

Learning Resource

The Law of Supply

What you'll learn to do: Explain the law of supply

So far you've learned about the role of demand in economics—which is the consumer side of the story. In this section, you'll learn about the producer side of economics to see what factors impact the amount of goods supplied in a market. For example, suppose the global price of petroleum falls significantly. What do you think will happen to the supply of gasoline? How are supply and price connected? In the following readings you'll examine the law of supply and see why this counterpart to "demand" is also essential to understanding economics.

Learning Outcomes

- Explain the law of supply
- Explain a supply curve
- Explain the factors that can change supply

The **law of supply** states that more of a good will be provided the higher its price; less will be provided the lower its price, *ceteris paribus*. There is a direct relationship between price and quantity supplied.

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What Is Supply?



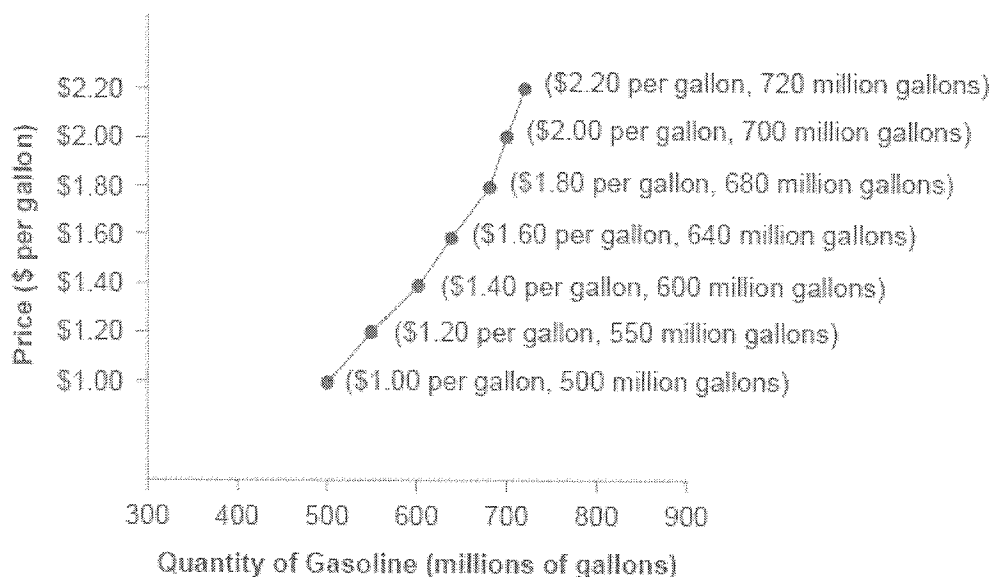
Supply of Goods and Services

When economists talk about **supply**, they mean the amount of some good or service a producer is willing to supply at each price. Price is what the producer receives for selling one unit of a good or service. A rise in price almost always leads to an increase in the quantity supplied of that good or service, while a fall in price will decrease the quantity supplied. When the price of gasoline rises, for example, it encourages profit-seeking firms to take several actions: expand exploration for oil reserves; drill for more oil; invest in more pipelines and oil tankers to bring the oil to plants where it can be refined into gasoline; build new oil refineries; purchase additional pipelines and trucks to ship the gasoline to gas stations; and open more gas stations or keep existing gas stations open longer hours. Economists call this positive relationship between price and quantity supplied—that a higher price leads to a higher quantity supplied and a lower price leads to a lower quantity supplied—the **law of supply**. The law of supply, like the law of demand, assumes that all other variables that affect supply (to be explained in the next reading) are held equal.

Supply vs. Quantity Supplied.

In economic terminology, supply is not the same as quantity supplied. When economists refer to supply, they mean the relationship between a range of prices and the quantities supplied at those prices, a relationship that can be illustrated with a supply curve or a supply schedule. When economists refer to **quantity supplied**, they mean only a certain point on the supply curve, or one quantity on the supply schedule. In short, supply refers to the curve, and quantity supplied refers to the (specific) point on the curve.

