive ticket price for shows in which the quantity demanded of seats equaled the quantity supplied of seats at a positive price.

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Government, Easier, Loans, and Housing Prices I

If the federal government wants to make it easier for people to buy houses, one thing it can do is push for lowered lending standards. For example, suppose lenders require individuals who want a mortgage loan to buy a house to make a down payment of 20 percent of the sale price. The government passes a law stating that no lender can require more than a 5 percent down payment before granting a loan. Will this make it easier for individuals to buy homes? Not necessarily. The interest rate on a mortgage loan that requires only a 5 percent down payment might be higher than the rate on one that requires a 20 percent down payment.

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Government, Easier Loans, and Housing Prices II

Can government do anything now? It could place a ceiling cap on interest rates. In other words, it could prohibit lenders from charging a higher interest rate on a 5 percent down payment loan than on a 20 percent loan. Then what happens? The government seems to have met its objective of making it easier for individuals to buy houses. After all, prospective buyers now have only to come up with a 5 percent down payment (instead of 20 percent), and they cannot be charged a higher interest rate because of the lower down payment. So home buyers are better off, right? Not exactly. By making mortgage loans easier to get, the government has indirectly increased the demand for houses. As the demand for houses rises, so do house prices. In short, making it easier to get home mortgage loans (as described) results in rising home prices, which makes buying a house

all the harder. Lower down payments Lower interest rates → Easier-to-© 2011 Cengage Learning. All Rights Reserved. May not be scanned, copied duplicated, or posted to a publicly accessible website, in whole or in part.

obtain loans → Higher demand for houses → Higher house prices

Government, Easier Loans, and Housing Prices III

>The main point is simply this: Government set out to make buying a home easier for more people by passing laws that forced lenders to accept lower down payments and interest rates. But making it easier for individuals to get loans had the effect of raising the demand for and the prices of houses. Higher house prices made it harder for people to buy homes.

Continuing on with the story, suppose government now states that individuals need even more help now to get a home because housing prices have risen. In its attempt to help people to buy a house, it pushes for even lower lending standards (maybe requiring only a 1 percent down payment) and lower interest rates. Will that do the trick? Not likely. The lower lending standards and interest rates are likely to stimulate greater demand for housing, leading to even higher housing prices.

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Self-test

1. If lowering lending standards can indirectly raise housings prices, can increasing lending standards lower housing prices? Explain.

Yes. For example, suppose a 30 percent down payment was needed to obtain a mortgage loan instead of a 10 percent down payment. Fewer individuals would be able to obtain a loan to buy a house, lowering the demand for houses and thus lowering house prices.

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Self-test

2. Suppose anyone who buys a house in year 1 gets to pay \$1,000 less in income taxes (assuming the tax owed is greater than \$1,000). Would the tax credit affect house prices? Explain your answer.

Yes. Reducing one's taxes because he or she has purchased a house makes buying a house more attractive, which leads to a higher demand for houses. The higher demand for houses raises the equilibrium price of houses.

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The Price of an Aisle Seat

Most airlines will reserve an assigned seat for you when you buy a ticket. For example, if you want to buy an airline ticket from U.S. Airways, you can go online, purchase the ticket, and then look at a graphic that shows unreserved seats. If seat 13A is the one you want and no one has chosen it, then it is yours if you click it. Southwest Airlines does things differently. You do not reserve a seat when you book a flight. You choose a seat when you board the plane. If you are one of the first to board, you have your pick of many seats; if you are one of the last, you have your pick of very few seats.

Keep in mind that aisle seats are more popular than middle seats. Usually, for every aisle seat there is a middle seat (assuming that the row of seats on each side of the plane consists of 3 seats; window, middle, and aisle).

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The Price of an Aisle Seat

>50, if the plane has 50 aisle seats, it also has 50 middle seats. In other words, the supply of middle seats equals the supply of aisle seats. However, the demand for aisle seats is higher than the demand for middle seats. If price were to equilibrate the middle seats market and the aisle seats market, we would expect the price of an aisle seat to be higher than that of a middle seat.

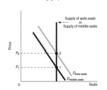
Does Southwest charge more for an aisle seat than a middle seat? Perhaps if you asked the airline this question, its answer would be no. But Southwest does charge more for priority boarding. If you want to board before others, you must choose the Business Select option when purchasing a ticket. If you board before others, you obviously have a larger selection of seats to choose from than later boarders do. Because most people prefer aisle to middle seats, persons who board the plane first will probably choose the aisle seats.

