Chapter 3

Where Prices Come From: The Interaction of Demand and Supply

Chapter Outline

3.1 The Demand Side of the Market

Learning Objective 1 Discuss the variables that influence demand.

When we discuss demand we are considering not what a consumer wants to buy, but what the consumer is willing and able to buy.

A. Demand Schedules and Demand Curves

A demand schedule is a table showing the relationship between the price of a product and the quantity of the product demanded. The amount of a good or service that a consumer is willing and able to purchase at a given price is called the quantity demanded. A graph is often used to plot the numbers from a demand schedule; this graph is called a demand curve. A demand curve shows the relationship between the price of a product and the quantity of the product demanded. Market demand refers to the demand by all the consumers of a given good or service.

B. The Law of Demand

The inverse relationship between the price of the product demanded and the quantity of the product demanded is known as the law of demand: Holding everything else constant, when the price of a product falls, the quantity demanded of the product will increase, and when the price of a product rises, the quantity demanded of the product will decrease. The law of demand holds for any market demand curve.

C. What Explains the Law of Demand?

The law of demand is explained by the substitution and income effects. The substitution effect of a price change refers to the change in the quantity demanded of a good that results from a change in price, making the good more or less expensive relative to other goods that are substitutes. The income effect is the change in the quantity demanded of a good that results from the effect of a change in the good’s price on consumer purchasing power. When the price of a good falls, the increased purchasing power of
consumers’ incomes will usually lead them to purchase a larger quantity of the good. The substitution and income effects happen simultaneously whenever a price changes.

D. Holding Everything Else Constant: The Ceteris Paribus Condition

*Ceteris paribus* (“all else equal”) is the requirement that when analyzing the relationship between two variables – such as price and quantity demanded – other variables must be held constant. If we allowed a variable other than price to change, that might affect the willingness of consumers to buy a product, consumers would change the quantity they demand at each price. We can illustrate this by shifting the market demand curve.

E. Variables That Shift Market Demand

Many variables other than price can influence demand. The five most important are: income, prices of related goods, tastes, population and demographics, and expected future prices. The income that consumers have to spend affects consumers’ willingness and ability to buy a good. A **normal good** is a good for which the demand increases as income rises and decreases as income falls. An **inferior good** is a good for which the demand increases as income falls, and decreases as income rises. **Substitutes** are goods and services that can be used for the same purpose. When two goods are substitutes, the more you buy of one, the less you will buy of the other. A decrease in the price of a substitute causes the demand curve for a good to shift to the left. An increase in the price of a substitute causes the demand curve for a good to shift to the right. **Complements** are goods that are used together. When two goods are complements, the more you buy of one, the more you will buy of the other. A decrease in the price of a complement causes the demand curve for a good to shift to the right. An increase in the price of a complement causes the demand curve for a good to shift to the left. Consumers can also be influenced by an advertising campaign for a product. Economists would say that the advertising campaign has affected consumers’ taste for the product. **Taste** is a catch-all category that refers to the many subjective elements that enter into a consumer’s decision to buy a product. When consumers’ taste for a product increases, the demand curve will shift to the right, and when consumers’ taste for a product decreases, the demand curve for the product will shift to the left. As the population of the United States increases, so will the number of consumers, and the demand for most products will increase. The **demographics** of a population refer to the characteristics of a population with respect to age, race, and gender. As the demographics of a country or region change, the demand for particular goods will increase or decrease because different categories of people tend to have different preferences for those goods. If enough consumers become convinced that digital music players will be selling for lower prices three months from now, the demand for players will decrease now. If enough consumers become convinced that the price of players will be higher three months from now, the demand for players will increase now.

F. A Change in Demand versus a Change in Quantity Demanded

It is important to understand the difference between a change in demand and a change in quantity demanded. A change in demand refers to a shift in the demand curve. A shift will occur if there is a change in one of the variables, other than the price of the product, that affects the willingness of consumers to buy the product. A change in quantity demanded refers to a movement along the demand curve as a result of a change in the product’s price.
Learning Objective 2  Discuss the variables that influence supply.

Many variables influence the willingness and ability of firms to sell a good or service. The most important of these variables is price. The amount of a good or service that a firm is willing and able to supply at a given price is the **quantity supplied**. Holding other variables constant, when the price of a good rises, producing the good is more profitable and the quantity supplied will increase. When the price of a good falls, the good is less profitable and the quantity supplied will decrease. Devoting more resources to the production of a good results in increasing marginal costs. Producers are likely to find the cost of producing additional units of a good will increase as they run existing factories for longer hours and pay higher prices for components and higher wages to their workers.

A. Supply Schedules and Supply Curves

A **supply schedule** is a table that shows the relationship between the price of a product and the quantity of the product supplied. A **supply curve** is a curve that shows the relationship between the price of a product and the quantity of the product supplied.