The figure below, "A Supply Curve for Gasoline," illustrates the law of supply, again using the market for gasoline as an example. Like demand, supply can be illustrated using a table or a graph. A **supply schedule** is a table—like "Price and Supply of Gasoline," below—that shows the quantity supplied at a range of different prices. Again, price is measured in dollars per gallon of gasoline, and quantity demanded is measured in millions of gallons. A **supply curve** is a graphic illustration of the relationship between price, shown on the vertical axis, and quantity, shown on the horizontal axis. You can see from this curve ("A Supply Curve for Gasoline") that as the price rises, quantity supplied also increases, and vice versa. The supply schedule and the supply curve are just two different ways of showing the same information. Notice that the horizontal and vertical axes on the graph for the supply curve are the same as for the demand curve.



A Supply Curve for Gasoline

Price and Supply of Gasoline

Price (per gallon)

Quantity Supplied (millions of gallons)

\$1.00

500

Price (per gallon)	Quantity Supplied (millions of gallons)
\$1.20	550
\$1.40	600
\$1.60	640
\$1.80	680
\$2.00	700
\$2.20	720

The shape of supply curves will vary somewhat according to the product: steeper, flatter, straighter, or curved. Nearly all supply curves, however, share a basic similarity: They slope up from left to right and illustrate the law of supply. As the price rises, say, from \$1.00 per gallon to \$2.20 per gallon, the quantity supplied increases from 500 gallons to 720 gallons. Conversely, as the price falls, the quantity supplied decreases.

Factors Affecting Supply



How Production Costs Affect Supply

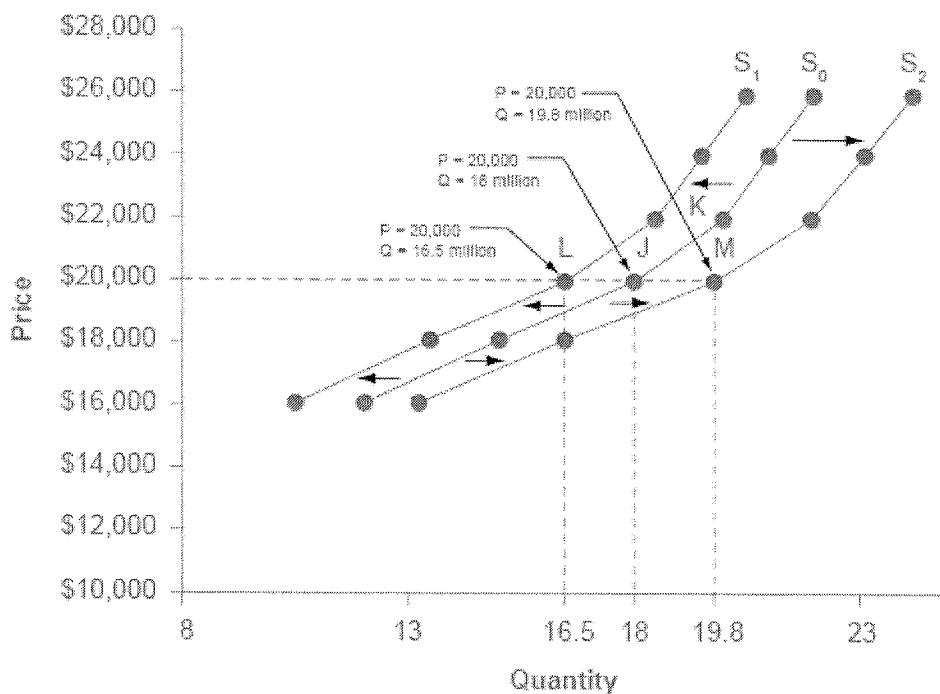
A supply curve shows how quantity supplied will change as the price rises and falls, assuming *ceteris paribus*, so that no other economically relevant factors are changing. If other factors relevant to supply do change, then the entire supply curve will shift. Just as a shift in demand is represented by a change in the quantity demanded at every price, a **shift in supply** means a change in the quantity supplied at every price.