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The Price of an Aisle Seat

➤So does Business Select come with an additional charge? Yes. On the day we checked, the added charge was \$20. In effect, Southwest was charging \$20 more for an aisle seat than a middle seat, as we would expect, because the demand for aisle seats is higher than the demand for middle seats, whereas the supply of each is the same.



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Self-test

1. If the equilibrium price is \$400 for an aisle seat and \$350 for a middle seat but an airlines company charges \$350 for each seat, we would expect a shortage to appear in the aisle seat market. (More people will want aisle seats than there are aisle seats available.) How will the airlines decide who gets an aisle seat?

The airlines company will likely use the rationing device of first-come/first-served. The people who book their reservations early get their pick of seats; those who do not book early have to take the left over seats.

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Self-test

2. Suppose the supply of aisle, middle, and window seats is each 100 seats but the demand for aisle seats is greater than the demand for window seats, which, in turn, is greater than the demand for middle seats. If the equilibrium price of an aisle seat is \$300, where do the equilibrium prices of middle and window seats stand in relation to this price?

The equilibrium price of the window seat is less than the equilibrium price of the aisle seat; the equilibrium price of the middle seat is lower than the equilibrium price of the window seat. For example, if the equilibrium price of the aisle seat i\$300, then the equilibrium price of the window seat might be \$280, with the equilibrium price of the aisle seat even lower at, say, \$250.

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Why is Medical Care So Expensive

- Think of the way you buy groceries. You go to the grocery store, place certain products in your basket, and then pay for them (usually with cash) at the cash register.
- Now think of he way you buy medical care. You go to the doctor or hospital, give the doctor's office or hospital your health insurance card, perhaps pay a copayment of \$10 or \$20, and then receive medical care. Your doctor or the hospital ends up billing your insurance company for the bulk of your expenses.

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Why is Medical Care So Expensive

- Now what is the difference between the way you buy groceries and the way you buy medical care? Well, in the grocery store example there are only two parties: you (the buyer) and the grocery store (the seller). In the medical care example, there are three parties: you, the doctor or hospital, and the insurance company. The insurance company is often referred to as the "third party."
- So, we can put things this way: There is no third party in the grocery store example but there is a third party in the medical care example. What the existence of a third party does is separate the buying of something from the paying for something.

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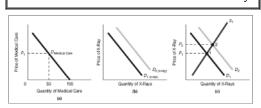
Why is Medical Care So Expensive

- Once you have paid your insurance premium, the price you pay for medical care amounts only to your copayment (which is usually minimal). For all practical purposes, the dollar amount you have to pay, out of pocket, to get medical care is zero. That is a fairly low price for health care. We can expect that the quantity demanded of medical care would be greater at zero than at some positive dollar amount.
- If the quantity demanded of medical care is higher at a zero price than at some positive price, then we would expect the demand for those specific items that make up health care to be higher than it would be if the quantity demanded of health care were lower.

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Price of medical Care and the Demand for X-rays



- (a) If the price of medical care is low (say, zero), the quantity demanded of medical care is 100 units. If the price of medical care for you is P1, the quantity demanded of medical care is 50 units.
- (b) The lower the price of medical care and the higher the quantity demanded of medical care in panel (a), then the higher the demand curve for x-rays in (b). (c) The higher the demand for x-rays, the higher the price of x-rays.

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Self-test

1. Suppose food insurance exists. You pay the food insurance company a certain dollar amount each month and then you purchase all the food you want to purchase from your local grocery store. The grocery store sends the bill to your food insurance company. What will happen to the price of food and to the premium you pay for food insurance?

The price of food will rise along with the premium for food insurance.

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Self-test

2. In the exhibit in this section, suppose that the price a person has to pay for medical care is between P1 and zero. Where would the demand for x-rays in panel (b) be in relationship to D1 and D2?

The new demand curve would be between D_1 and D_2 .

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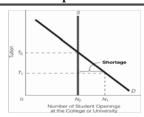
Why Do Colleges Use GPAs, ACTs, and SATs for Purposes of Admission?

Colleges and universities charging students less than the equilibrium tuition for admission create a shortage of spaces at the colleges or universities. Consequently, colleges and universities have to impose some nonprice rationing device, such as GPAs or ACT or SAT scores.

