

Unit 4 - THE PRICE SYSTEM (11 Days)

In market economies, there is no central authority that decides how many different kinds of sandwiches are provided for lunch every day at restaurants and stores, how many loaves of bread are baked, how many toys are produced before the holidays, or what the prices will be for sandwiches, bread, and toys. Students should understand that, instead, most prices in market economies are established by interaction between buyers and sellers.

Understanding how market prices and output levels are determined helps people anticipate market opportunities and make better choices as consumers and producers. It will also help them realize that market allocations are impersonal.²

EPF.3 The student will demonstrate knowledge of the price system by
a: examining the laws of supply and demand and the determinants of each
(BUS6120.050)

Days 1 and 2 The law of demand
Day 3 The law of supply

EPF.3 The student will demonstrate knowledge of the price system by
b. explaining how the interaction of supply and demand determines equilibrium price.
(BUS6120.051)

Day 1 Bringing supply and demand together for equilibrium price

EPF.3 The student will demonstrate knowledge of the price system by
a: examining the laws of supply and demand and the determinants of each
(BUS6120.050)

Day 1 What causes demand to change?
Day 2 What causes supply to change?
Day 3 Practice

EPF.3 The student will demonstrate knowledge of the price system by
c. by describing the elasticity of supply and demand.
(BUS6120.052)

Day 1 How responsive are consumers and producers to price changes? That's elasticity!

EPF.3 The student will demonstrate knowledge of the price system by
d. examining the purposes and implications of price ceilings and price floors.
(BUS6120.053)

Day 1 Price ceilings and floors—oh my!
Day 2 Review supply, demand, equilibrium price, determinants of supply & demand, elasticity, price ceilings and price floors

Evaluation day

EPF.3 The student will demonstrate knowledge of the price system by
a: examining the laws of supply and demand and the determinants of each
(BUS6120.050)

Days 1 and 2 - The law of demand

Content Knowledge

A price is what people pay when they buy a good or service, and what they receive when they sell a good or service. A market exists whenever buyers and sellers exchange goods or services. Market prices are determined through the buying and selling decisions made by buyers and sellers.

Higher prices for a good or service provide incentives for buyers to purchase less of that good or service. Lower prices for a good or service provide incentives for buyers to purchase more of that good or service. This well-established relationship between price and quantity demanded, known as the law of demand, exists as long as other factors influencing demand do not change.²

Vocabulary

Demand – The quantity of a good or service that buyers are willing and able to buy at all possible prices during a period of time.

Demand curve – A graph used to show the data from a demand schedule. The vertical axis shows the price and the horizontal axis shows the quantity demanded. A demand curve shows an inverse relationship – the curve slopes downward from left to right.

Demand schedule – A table showing the quantity demanded of a good or service corresponding to a number of prices.

Law of demand – As the price of a good or service rises (or falls), the quantity of that good or service that people are willing and able to buy during a certain period of time falls (or rises); that is, price and quantity demanded are inversely related.

Wants – Desires that can be satisfied by consuming or using a good or service.

Virginia Board of Education Framework

Demand is the *willingness* and *ability* to buy specific quantities of a good or service at different prices in a specific time period, all things remaining the same. The *law of demand* states that people will buy more of a good or service at lower prices and less at higher prices, if everything else remains the same. When graphing, this is known as a change in quantity demanded.

Teaching Tips

1) Create a situation where you only have a few of something desirable. Since you don't have enough to go around, auction the items. Before you hand them out, ask if the students are happy with this outcome. If not, ask for other alternatives. Discuss.

Why do we say that a market economy uses a "price system?" In a market economy scarce resources and goods and services are allocated by price—rather than lottery, first-come-first-served, or the strongest person.

Who sets prices? Where do prices come from? In general, prices are set in the marketplace through the forces of supply and demand.

2) To introduce demand, introduce an item such as a candy bar. Provide a handout with a range of prices for some desirable item with some prices higher and some prices lower than the usual market price for the item. (e.g. possible prices for a candy bar: \$1.75, \$1.50, \$1.25, 1.00, .75, .50, .25). The handout will say “For each price, how many candy bars will you buy today (cash only) if this is the price charged? Explain the “willing and able” aspect of demand. If you want to buy a candy bar today, you are “willing.” If you have the money to buy a candy bar today, you are “able.” You are not counted in the demand for the candy bar unless you are both “willing **and** able” to buy. (Often, students will equate want with demand. Desire or want is not the same as demand. One must actually want to buy and have the money to do so.)

Have each student complete the handout noting how many candy bars they would actually buy today at each price if the candy bars were for sale at that price. After students have completed their handouts, ask how many of them would buy candy bars at \$.25. Have those students stand. Ask how many candy bars each would buy at that price. Put the total next to \$.25 on the board. Go to the next higher price. Repeat. Did some customers drop out or buy fewer candy bars? Ask them why they wouldn’t buy at the higher price. (Answer: They have better things to do with their money—which means “opportunity cost”) Repeat through the prices until no one will buy and you have on the board the list of prices and the quantity demanded at each price.