In thinking about the factors that affect supply, remember what motivates firms: profits, which are the difference between revenues and costs. Goods and services are produced using combinations of labor, materials, and machinery, or what we call **inputs** (also called **factors of production**). If a firm faces lower costs of production, while the prices for the good or service the firm produces remain unchanged, a firm's profits go up. When a firm's profits increase, it's more motivated to produce **output** (goods or services), since the more it produces the more profit it will earn. So, when costs of production fall, a firm will tend to supply a larger quantity at any given price for its output. This can be shown by the supply curve shifting to the right.

Take, for example, a messenger company that delivers packages around a city. The company may find that buying gasoline is one of its main costs. If the price of gasoline falls, then the company will find it can deliver packages more cheaply than before. Since lower costs correspond to higher profits, the messenger company may now supply more of its services at any given price. For example, given the lower gasoline prices, the company can now serve a greater area and increase its supply.

Conversely, if a firm faces higher costs of production, then it will earn lower profits at any given selling price for its products. As a result, a higher cost of production typically causes a firm to supply a smaller quantity at any given price. In this case, the supply curve shifts to the left.

Consider the supply for cars, shown by curve S_0 in the figure, "Shifts in Supply: A Car Example," below. Point J indicates that if the price is \$20,000, the quantity supplied will be 18 million cars. If the price rises to \$22,000 per car, *ceteris paribus*, the quantity supplied will rise to 20 million cars, as point K on the S_0 curve shows. The same information can be shown in table form, as in "Price and Shifts in Supply: A Car Example."



Shifts in Supply: A Car Example

Price and Shifts in Supply: A Car Example

Original Quantity Supplied S_0			
Price	Decrease to S_1		Increase to S_2

Price	Decrease to S_1	Original Quantity Supplied S_0	Increase to S_2
\$16,000	10.5 million	12.0 million	13.2 million
\$18,000	13.5 million	15.0 million	16.5 million
\$20,000	16.5 million	18.0 million	19.8 million
\$22,000	18.5 million	20.0 million	22.0 million
\$24,000	19.5 million	21.0 million	23.1 million

Now imagine that the price of steel—an important component in vehicle manufacturing—rises, so that producing a car has become more expensive. At any given price for selling cars, car manufacturers will react by supplying a lower quantity. This can be shown graphically as a leftward shift of supply, from S_0 to S_1 , which indicates that at any given price, the quantity supplied decreases. In this example, at a price of \$20,000, the quantity supplied decreases from 18 million on the original supply curve (S_0) to 16.5 million on the supply curve S_1 , which is labeled as point L.

Conversely, if the price of steel decreases, producing a car becomes less expensive. At any given price for selling cars, car manufacturers can now expect to earn higher profits, so they will supply a higher quantity. The shift of supply to the right, from S_0 to S_2 , means that at all prices, the quantity supplied has increased. In this example, at a price of \$20,000, the quantity supplied increases from 18 million on the original supply curve (S_0) to 19.8 million on the supply curve S_2 , which is labeled M.



Other Factors That Affect Supply

In the example above, we saw that changes in the prices of inputs in the production process will affect the cost of production and thus the supply. Several other things affect the cost of production, too, such as changes in weather or other natural conditions, new technologies for production, and some government policies.

The cost of production for many agricultural products will be affected by changes in natural conditions. For example, the area of northern China that typically grows about 60 percent of the country's wheat output experienced its worst drought in at least 50 years in the second half of 2009. A drought decreases the supply of agricultural products, which means that at any given price, a lower quantity will be supplied; conversely, especially good weather would shift the supply curve to the right.

When a firm discovers a new technology that allows it to produce at a lower cost, the supply curve will shift to the right, as well. For instance, in the 1960s a major scientific effort nicknamed the Green Revolution focused on breeding improved seeds for basic crops like wheat and rice. By the early 1990s, more than two-thirds of the wheat and rice in low-income

countries around the world was grown with these Green Revolution seeds—and the harvest was twice as high per acre. A technological improvement that reduces costs of production will shift supply to the right, so that a greater quantity will be produced at any given price.