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Why Do Colleges Use GPAs, ACTs, and SATs for Purposes of Admission?



If the college or university charges T_1 in tuition (when T_E is the equilibrium tuition), a shortage will be generated. The college or university will then use some nonprice rationing device, such as GPAs, ACTs, and the same of the same of

Self-test

1. Suppose the demand rises for admission to a university but both the tuition and the number of openings in the entering class remain the same. Will this affect the admission standards of the university? Explain your answer.

If supply and tuition are constant and demand rises, the shortage of openings at the university will become greater. The university will continue to use its non-price rationing devices (GPA, SAT scores, ACT scores) but will have to raise the standards of admission. Instead of requiring a GPA of, say, 3.5 for admission, it may raise the requirement to 3.8.

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Self-Test

2. Administrators and faculty at state colleges and universities often say that their standards of admission are independent of whether there is a shortage or surplus of openings at the university. Do you think this is true? Do you think that faculty and administrators ignore surpluses and shortages of openings when setting admission standards? Explain your answer.

Not likely. A university that didn't make admission easier in the face of a surplus of openings might not be around much longer. When tuition cannot be adjusted directly— in other words, when the rationing device of price cannot be adjusted—it is likely that the non-price rationing device (standards) will be.

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Supply and Demand on a Freeway

What does a traffic jam on a busy freeway in any large city have to do with supply and demand? Actually, it has quite a bit to do with supply and demand. Look at the question this way: There is a demand for driving on the freeway and a supply of freeway space.

The supply of freeway space is fixed (roadways do not expand and contract over a day, week, or month). The demand, however, fluctuates; it is higher at some times than at others.

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Supply and Demand on a Freeway

For example, we would expect the demand for driving on the freeway to be higher at 8 a.m. (the rush hour) than at 11 p.m. But even though the demand may vary, the money price for driving on the freeway is always the same: zero. A zero money price means that motorists do not pay tolls to drive on the freeway.

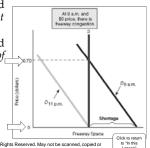
In the following exhibit, the demand for driving on the freeway is higher at 8 a.m. than at 11 p.m.

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Supply and Demand on a Freeway

At zero money price and $D_{11p,m}$, the freeway market clears

- At zero money price and D_{8a.m.}, there is a shortage of freeway space, which shows up as freeway congestion.
- At a price (toll) of 70 cents, the shortage is eliminated and freeway congestion disappearing All Rights Reserved. May not be scanned, copier duplicated, or posted to a publicly accessible website, in whole or in part.



Supply and Demand on a Freeway

If charging different prices (tolls) depending on the time of day on freeways sounds like an unusual idea, consider how Miami Beach hotels price their rooms. They charge different prices for their rooms depending on time of year. During the winter months, when the demand for vacationing in Miami Beach is high, the hotels charge higher prices than when the demand is (relatively) low. If different prices were charged for freeway space depending on time of day, freeway space would be rationed the same way Miami Beach hotel rooms are rationed.

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Supply and Demand on a Freeway

Finally, consider three alternatives usually proposed to counter freeway congestion:

- Tolls: Tolls deal with the congestion problem by adjusting price to its equilibrium level, as shown in the exhibit.
- Building more freeways: Building more freeways deals with the problem by increasing supply. In Exhibit 6, the supply curve of freeway space would have to be shifted to the right so that there is no longer any shortage of space at 8 a.m.
- Encouraging carpooling: More carpooling deals with the problem by decreasing demand. Two people in one car take up less space on a freeway than two people in two cars. In the exhibit, if, through carpooling, the demand at 8 a.m. begins to look like the demand at 11 p.m., then there is no longer a shortage of freeway space at 8 a.m., all Rights Reserved. May not be scanned, copied or sometimes of positive decreases.

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Supply and Demand on a Freeway

A final note: A fee to drive in the Central London area was introduced in 2003. Anyone going into or out of the Central London area between 7:00 a.m. and 6:30 p.m., Monday through Friday, must pay a fee of approximately \$15. (Not everyone has to pay the fee. For example, taxi drivers, ambulance drivers, police vehicles, motorcycle drivers, and bicyclists are exempt. The residents who live in the area receive a 90 percent discount.) Many people have claimed the fee a success because it has cut down on traffic and travel times and reduced pollution in the area.