Refer to the list and ask what we can observe about the relationship of price and quantity demanded. (*At lower prices people will buy more. At higher prices people will buy fewer.*)

Explain that this is the **law of demand**. So, if I can’t sell enough candy bars, and I want to sell more, one thing I can do is lower the price. If too many people want to buy, I can raise the price.

Look at the list again. If I offer the item at a price of \$.50, how many could I sell, according to our data? Unfortunately I only have one. In a market economy, how do we decide who to give it to? (*The buyer who is willing to give up the most to get it. We generally allocate scarce things by price.*) At this point you can sell the candy bar to the student who said he/she was willing to pay the highest price.

3) We can show this same data in a picture. Use the data to derive a demand curve, explaining that each point on the curve represents their decisions to buy at each price. Explain that the price is always on the vertical axis and the quantity is always on the horizontal axis. Always label the axes. Explain that the demand curve is a picture showing that at lower prices, people will buy more.

4) Give students data to graph several demand curves for practice.

5) Have students conduct a market survey to learn how many tickets to a local high school football game (or other event) potential consumers would be willing to buy at a range of prices. Use this information to derive a demand curve.

Lessons and Resources

Master Curriculum Guides in Economics: Teaching Strategies Lesson 5: Graphing Demand

Focus High School Economics Lesson 3: A Classroom Market for Crude Oil

Online

EconEdLink, The Lesson on the Supply and Demand of Toy Fads—includes a link to a youtube video clip that illustrates supply and demand with the hula hoop as an example:

<https://www.econedlink.org/resources/a-lesson-on-the-supply-and-demand-of-toy-fads/>

Videos

The Hudsucker Proxy: Hula Hoop Craze

www.youtube.com/watch?v=Ng3XHPdexNM

Economic Lowdown - Episode 2, Demand (6:53)

<https://www.youtube.com/watch?v=LqOzRAVOV9o>

We The Economy - Supply and Dance, Man

<https://wetheeconomy.com/films/supply-and-dance-man/?autoplay=no>

Khan academy on the law of demand (8:15)

<http://www.khanacademy.org/video/law-of-demand?playlist=Microeconomics>

Day 3 - What is supply?

Content Knowledge

If people are having a hard time getting lawn mowing service they will begin offering to pay more to get it done. As the price rises, new people will decide that it is “worth it” to mow lawns and will enter the business. As the market price rises, people are willing to supply more of a good or service.

Higher prices for a good or service provide incentives for producers (as a whole) to make or sell more of it. Lower prices for a good or service provide incentives for producers to make or sell less of it. This relationship between price and quantity supplied is normally true as long as other factors influencing costs of production and supply do not change.²

Vocabulary

Supply – The amount of a good or service that producers are willing and able to offer for sale at each possible price during a given period of time.

Law of Supply - Producers will produce more when they can sell at a high price and less at a low price; in other words, price and quantity supplied are directly related.

Virginia Board of Education Framework

Supply is the willingness and ability to bring to market (produce/sell) specific quantities of a good or service at different prices in a specific time period, all other things remaining the same.

The law of supply states that producers will increase the quantity supplied at higher prices and decrease the quantity supplied at lower prices, if everything else remains the same.

Teaching Tips

1) While demand represents the decisions of buyers, supply represents the decisions of sellers. Supply represents the quantity of a good or service producers are willing and able to bring to market at a range of prices. It is easier for students to relate to demand than supply because they have had many years of experience as consumers. To understand supply, one must think as a seller. It may be helpful to have students think of goods and services they have had experience producing. For example, how many cars would you wash on Saturday at \$3, \$5, \$10, \$15, \$20, \$30, \$40? Would you supply more at a higher price or a lower price? Start thinking like a business person! At higher prices you would probably supply more car washes.

2) Ask whether any students have had baby-sitting experience. Ask about the going rate. Explain that you want to determine the supply of babysitting on Sunday night. There is going to be a neighborhood party and lots of people will need babysitters. Give out a handout that lists a variety of rates from high to low. Ask students to mark the prices at which they would be willing to babysit from 6:00 PM to 10:00 PM on Sunday night: \$100, \$80, \$60, \$40, \$30, \$20, \$10, \$5 (Some students may not be willing to babysit at any price.) Remind students they should only say yes if they are both “willing” and “able.” Willing means you want to earn money babysitting. Able means that you can and will show up on Sunday night to do it.

After students have completed the forms, start with the lowest price. Who is willing to babysit at this price? Stand up. (Probably no one will stand, unless someone loves babysitting and would do it cheaply—or is desperate for money. Some people don’t have other job opportunities and so would work cheaply.) Count and record. Move to the next price. Count and record. Students remain standing—because we assume that if they would babysit for \$10, they would be even more happy to do it at a price of \$20 or \$50 if they could get it. As new students stand, ask why they are willing to babysit at the higher price and not the lower one. (Help them see that they have opportunity costs—studying, other jobs—and that at the lower prices their opportunity costs were too high to babysit.) Continue until you have the quantity supplied for all of the prices.