Government policies can affect the cost of production and the supply curve through taxes, regulations, and subsidies. For example, the US government imposes a tax on alcoholic beverages that collects about \$8 billion per year from producers. Taxes are treated as costs by businesses. Higher costs decrease supply for the reasons discussed above. Other examples of policy that can affect cost are the wide array of government regulations that require firms to spend money to provide a cleaner environment or a safer workplace; complying with regulations increases costs.

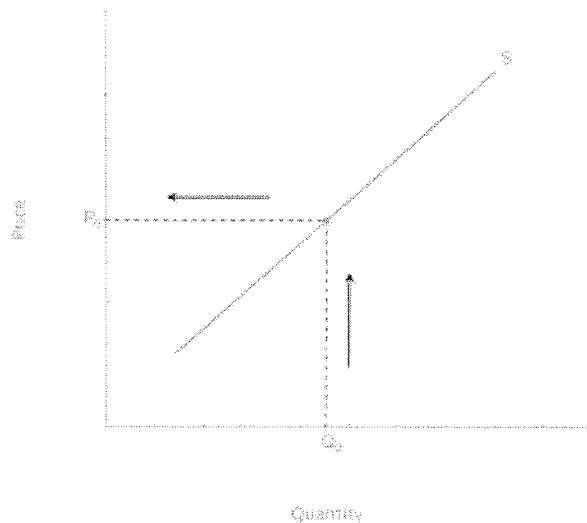
A government subsidy, on the other hand, is the opposite of a tax. A **subsidy** occurs when the government pays a firm directly or reduces the firm's taxes if the firm carries out certain actions. From the firm's perspective, taxes or regulations are an additional cost of production that shifts supply to the left, leading the firm to produce a lower quantity at every given price. Government subsidies reduce the cost of production and increase supply at every given price, shifting supply to the right.

Example: Shift in Supply

Shift in Supply Due to Production-Cost Increase

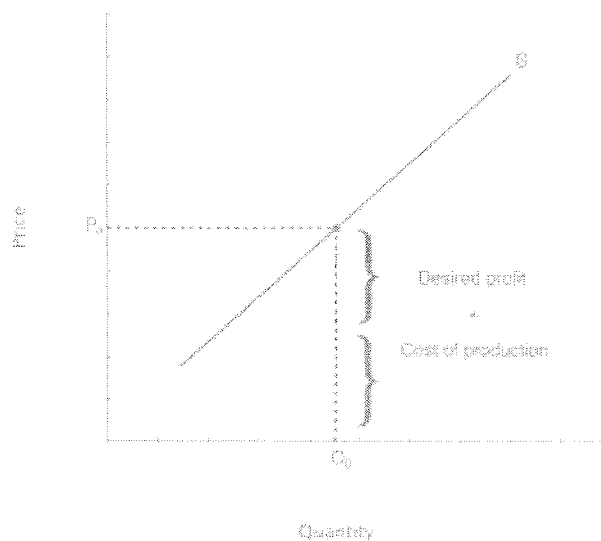
We know that a supply curve shows the minimum price a firm will accept to produce a given quantity of output. What happens to the supply curve when the cost of production goes up? Following is an example of a shift in supply due to an increase in production cost.

Step 1. Draw a graph of a supply curve for pizza. Pick a quantity (like Q_0). If you draw a vertical line up from Q_0 to the supply curve, you will see the price the firm chooses. An example is shown in the figure, "Supply Curve," below.



Supply Curve. The supply curve can be used to show the minimum price a firm will accept to produce a given quantity of output.