B. The Law of Supply

We expect most supply curves to be upward sloping according to the **law of supply**, which states that, holding everything else constant, increases in price cause increases in the quantity supplied, and decreases in price cause decreases in the quantity supplied. If only the price of a product changes, there is a movement along the supply curve, which is an increase or decrease in the quantity supplied. If any other variable that affects the willingness of firms to supply a good changes, the supply curve will shift; this results in an increase or decrease in supply. When firms increase the quantity of a product they wish to sell at a given price, the supply curve shifts to the right. When firms decrease the quantity of a product they wish to sell at a given price, the supply curve shifts to the left.

C. Variables That Shift Supply

The following are the most important variables that shift supply: prices of inputs, technological change, prices of substitutes in production, expected future prices, and the number of firms in the market. The factor most likely to cause a supply curve to shift is a change in the price of an input. If the price of an input (anything used in the production of a good or service) rises, the supply will decline and the supply curve will shift to the left. If the price of an input declines, the supply will increase and the supply curve will shift to the right. **Technological change** is a positive or negative change in the ability of a firm to produce a given level of output with a given amount of inputs. A positive technological change will shift a firm’s supply curve to the right; a negative technological change will shift a firm’s supply curve to the left. Alternative products that a firm could produce are called substitutes in production. If the price of a substitute in production (a music video player) increases, the supply of the product (a music player without a video screen) will shift to the left. If a firm expects that the price of its product will be higher in the future, the firm has an incentive to decrease supply in the present and increase supply in the future. When firms enter a market, the supply curve shifts to the right; when firms exit a market, the supply curve shifts to the left.

D. A Change in Supply versus a Change in Quantity Supplied

A change in supply refers to a shift in the supply curve. The supply curve will shift when there is a change in one of the variables, other than the price of the product, that affects the willingness of suppliers to sell
the product. A change in quantity supplied refers to the movement along the supply curve as a result of a change in the product’s price.

3.3 Market Equilibrium: Putting Demand and Supply Together

Learning Objective 3  Use a graph to illustrate market equilibrium.

The purpose of markets is to bring buyers and sellers together. The interaction of buyers and sellers in markets results in firms producing goods and services most desired by consumers. Market equilibrium is a situation in which quantity demanded equals quantity supplied. A competitive market equilibrium is a market equilibrium with many buyers and many sellers.

A. How Markets Eliminate Surpluses and Shortages

A market that is not in equilibrium moves toward equilibrium. When a market is in equilibrium, it remains in equilibrium. A surplus is a situation in which the quantity supplied is greater than the quantity demanded. When there is a surplus, firms have unsold goods piling up, which gives them an incentive to increase their sales by cutting the price. Cutting the price simultaneously increases the quantity demanded and decreases the quantity supplied. A shortage is a situation in which quantity demanded is greater than the quantity supplied. When a shortage occurs, some consumers will be unable to obtain the product and will have an incentive to offer to buy the product at a higher price. A higher price will simultaneously increase the quantity supplied and decrease the quantity demanded. At a competitive market equilibrium, all consumers willing to pay the market price will be able to buy as much as they want, and all firms willing to accept the market price will be able to sell as much of the product as they want. There will be no reason for the price to change unless either the demand curve or the supply curve shifts.

B. Demand and Supply Both Count

Neither consumers nor firms can dictate what the equilibrium price will be. No firm can sell anything at any price unless it can find a willing buyer, and no consumer can buy anything at any price without finding a willing seller.

3.4 The Effect of Demand and Supply Shifts on Equilibrium

Learning Objective 4  Use demand and supply graphs to predict changes in prices and quantities.

Demand and supply curves in most markets are constantly shifting, and the prices and quantities that represent equilibrium are constantly changing. This section explains how shifts in demand and supply curves affect equilibrium price and quantity.

A. The Effect of Shifts in Supply on Equilibrium

When the market supply curve shifts to the right, there will be a surplus at the original equilibrium price. The surplus is eliminated as the price falls to the new equilibrium and the quantity rises to a new
equilibrium. If existing firms exit the market, the supply curve will shift to the left, causing the equilibrium price to rise and the equilibrium quantity to fall.

B. The Effect of Shifts in Demand on Equilibrium

When population growth and income growth occur, the market demand curve shifts to the right, causing a shortage at the original equilibrium price. To eliminate the shortage, the equilibrium price and quantity rise. If the price of a complementary good were to rise, the demand for the good would decrease. This change would cause the demand curve to shift to the left and the equilibrium price and quantity would both decrease.

C. The Effect of Shifts in Demand and Supply Over Time

In many markets, the demand curves shift to the right over time as population and income grow. The supply curve also shifts to the right as new firms enter the market and positive technological change occurs. Whether the equilibrium price in a market rises or falls over time usually depends on whether demand shifts to the right more than does supply. When demand shifts more than does supply, the equilibrium price rises. When supply shifts to the right more than demand, the equilibrium price fall.

D. Shifts in Curves versus Movements Along a Curve

It is important to remember that when a shift in a demand curve or a supply curve causes a change in equilibrium price, the change in price does not cause a further change in demand or supply.