Let everyone sit down. What can we say about supply? (*At high prices producers will supply more.*) Discuss why more students will babysit at high prices than at low ones.

3) Use the data to derive a supply curve. What does the supply curve show? (*Producers will supply more at higher prices.*) Explain that this is what supply curves nearly always look like—upward sloping to the right.

4) Provide data so that students can practice drawing supply curves.

5) Understanding the workings of supply and demand is critical to understanding how a market economy works. And, it will come up repeatedly in this course. Take enough time to be sure students get it.

Lessons and Resources

Master Curriculum Guides in Economics: Teaching Strategies 5-6 Lesson 9: Producers and Supply

Videos

Economic Lowdown - Supply, Ep. 1 (3:56)

https://www.youtube.com/watch?v=6Q_XxwqtwxY

Marginal Revolution University - The Supply Curve (2:54)

<https://www.mruniversity.com/courses/principles-economics-microeconomics/supply-curve-definition-example>

Khan academy on the law of supply (8:23)

<http://www.khanacademy.org/video/law-of-supply?playlist=Microeconomics>

EPF.3 The student will demonstrate knowledge of the price system by
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Day 1 - Bringing supply and demand together for equilibrium price

Content Knowledge

Understanding supply and demand is vital to understanding how a market economy works—how prices and wages are determined. Why do tickets to the Super Bowl cost so much more than seats to a regular football game in the same stadium? Why does a brain surgeon earn so much more than a restaurant dishwasher? Supply and demand.

Both buyers and sellers respond to price changes. When prices change, buyers change the quantity they are willing and able to buy and sellers change the quantity they are willing and able to bring to market. A graph of the supply and demand curves illustrates these changes. For many students, using a supply and demand graph is the most valuable tool for understanding these important concepts—because it creates a “picture” that helps to predict or explain prices in the marketplace.

Neither supply nor demand alone can set the price. Price is determined by the interaction of supply and demand—working much like a pair of scissors. Where the supply curve and demand curve intersect, the market is in balance—equilibrium. Everyone who wants to sell at that price can sell. Everyone who wants to buy at that price can buy. It’s called the market clearing or equilibrium price for a good or service. It is the one price at which quantity supplied equals quantity demanded.

Markets are always moving toward an equilibrium. If a price is above the market clearing price, it will eventually fall, causing sellers to produce less and buyers to purchase more; if it is below the market clearing price, it will eventually rise, causing sellers to produce more and buyers to purchase less.²

Vocabulary

Equilibrium price – The price at which the quantity demanded by buyers equals the quantity supplied by sellers; also called the market-clearing price.

Equilibrium quantity – The quantity demanded and quantity supplied at the equilibrium or market-clearing price.

Price – The amount of money that people pay when they buy a good or service; the amount they receive when they sell a good or a service.

Shortage - The situation that results when the quantity demanded for a product exceeds the quantity supplied. Generally happens because the price of the product is below the market equilibrium price.

Surplus - The situation that results when the quantity supplied of a product exceeds the quantity demanded. Generally happens because the price of the product is above the market equilibrium price.

Virginia Board of Education Framework

A market exists when buyers and sellers exchange goods and services. Market prices are determined through the buying and selling decisions made by buyers and sellers.

The equilibrium price of a good or service is the one price at which quantity supplied equals quantity demanded. Equilibrium price and quantity are revealed on a supply-and-demand graph where the supply and demand curves intersect.

If the price is above the equilibrium price, buyers will purchase less than is available, and suppliers will offer more, creating a surplus. When a surplus exists, prices will decrease until they reach the equilibrium price. If the price is below the equilibrium price, buyers will want to buy more than is available, and suppliers will want to supply less. This will result in a shortage. Buyers will bid the price up until it reaches equilibrium price.

Teaching Tips

1) We say that prices are determined by supply and demand, but how can we show that? Provide students the following information on quantity demanded and quantity supplied gathered from a market survey for a student organized carwash.

Price	Quantity supplied	Quantity demanded
\$30	60	0
\$25	50	5
\$20	40	10
\$15	30	15
\$12	20	20
\$8	5	40
\$5	0	60

Have students work in pairs to graph both the supply and demand curves on one graph. Remind them to label the demand curve “D” and the supply curve “S.” Be sure to label the vertical axis with “P” for price and the horizontal axis “Q” for quantity. Labeling is essential. Without labeling it is easy to get confused.

2) Draw the students’ attention to the point where the supply and demand curves intersect. Tell them to draw a broken line to the vertical axis. That is the equilibrium price (\$12). Draw a broken line to the horizontal axis. That is the equilibrium quantity (20). At this price the market is at equilibrium. There are no unsatisfied customers as no customers would be willing and able to purchase more at this price; and there are no disappointed producers as they would not be willing and able to produce more at this price.

3) Provide additional opportunities for students to practice drawing supply and demand curves and finding the equilibrium price and quantity.

4) Optional: If the school is involved in a fundraising project, have students conduct a market survey to determine the quantities consumers would buy at various prices. This will show how supply and demand are used in the real world.