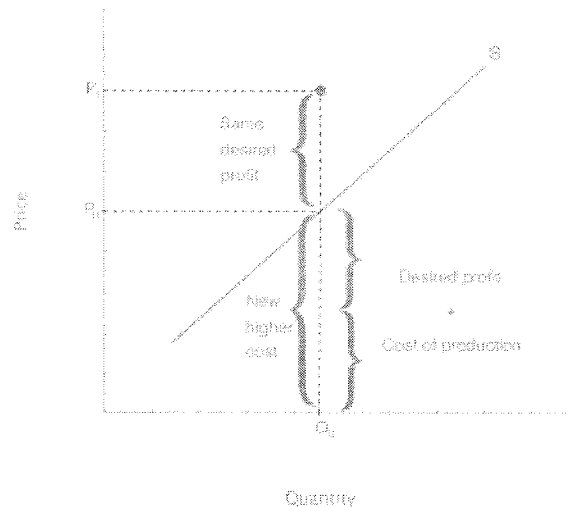
Step 2. Why did the firm choose that price and not some other? One way to think about this is that the price is composed of two parts. The first part is the average cost of production: in this case, the cost of the pizza ingredients (dough, sauce, cheese, pepperoni, and so on), the cost of the pizza oven, the rent on the shop, and the wages of the workers. The second part is the firm's desired profit, which is determined, among other factors, by the profit margins in that particular business. If you add these two parts together, you get the price the firm wishes to charge. The quantity Q_0 and associated price P_0 give you one point on the firm's supply curve, as shown in the figure, "Setting Prices," below.



Setting Prices. The cost of production and the desired profit equal the price a

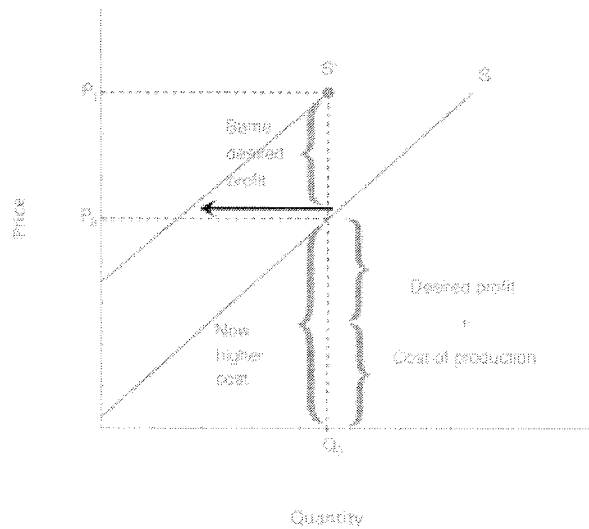
firm will set for a product.

Step 3. Now, suppose that the cost of production goes up. Perhaps cheese has become more expensive by \$0.75 per pizza. If that is true, the firm will want to raise its price by the amount of the increase in cost (\$0.75). Draw this point on the supply curve directly above the initial point on the curve, but \$0.75 higher, as shown in the figure, “Increasing Costs Lead to Increasing Price,” below.



Increasing Costs Lead to Increasing Price. Because the cost of production plus the desired profit equal the price a firm will set for a product, if the cost of production increases, the price for the product will also need to increase.

Step 4. Shift the supply curve through this point. You will see that an increase in cost causes a leftward shift of the supply curve so that at any price, the quantities supplied will be smaller, as shown in the figure, “Supply Curve Shifted Left,” below.