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Self-test

1. In the previous exhibit, at what price is there a surplus of freeway space at 8 a.m.?

Any price above 70 cents.

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Self-test

If the driving population increases in an area and the supply of freeway space remains constant, what will happen to freeway congestion? Explain your answer.

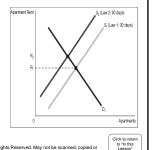
Assuming that tolls are not used, freeway congestion will worsen. An increase in driving population simply shifts the demand curve for driving to the right.

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Are Renters Better Off?

- Under law 1, a renter has 30 days to leave an apartment after receiving an eviction notice from his or her landlord.
- Under law 2, a renter has 90 days to leave an apartment after receiving an eviction notice from his or her landlord.



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Are Renters Better Off?

- The cost to the landlord of renting an apartment is higher under law 2 than law 1, and so the supply curve of apartments under law 1 lies to the right of the supply curve of apartments under law 2.
- Different supply curves mean different rents. Apartment rent is higher under law 2 (R₂) than under law 1 (R.)

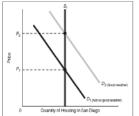
than under law 2 (R_2) than under law 1 (R_1).

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Do You Pay for Good Weather?

- ➤ We show two demand curves, D₁ and D₂, D₁ represents the demand for housing in San Diego if the weather were not so good. The higher demand curve D₂ shows the demand for housing in San Diego if the weather is good.
 ➤ Notice that the price of housing in
- Notice that the price of housing in San Diego is higher if the weather is good than not so good. Lesson learned: You pay for good weather (in San Diego) in terms of higher house prices.



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Do You Pay for Good Weather?

- If good weather gives people utility, then the demand for and the price of housing will be higher in a city with good weather than in a city with bad weather.
- ➤ Conclusion: People who buy houses in good-weather locations indirectly pay for the good weather.

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Do You Pay for Good Weather

The Price of Weather and Housing Prices We show two demand curves, D_i and D_i D_i represents the demand for housing in San Diego if the weather were not so good. The higher demand curve D_i shows the demand for housing in San Diego if the weather is good. Notice that the price of housing in San Diego is higher if the weather is good than not so good. Lesson learned: You pay for good weather (in San Diego) in terms of [in San Diego] in terms of

higher house prices



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Self-test

1. Give an example to illustrate that someone may "pay" for clean air in much the same way that she "pays" for good weather.

One possible answer is: There are two cities, one with clean air and the other with dirty air. The demand to live in the clean-air city is higher than the demand to live in the dirty air city. As a result, housing prices are higher in the clean-air city than in the dirty-air city

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Self-test

2. If people pay for good weather, who ultimately receives the "good-weather payment"?

Ultimately, the person who owns the land in the good-weather city receives the payment. Look at it this way: People have a higher demand for houses in good-weather cities than they do for houses in bad-weather cities. As a result, house builders receive higher prices for houses built and sold in good-weather cities. Because of the higher house prices in good-weather cities, house builders have a higher demand for land in good weather cities. In the end, higher demand for land translates into higher land prices or land rents for landowners.

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College Super Athletes

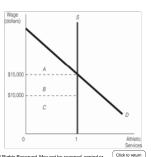
If a college super athlete receives a full scholarship to play a sport at a university and if the full scholarship is less than the equilibrium wage for the super athlete (because of a prohibition mandating that the athlete cannot be paid the difference between his higher equilibrium wage and the dollar amount of his full scholarship), then the university gains at the expense of the athlete.

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College Super Athletes

➤The exhibit shows the demand for and supply of a college athlete. If the market wage for the college athlete is \$15,000, then the buyer of the athlete - in this case, the college receives consumers surplus equal to area A. ➤If the wage can be held down to the tuition cost of attending the college-\$10,000 in this example then the college receives consumers' surplus of areas



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Self-test

1. University X is a large university with a major football team. A new field house and track were just added to the university. How is this related to the discussion in this application?

application?

Suppose University X gives a full scholarship to every one of its football players (all of whom are super athletes). In addition, suppose that the full scholarship (translated into wages) is far below the equilibrium wage of each of the football players. (Think of it this way: Each football player gets a wage, or full scholarship, of \$10,000 a year, when his equilibrium wage is \$40,000 a year.) Paying lower than the equilibrium wage will end up transferring dollars and other benefits from the football players to the university to the new field house and track and perhaps to you if you use the track for exercise. you use the track for exercise.