5) Assign students to investigate the price for a 30-second advertising spot placed during the most recent Super Bowl and make a list of companies that bought spots. Have students write a paragraph explaining how the price of ads is determined and why businesses would pay those prices.

Lessons and Resources

Economics in Action Lesson 7: A Market in Wheat (This simulation shows how the market finds the equilibrium price.)

Master Curriculum Guides in Economics: Teaching Strategies 5-6 Lesson 13: Mind Your P's and Q's

Online

EconEdLink, Economics in the Headlines

Uses news articles to illustrate changes in supply and demand and how equilibrium price will be affected.

<https://www.econedlink.org/resources/economics-in-the-headlines/>

Videos

Economic Lowdown - Equilibrium, Ep. 3 (5:26)

<https://www.stlouisfed.org/education/economic-lowdown-video-series/episode-3-equilibrium>

Jodiecongirl - Microeconomics Practice Problem - Economic Equilibrium and Demand and Supply Schedules (12:47)

http://www.youtube.com/user/jodiecongirl#p/c/22785443C5FB0F83/20/05_oTFlrYek

Khan academy on equilibrium price (10:16)

<http://www.khanacademy.org/video/market-equilibrium?playlist=Microeconomics>

Marginal Revolution University - The Equilibrium Price and Quantity (4:50)

<https://www.mruniversity.com/courses/principles-economics-microeconomics/equilibrium-price-supply-demand-example>

MJMFoodie - Episode 14: Equilibrium (5:12)

<http://www.youtube.com/watch?v=W5nHpAn6FvQ>

EPF.3 The student will demonstrate knowledge of the price system by
a) examining the laws of supply and demand and the determinants of each

Day 1 - What causes demand to change?

Content Knowledge

The law of demand tells us that people will buy more if we lower our price –which is why stores put things on sale. This is called a *change in quantity demanded*.

But sometimes we buy more or less of something when the price hasn't changed. When you get a raise, you might go to the movies more. When the price of hot dogs goes up, you might buy fewer buns. When a famous athlete wears a certain shoe, more people may decide to buy it. These are examples of *changes in demand*. Demand for a product changes when there is a change in consumers' incomes, preferences, the prices of related products, or in the number of consumers in a market. These factors are called the *determinants of demand*.

A key point for graphing is to distinguish between a change in demand and a change in quantity demanded. A change in the price of a product results in a change in quantity demanded and causes a movement along the demand curve. A change in demand results from one of the determinants of demand and causes the whole demand curve to shift—to the right if it is an increase and to the left if it is a decrease.

Vocabulary

Determinants of Demand Factors other than the price of a good or service that change (shift) the demand schedule, causing consumers to buy more or less at every price. Factors include income, number of consumers, preferences and prices of related goods.

Virginia Board of Education Framework

The law of demand states that people will buy more of a good or service at lower prices and less at higher prices, if everything else remains the same. When graphing, this is known as a change in quantity demanded.

Determinants of demand can change demand. A change in demand results from

- a change in consumers' incomes
- a change in consumers' preferences
- a change in the prices of related goods or services (complements or substitutes)
- a change in the number of consumers in a market
- a change in the expectations of buyers.

When graphing, this is known as a change in demand.

Changes in supply or demand are illustrated by shifts in the supply or demand schedule (curve). These changes will affect the equilibrium price and /or equilibrium quantity.

Teaching Tips

1) This is a key point. Review the supply and demand curves to be sure that students understand that a change in the price of the product itself will be shown as a movement along the supply or demand curve—not a shift in the curve.

2) Explain that the demand curve is like a snapshot of the demand for a good or service at a particular point in time—*ceteris paribus*. *Ceteris paribus* is a Latin phrase which means all things remain the same. So, the demand curve says, these will be the quantities that people will demand at these prices...if nothing else changes. But, sometimes, things change. The types of things that can change and affect demand are called the determinants of demand.

3) Go over each determinant and give examples.

What are the types of things that affect consumers' tastes and preferences? (for example, fads; fashion; information about the product's healthfulness)

Complements are things that go together—hot dogs and buns, cars and gasoline

Examples of substitutes: Coke and Pepsi; pizza from Pizza Hut versus Dominos---burger from Wendys or McDonalds

Number of consumers: the World Series brought more consumers to St. Louis in 2011.

Population changes cause shifts in demand for different products, such as nursing home care.

Expectation of rising prices makes people buy now and vice versa.

4) Give students market survey data for a graph that represents the demand for certain shoes before an ad campaign and demand after a famous person has begun endorsing the shoes.

Price	Before	After
\$100	0	5
\$90	5	10
\$80	10	15
\$70	15	20
\$60	20	30

Have students graph the numbers in the before column and mark that demand curve “D”

Then graph the numbers in the after column and mark that demand curve “D1”

Explain that this is called a *change in demand*; we say the demand curve has shifted to the right.

5) Introduce and give examples for all of the determinants of demand. It's important for students to learn the determinants of demand so that when they hear events in the news they can anticipate what is going to happen to prices in the marketplace.