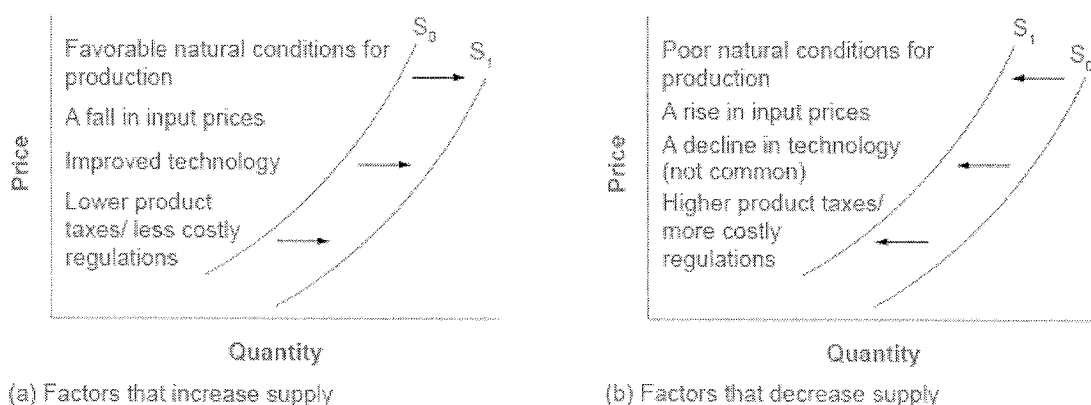
Supply Curve Shifted Left

When the cost of production increases, the supply curve shifts leftward to a new price level.

Summary of Factors That Change Supply

Changes in the cost of inputs, natural disasters, new technologies, and the impact of government decisions all affect the cost of production. In turn, these factors affect how much firms are willing to supply at any given price.

The figure, “Factors That Shift Supply Curves,” below, summarizes factors that change the supply of goods and services. Notice that a change in the price of the product itself is not among the factors that shift the supply curve. Although a change in price of a good or service typically causes a change in quantity supplied or a movement along the supply curve for that specific good or service, it does not cause the supply curve itself to shift.



Factors That Shift Supply Curves

(a) A list of factors that can cause an increase in supply from S_0 to S_1 . (b) The same factors, if their direction is reversed, can cause a decrease in supply from S_0 to S_1

Because demand and supply curves appear on a two-dimensional diagram with only price and quantity on the axes, an unwary visitor to the land of economics might be fooled into believing that economics is about only four topics: Demand, supply, price, and quantity. However, demand and supply are really “umbrella” concepts: demand covers all the factors that affect demand, and supply covers all the factors that affect supply. Factors other than price that affect demand and supply are included by using shifts in the demand or the supply curve. In this way, the two-dimensional demand and supply model becomes a powerful tool for analyzing a wide range of economic circumstances.

Check Your Knowledge

Answer the following questions to see how well you understand the topics covered in this section. This short quiz does not count toward your grade in the class, and you can retake it as many times as you wish.

Use this quiz to decide whether to study the section further or move on.

Choose the **BEST** answer.

Question 1

A decrease in the quantity supplied can be the result of:

- ☐ a decrease in price.
- ☐ a decrease in supply.
- ☐ increased demand.

Question 2

Suppose Congress passes legislation that offers subsidies to orange farmers. The impact on the market for orange juice will be a rightward shift of

- ☐ both the supply and demand curves.
- ☐ the demand curve.
- ☐ the supply curve.

Question 3

The relationship between the price in a market and the amount that producers collectively make available for sale, is referred to as

- ☐ quantity supplied.
- ☐ equilibrium quantity.
- ☐ supply.

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Learning Resource

Equilibrium

What you'll learn to do: Explain market equilibrium, surplus, and shortage

In this section, you'll learn how supply and demand interact to determine the price in a market.

Learning Outcomes

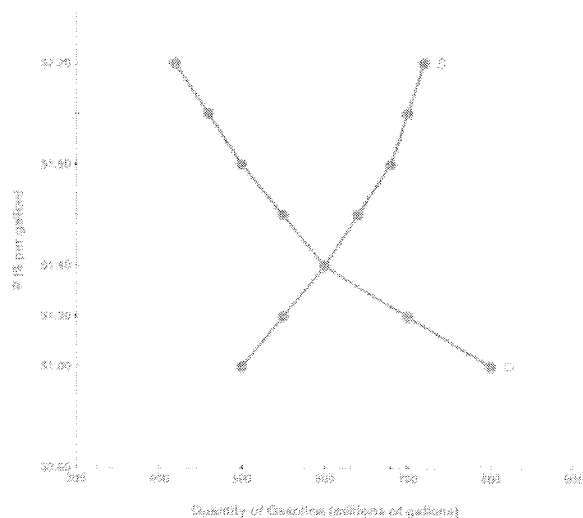
- Explain equilibrium price and quantity
- Explain surpluses and shortages

Equilibrium, Surplus, and Shortage

Demand and Supply

In order to understand market equilibrium, we need to start with the laws of demand and supply. Recall that the law of demand says that as price decreases, consumers demand a higher quantity. Similarly, the law of supply says that when price decreases, producers supply a lower quantity.