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Self-test

2. Sometimes it is argued that if colleges paid student athletes, the demand for college sports would decline. In other words, the demand for college sports is as high as it is because student athletes are not paid (the way athletes in professional sports are paid). How would the analysis in this application change if we assume this argument is true?

If paying student athletes (a wage above the full scholarship) lowers consumers' demand for college athletics, then the equilibrium wage for college athletes is not as high as shown in the exhibit.

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10 A.M. Classes in College

- > Colleges usually charge the same tuition for a class no matter when the class is taken.
- The supply of seats in the class may be the same at each time, but the demand for the class may be different at different times.
- > At least for some classes, the quantity demanded of seats (in the class) will be greater than the quantity supplied.
- > Thus, some non-price rationing device will have to be used to achieve equilibrium.

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10 A.M. Classes in College

A given class is offered at two times, 10 A.M. and 8 P.M. The supply of seats in the classroom is the same at both times; however, the student demand for the 10 A.M. class is higher than the demand for the 8 P.M. class.

Shortspa of Seats for 10 AM and 6 PM.

Shortspa of Seats for 10 AM Class
Demand for 10 AM Class
Demand for 8 PM. Class

Number of Seats in Class

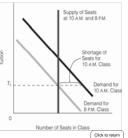
Class to return

(continued)

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10 A.M. Classes in College

- The university charges the same tuition, T₁, regardless of which class a student takes.
- At this tuition, there is a shortage of seats for the 10 A.M. class. Seats are likely to be rationed on a first-comefirst-served (first to register) basis or on seniority (seniors take precedence over juniors, etc.)



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Self-test

1. Suppose college students are given two options. With option A, the price a student pays for a class is always the equilibrium price. For example, if the equilibrium price to take Economics 101 is \$600 at 10 A.M. and is \$400 at 4 P.M., then students pay more for the 10 A.M. class than they do for the 4 P.M. class. With option B, the price a student pays for a class is the same regardless of the time the class is taken. When given the choice between options A and B, many students would say they prefer option B to option A. Is this the case for you? If so, why would this be your choice?

Answers will vary. Students sometimes say that it is "fairer" if everyone is charged the same price. Is it unfair then that movie goers pay less if they go to the $2\ p.m.$ movie than if they go to the $8\ p.m.$ movie?

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Self-test

2. How is the analysis of the 10 A.M. class similar to the analysis of a price ceiling in the kidney market?

In the application dealing with the kidney market, there was a price ceiling that resulted in a shortage of kidneys. In the application dealing with the 10 a.m. class, the university charged a below-equilibrium price for the 10 a.m. class, leading to a shortage of such classes.

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What Will Happen to the Price of Marijuana If the Purchase and Sale of Marijuana Are Legalized?

- The answer, of course, depends on what we think will happen to the demand for and supply of marijuana. If the purchase and sale of marijuana are legal, then some people currently producing corn and wheat will likely choose instead to produce and sell marijuana. So the supply of marijuana will rise. If nothing else changes, the price of marijuana will fall.
- But something else is likely to change. If marijuana consumption is no longer illegal, then the number of people who want to buy and consume marijuana will likely rise. In other words, there will be more buyers of marijuana. This will increase the demand for marijuana.
- Thus, decriminalizing the purchase and sale of marijuana is likely to shift both the marijuana demand and supply curves to the right. What happens to the price of marijuana depends on how much the curves shift.

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What Will Happen to the Price of Marijuana If the Purchase and Sale of Marijuana Are Legalized?

Three possibilities exist:

- In the demand curve shifts to the right by the same amount as the supply curve shifts to the right. In this case, the price of marijuana will not change. (Try to visualize the demand and supply curves shifting).
- 2. The demand curve shifts to the right by more than the supply curve shifts to the right. In this case, the price of marijuana will rise. (Try to visualize the demand curve shifting to the right by more than the supply curve shifts to the right. Can you see the higher price on the vertical axis?)
- 3. The supply curve shifts to the right by more than the demand curve shifts to the right. In this case, the price of marijuana will fall.

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Self-test

1. What will happen to the price of marijuana if the supply increases by more than the demand for it?

Price will fall.

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Self-test

2. What will happen to the quantity of marijuana (purchased and sold) if the demand for it rises more than its supply falls.

Quantity will rise.

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EconDebates Online Demand and Supply

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