6) Give students many opportunities to practice interpreting causes for changes in demand and shifting demand curves.

7) Ask students in groups to complete the table below. Tell them to think of an example of a condition/headline that could change the demand for car washes using four of the determinants of demand and then:

- indicate whether demand would increase or decrease
- indicate which direction the demand curve would shift
- indicate what would happen to equilibrium price and quantity.

Determinant of Demand	Event/News Story	Demand (increases or decreases)	Demand Curve shifts left (L) or right (R)?	Equilibrium Price (Up or down?)	Equilibrium Quantity Demanded (Up or down?)

Be certain that students can distinguish between a **change in quantity demanded** that results from a change in the good or service itself, and a **change in demand**, which results from a change in one of the determinants of demand. Students should know how to shift the demand curve to show an increase or decrease in demand and show how that will affect the equilibrium price and equilibrium quantity.

Lessons and Resources

AP Macroeconomics Unit 1, Lesson 4: Demand Curves, Movements Along Demand Curves and Shifts in Demand Curves

Capstone Lesson 12: How Do Prices Influence My Behavior?

Capstone Lesson 13: How Markets Allocate Resources?

Online

EconEdLink, Demand Shifters

How non-price determinants of demand shift the demand curve.

<https://www.econedlink.org/resources/demand-shifters/>

“Explorations in Economic Demand”: This two-part lesson uses blue jeans prices to teach the elements (determinants) affecting pricing and demand.

http://ecedweb.unomaha.edu/Dem_Sup/demand.htm (Part I)

http://ecedweb.unomaha.edu/Dem_Sup/analysis.htm (Part II)

Videos

ACDCLeadership - Shifting Demand and Supply (4:5)

<https://www.youtube.com/watch?v=V0tIOqU7m-c&list=PL6B2DBE4C2FC8F845&index=7>

KK Fung - Lemonade Economics - Demand vs Quantity Demanded (2:35)

<http://www.youtube.com/watch?v=JG8PpJxpVvo&feature=related>

Marginal Revolution University - The Demand Curve Shifts (13:59)

<https://www.mruniversity.com/courses/principles-economics-microeconomics/demand-curve-shifts>

Day 2 - What causes supply to change?

Content Knowledge

The law of supply tells us that sellers will bring more to market at higher prices—it's only at higher gasoline prices that oil companies can afford to build more offshore oil rigs. This is called a *change in quantity supplied*.

However, businesses may supply more or less of something when the market price hasn't changed at all. The supply of gasoline will increase if more companies drill for and strike oil. And, if the price of cotton fabric goes up this will increase the cost of making cotton sheets, so manufacturers will supply fewer cotton sheets at the old market price than they did before. When Cyrus McCormick invented the combine farmers were able to greatly increase their productivity—so more wheat was supplied to market at the old price. In fall 2011, certain medications were not available in the marketplace because producers found it more profitable to make other drugs. When more and more restaurants build in an area, this increases the supply of restaurant food. These are examples of *changes in supply*. Supply of a product changes when there are changes in either the prices of the productive resources used to make the product, the technology used to make the product, the profit opportunities available to producers from selling other products, or the number of sellers in a market. These factors are called *determinants of supply*.

A key point for graphing is to distinguish between a change in quantity supplied and a change in supply. A change in the price of the product itself will bring a change in quantity supplied and will be shown on a graph as a movement to a different point on the same supply curve. A change in one of the determinants of supply will bring a change in supply and that will be represented by a shift in the whole supply curve—to the right if it is an increase in supply and to the left if it is a decrease.

Vocabulary

Determinants of Supply --Factors other than the price of a good or service that change (shift) the supply schedule, causing producers to supply more or less at every price. Factors include number of producers, production costs, and technology and productivity.

Virginia Board of Education Framework

The law of supply states that producers will increase the quantity supplied at higher prices and decrease the quantity supplied at lower prices, if everything else remains the same. When graphing supply and demand, this is known as a change in quantity supplied.

Determinants of supply can change supply. A change in supply results from

- changes in the prices of productive resources used to make the good or the service
- changes in the technology used to make the good or the service
- changes in the profit opportunities available to producers by selling other goods or services
- changes in the number of sellers in a market
- changes in the expectations of producers.

When graphing, this is known as a change in supply.

Teaching Tips

1) This is a key point. Review the supply and demand curves to be sure that students understand that a change in the price of the product itself will be shown as a movement along the supply or demand curve—not a shift in the curve.

2) Give students market survey data for a graph that represents the supply of babysitters this weekend before it is announced that a big concert is coming in and wants to hire students for \$15 per hour.

Have students graph the numbers in the “before” column and mark that supply curve “S”

Then graph the numbers in the “after” column and mark that demand curve “S1”

Price per hour	Before	After
\$20	30	11
\$15	20	9
\$12	15	7
\$8	10	5
\$5	5	2

Explain that this is called a *change in supply*. Ask if the curve shifts to the right or to the left. (left) Ask if it’s an increase or decrease in the supply of babysitting services (decrease).