Because the graphs for demand and supply curves both have price on the vertical axis and quantity on the horizontal axis, the demand curve and supply curve for a particular good or service can appear on the same graph. Together, demand and supply determine the price and the quantity that will be bought and sold in a market. These relationships are shown as the demand and supply curves in the figure, "Demand and Supply for Gasoline," which is based on the data in the table, "Price, Quantity Demanded, and Quantity Supplied," below.



Demand and Supply for Gasoline

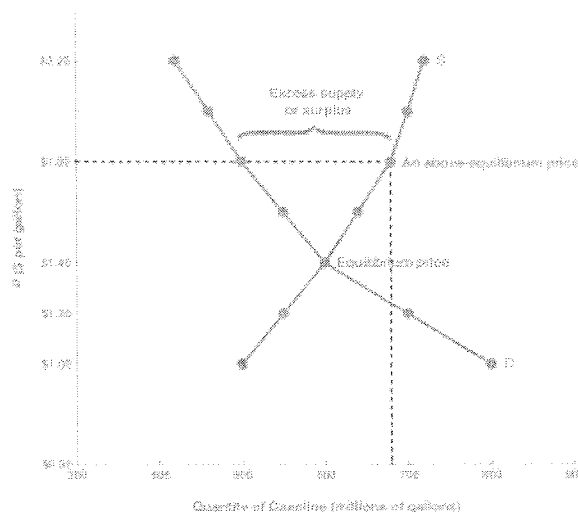
Price, Quantity Demanded, and Quantity Supplied

Price (per gallon)	Quantity demanded (millions of gallons)	Quantity supplied (millions of gallons)
\$1.00	800	500
\$1.20	700	550
\$1.40	600	600
\$1.60	550	640
\$1.80	500	680
\$2.00	460	700
\$2.20	420	720

If you look at either the figure or table, you'll see that, at most prices, the amount that consumers want to buy (which we call **quantity demanded**) is different from the amount that producers want to sell (which we call **quantity supplied**). What does it mean when the quantity demanded and the quantity supplied aren't the same? Answer: a surplus or a shortage.

Surplus or Excess Supply

Let's consider one scenario in which the amount that producers want to sell doesn't match the amount that consumers want to buy. Suppose that a market produces more than the quantity demanded. Let's use our example of the price of a gallon of gasoline. Imagine that the price of a gallon of gasoline is \$1.80 per gallon. This price is illustrated by the dashed horizontal line at the price of \$1.80 per gallon in the figure, "Demand and Supply for Gasoline: Surplus," below.



Demand and Supply for Gasoline: Surplus

At this price, the quantity demanded is 500 gallons, and the quantity of gasoline supplied is 680 gallons. You can also find these numbers in the "Price, Quantity Demanded, and Quantity Supplied" table, above. Now, compare quantity demanded and quantity supplied at this price. Quantity supplied (680) is greater than quantity demanded (500). Or, to put it in words, the amount that producers want to sell is greater than the amount that consumers want to buy. We call this a situation of **excess supply** (since $Q_s > Q_d$) or a **surplus**. Note that whenever we compare supply and demand, it's in the context of a specific price—in this case, \$1.80 per gallon.

With a surplus, gasoline accumulates at gas stations, in tanker trucks, in pipelines, and at oil refineries. This accumulation puts pressure on gasoline sellers. If a surplus remains unsold, those firms involved in making and selling gasoline are not receiving enough cash to pay their workers and cover their expenses. In this situation, some producers and sellers will want to cut prices, because it is better to sell at a lower price than not to sell at all. Once some sellers start cutting prices, others will follow to avoid losing sales. These price reductions will, in turn, stimulate a higher quantity demanded.