3) Introduce and give examples for all of the determinants of supply. It’s important for students to learn the determinants of supply so that when they hear things in the news they can anticipate

what is going to happen to prices in the marketplace. For example: “A freeze has destroyed 50% of the orange crop in Florida.” “The price of jet fuel has increased by 50%.”

4) Provide students lots of examples and opportunities to practice this. Be sure students are comfortable with this topic before moving on.

Lessons and Resources

Master Curriculum Guides in Economics: Teaching Strategies -5-6 Lesson 9: Producers and Supply; Lesson 10, Supply Changes

videos

Khan academy - Factors Affecting Supply (6:57)

<http://www.khanacademy.org/video/factors-affecting-supply?playlist=Microeconomics>

Marginal Revolution University - The Supply Curve Shifts (12:14)

<https://www.mruniversity.com/courses/principles-economics-microeconomics/supply-curve-shift>

Day 3 - Practice/Review

What happens in one market affects other markets. The lesson “How Markets Allocate Resources” will show whether students really understand how supply and demand work in the marketplace.

Capstone, Unit 2 lesson 13: How Markets Allocate Resources

EPF.3 The student will demonstrate knowledge of the price system by
c) *describing the elasticity of supply and demand*

Day 1 - How responsive are consumers and producers to price changes? That's elasticity!

Content Knowledge

You know that the law of demand says that at lower prices people will buy more—and vice versa. So you decide to run a special on insulin in your drug store. Do you think you would sell a lot more insulin? The answer is “no”: people aren't going to increase their usage of insulin because it is cheaper. In economics terms we would say that the demand is inelastic—not very responsive to price changes. Increase the price of insulin and people will continue to buy about the same amount.

Other products are very responsive to price changes. Raise the price of CocaCola by 20% and the quantity demanded will likely fall more than 20%. Why? Because consumers have many other substitute drinks. So, we say the demand is elastic—responsive to price changes.

Understanding elasticity is useful in business because it may not be profitable to lower the price of a product where the demand is inelastic whereas it may be profitable to increase it. It may be profitable to lower the price on products where demand is elastic—because you would sell more. These ideas are also useful in school—when setting ticket prices to dances as well as prices for bake sales and car washes.

Vocabulary

Elasticity of Demand - Price elasticity of demand is the percentage change in quantity demanded as a result of the percentage change in demand price. Generally, a relative response of a change in quantity demanded to a relative change in price.

Elasticity of Supply - Price elasticity of supply is the percentage change in quantity supplied as a result of the percentage change in demand price. Generally, a relative response of a change in quantity supplied to a relative change in price.

Virginia Board of Education Framework

Elasticity describes the degree to which buyers and sellers respond to price changes.

The more elastic supply or demand, the more responsive consumers and producers are to price changes (e.g., prices go up 10% and quantity demand goes down by 20%).

The more inelastic supply or demand, the less responsive producers are to price changes.

Price inelasticity means that consumers or producers are not very responsive to price changes (e.g., prices go up by 10% and quantity demanded goes down by 2%).

Price inelastic demand is typical for goods or services that are necessities, have no good substitutes, and/or are inexpensive relative to one's income (e.g., insulin, electricity, salt).

Elasticity of supply is determined by the availability of the raw materials needed for production, available production capacity, and the time period required to produce more of the good or service. For example, the supply of seats in a football stadium is fixed; thus the supply is inelastic. (Higher prices offered for tickets will not produce more seats in the short run.)

The supply of lawn mowing service is elastic. At a higher price more people will be willing to supply the service. On the other hand, if there is an increase in the price of strawberries, farmers cannot increase their production immediately, so the supply will be inelastic

Price elastic demand is typical for goods or services that are luxuries or have good substitutes (e.g., expensive cars or a brand of soft drink).

Teaching Tips

1) Hold up a rubber band and stretch it. It's "elastic"-- it responds when you pull on it. Hold up a pencil—it doesn't respond when you pull on it. It's inelastic.

2) Ask students—if the price of Coca Cola doubled, would you buy just as much? (*Answers will vary. For some, there is no other drink that's a substitute, and since the price of Coca Cola is small relative to their income, they may buy just as much. But most will say no—they will buy less or they will switch entirely to other drinks.*) If Coca Cola lost more than half its sales as a result of a 50% increase in price, we would say the demand for Coca Cola is elastic—it responds to price changes.

3) When buyers react to a 10% price increase by buying more than 10% less of a product, we say the demand is elastic—the response was greater than the price change. When buyers react to a 10% price increase by reducing their purchases by less than 10%, we say demand is inelastic—the response was less than the price change.

4) Suppose you are planning a school dance. You're trying to decide what price to charge. You find that 125 people will pay up to \$10, but if you raise the price 50%, you will lose 20% of your participants. Is the response greater than the price change, or less than the price change? (*It's less.*) So is demand elastic or inelastic? (*Inelastic.*) When we know that demand is inelastic, we know we can bring in more money by raising the price—and that we'll lose money by lowering

the price. (If the goal is raising money, go with the higher price. If the goal is more people participating, lower the price.)

price	Demand for tickets
\$15	100
\$10	125
\$5	150

5) What kinds of products tend to have inelastic demand? Ask for examples.

Price inelastic demand is typical for goods or services that are necessities, have no good substitutes, and/or are inexpensive relative to one's income (e.g., insulin, electricity, salt).

6) What kinds of products tend to have elastic demand? Ask for examples

Price elastic demand is typical for goods or services that are luxuries or have good substitutes (e.g., expensive cars, a brand of soft drink—not the category soft drinks, but a particular drink.

The demand for gasoline is inelastic while the demand for Exxon is elastic...because there are many substitutes for Exxon gasoline).

7) Think about the Super Bowl or the World Series. Many more people want to attend than there are seats available. Illustrate this with a supply and demand curve (supply curve will be vertical, since the number of seats is fixed). This would be a perfectly inelastic supply curve. Increases in price bring no increase in the supply of seats.

8) The supply of lawn mowing service is elastic. Why? At a higher price more people will be willing to supply the service. On the other hand, if there is an increase in the price of strawberries, farmers cannot increase their production immediately, so the supply will be inelastic.

Teaching Tips

AP Macroeconomics Elasticity: An Introduction

Focus High School Economics Lesson 7: Price Changes Matter

Online

EconEdLink, Price Elasticity: From Tires to Toothpicks

<https://www.econedlink.org/resources/price-elasticity-from-tires-to-toothpicks/>

Videos

Characteristics that determine elasticity (1:46)

http://www.youtube.com/watch?v=EafTlle73ic&list=UU_xHLAJ_zqPHkmC2aY2MdcA&index=30&feature=plcp

Paul Solman video clips on elasticity—there are two parts:

<http://www.youtube.com/watch?v=OWGwggTyHZc> (8:37)

<http://www.youtube.com/watch?v=m90fyVld23A> (5:59)

The Economic Lowdown Podcast Series - Elasticity of Demand, Episode 16

<https://www.stlouisfed.org/education/economic-lowdown-podcast-series/episode-16-elasticity-of-demand>

Readings

“New Blow to Music as Concerts Fizzle”

<http://online.wsj.com/article/SB10001424052970204204004576049972873921068.html>

EPF.3 The student will demonstrate knowledge of the price system by

d) examining the purposes and implications of price ceilings and price floors.

Day 1 - Price ceilings and floors

Content Knowledge

In a market economy prices are generally determined in the marketplace. Thus it is sometimes called a price system. For example, suppose a concert sells out of tickets and lots of people are left standing in line wanting to buy. Was the ticket price above the equilibrium price or below? Suppose a concert has lots of empty seats. Was the price above the equilibrium price or below? In each case, what would likely have happened?

Sometimes the government believes that the equilibrium price that results from supply and demand is too high for consumers to afford or too low for producers to earn a profit. To help consumers the government might set a price ceiling—saying businesses can't charge more than this for apartment rent, for example. Price ceilings result in a shortage of the good or service. To help producers, government might set a price floor, saying the price of a product, for example milk, can't sell for less than a certain price. Price floors result in a surplus of the good or service. The supply and demand graph shows why this happens.

Government-enforced price ceilings set below the market-clearing price and government-enforced price floors set above the market-clearing price distort price signals and incentives to producers and consumers. Price ceilings can cause persistent shortages, while price floors can cause persistent surpluses.²

Vocabulary

Surplus- The situation that results when the quantity supplied of a product exceeds the quantity demanded. Generally happens because the price of the product is above the market equilibrium price.

Shortage - The situation that results when the quantity demanded for a product exceeds the quantity supplied. Generally happens because the price of the product is below the market equilibrium price.

Price Ceilings -A price ceiling sets the highest price that can be charged for a good or service. The price is generally set below the equilibrium price and results in a shortage.

Price Floors -A price floor sets the lowest price at which one can buy a good or service. Price floors are generally set above the equilibrium price and result in a surplus.

Virginia Board of Education Framework

If the price is above the equilibrium price, buyers will purchase less than is available, and suppliers will offer more, creating a surplus. When a surplus exists, prices will decrease until they reach the equilibrium price. If the price is below the equilibrium price, buyers will want to buy more than is available, and suppliers will want to supply less. This will result in a shortage. Buyers will bid the price up until it reaches equilibrium price. Shortages of a product usually result in price increases in a market economy; surpluses usually result in price decreases.

Teaching Tips

1) Ask students if they've ever wanted to buy tickets to a concert or other event and couldn't because they were sold out? Would they have been willing to pay more than the going price to get in? What would have solved this problem? Should the ticket prices have been raised or lowered? (*Raised. At some higher price there would have been exactly enough seats for everyone who was willing and able to pay to get in.*)

2) Draw a supply and demand curve. Draw the supply curve as a straight vertical line and explain this is because we assume the theater has a fixed number of seats no matter what the price. Mark the equilibrium point. Assume this is the equilibrium price for the tickets you wanted. Draw the demand curve as a normal downward sloping curve. Choose a price a bit lower than the equilibrium price. Assume this is the advertised ticket price. Draw a broken line to the demand curve. What is the quantity demanded at this point? Is it greater or less than the quantity supplied. (*It's greater.*)

Point out that when a price is established below the equilibrium price, the result will be a shortage. Ask what will happen. Generally, when there is a shortage, prices will rise. People who didn't get tickets will offer to pay current ticket holders more.

3) Ask what happens in the marketplace when something isn't selling because the price is too high. (*Generally, the item is put on sale.*) When a price is set above the equilibrium price, not enough people will buy and there will be a surplus. Picture a concert with lots of empty seats. Show this on a supply and demand graph.

4) Give students data to diagram supply and demand graphs where the price is above or below the equilibrium price. Ask students whether there is going to be a surplus or a shortage. Will that result in a price increase or a decrease? (*The price is going to move toward the equilibrium price.*)

5) Summarize what we know:

- People buy more at lower prices.
- Sellers want to bring more to market at higher prices.
- Prices move toward equilibrium
- A price above equilibrium will result in a surplus—and the price will tend to come down as sellers want to sell.
- A price below equilibrium will result in a shortage—and the price will tend to move up as buyers who lost out bid the price up by offering to pay more.

6) Ask students if they ever think prices are too high. Rarely the government believes that the equilibrium price for something is too high for consumers to afford and so might set a price ceiling—saying businesses can't charge more than a certain price. Discuss. What would happen if government set a price limit on gasoline and said it couldn't be sold for more than that. Discuss. Do they think that would be a price ceiling or price floor? (*Ceiling.*) Have them draw a supply and demand curve for gasoline with the price ceiling below the market clearing price.

What would happen? (*Shortage. Long lines at the gas pumps.*) In the 1970's the government tried to keep prices low instead of letting gasoline prices rise. Half the people could buy gas on even numbered days, half on odd numbered days. These attempts to hold prices down during the shortage resulted in very long lines. This McDonalds commercial includes these long lines: <http://www.youtube.com/watch?v=tjXhwevOVAE&feature=related>

7) A more common, and current example of price ceilings is rent controls—in New York city, and a number of other large cities, governments set limits on how much landlords can charge in rent. The idea is that longtime residents of these cities would be forced out of their apartments because of rising rental rates caused by increased demand for apartments in these cities. Discuss whether this is a good or bad thing. What do they think the results will be? Have students draw a supply and demand curve and mark the current equilibrium price and quantity. Then make the rent lower. What will happen to the quantity demanded? (*It will go up, because at the lower price even more people will want apartments.*) What will happen to the equilibrium quantity? (*It will go down as some landlords will convert their apartments to condos and sell them rather than rent at lower than market prices.*) Who benefits? (*People who get the apartments at lower than market rates.*) Who is hurt? (*Landlords who get lower than the market rate in rents. People who wanted apartments but can't get them now because of the shortage. People who live in apartments where the landlord no longer keeps them up because of lower rent.*)

Summarize that price ceilings put a ceiling or limit on how much can be charged for a good or service. Price ceilings result in a shortage of the good or service.

8) The government sometimes steps in when producers say the market price is too low for them to cover their costs. For example, government says that the price dairy owners get for milk cannot be below a certain price. This is an example of a price floor. Illustrate this with a supply and demand graph. Show the price floor above the equilibrium price. Note the quantity demanded and the quantity supplied at the equilibrium price. When the price floor is implemented at the higher price will the quantity supplied be higher or lower? (*Higher, because at the higher price, milk producers will produce more.*) Will the quantity demanded be higher or lower? (*Lower, because at the higher price, they will demand less.*) The difference between the quantity demanded and the quantity supplied is the milk that is unpurchased in the market. That is called a “surplus”. What happens to that milk? The government pays for it.

Summarize that price floors put a limit on how low a price may be paid for a good or service. A price floors result in a surplus.

9) Governments have implemented price ceilings and floors from time to time throughout history. Generally economists have found them inefficient except in states of emergency. Students can read a brief summary here: <http://www.econlib.org/library/Enc/PriceControls.html>

Lessons and Resources

Capstone Lesson 14: Secondary Effects: Price Ceilings and Price Floors

Focus: High School Economics Lesson 6: Price Controls: Too High or Too Low

Online

EconEdLink, Who Knows What Inefficiencies Lurk in the Hearts of Rent Controlled Housing Markets? The Shadow Market Knows!

Illustrates the effects of rent controls in New York City

<https://www.econedlink.org/resources/who-knows-what-inefficiencies-lurk-in-the-hearts-of-rent-controlled-housing-markets-the-shadow-market-knows/>

Videos

mjmfoodie - Price Floors and Price Ceilings, Episode 15 (6:01)

http://www.youtube.com/watch?v=XgBPAucs-W4&list=UU_xHLAJ_zqPHkmC2aY2MdcA&index=15&feature=plcp

Day 2 - Review supply, demand, equilibrium price, determinants of supply & demand, elasticity, price ceilings and price floors

EVALUATION DAY