How far will the price fall? Whenever there is a surplus, the price will drop until the surplus goes away. When the surplus is eliminated, the quantity supplied just equals the quantity demanded—that is, the amount that producers want to sell exactly equals the amount that consumers want to buy. We call this **equilibrium**, which means “balance.” In this case, the equilibrium occurs at a price of \$1.40 per gallon and at a quantity of 600 gallons. You can see this in the “Demand and Supply for Gasoline: Surplus” figure (and in the “Demand and Supply for Gasoline” figure) where the supply and demand curves cross. You can also find it in the “Price, Quantity Demanded, and Quantity Supplied” table (the numbers in **bold**).

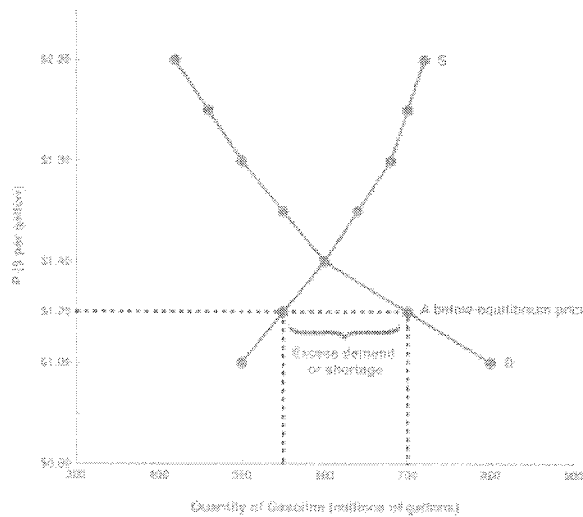
Equilibrium: Where Supply and Demand Intersect

When two lines on a diagram cross, this intersection usually means something. On a graph, the point where the supply curve (S) and the demand curve (D) intersect is the **equilibrium**. The **equilibrium price** is the only price where the desires of consumers and the desires of producers agree—that is, where the amount of the product that consumers want to buy (quantity demanded) is equal to the amount producers want to sell (quantity supplied). This mutually desired amount is called the **equilibrium quantity**. At any other price, the quantity demanded does not equal the quantity supplied, so the market is not in equilibrium at that price.

If you have only the demand and supply schedules, and no graph, you can find the equilibrium by looking for the price level on the tables where the quantity demanded and the quantity supplied are equal (again, the numbers in bold in the “Price, Quantity Demanded, and Quantity Supplied” table indicate this point).

Shortage or Excess Demand

Let's return to our gasoline problem. Suppose that the price is \$1.20 per gallon, as the dashed horizontal line at this price in the figure, “Demand and Supply for Gasoline: Shortage,” below, shows. At this price, the quantity demanded is 700 gallons, and the quantity supplied is 550 gallons.



Demand and Supply for Gasoline: Shortage

Quantity supplied (550) is less than quantity demanded (700). Or, to put it in words, the amount that producers want to sell is less than the amount that consumers want to buy. We call this a situation of **excess demand** (since $Q_d > Q_s$) or a **shortage**.

In this situation, eager gasoline buyers mob the gas stations, only to find many stations running short of fuel. Oil companies and gas stations recognize that they have an opportunity to make higher profits by selling what gasoline they have at a higher price. These price increases will stimulate the quantity supplied and reduce the quantity demanded. As this occurs, the shortage will decrease. How far will the price rise? The price will rise until the shortage is eliminated and the quantity supplied equals quantity demanded. In other words, the market will be in equilibrium again. As before, the equilibrium occurs at a price of \$1.40 per gallon and at a quantity of 600 gallons.

Generally any time the price for a good is below the equilibrium level, incentives built into the structure of demand and supply will create pressures for the price to rise. Similarly, any time the price for a good is above the equilibrium level, similar pressures will generally cause the price to fall.

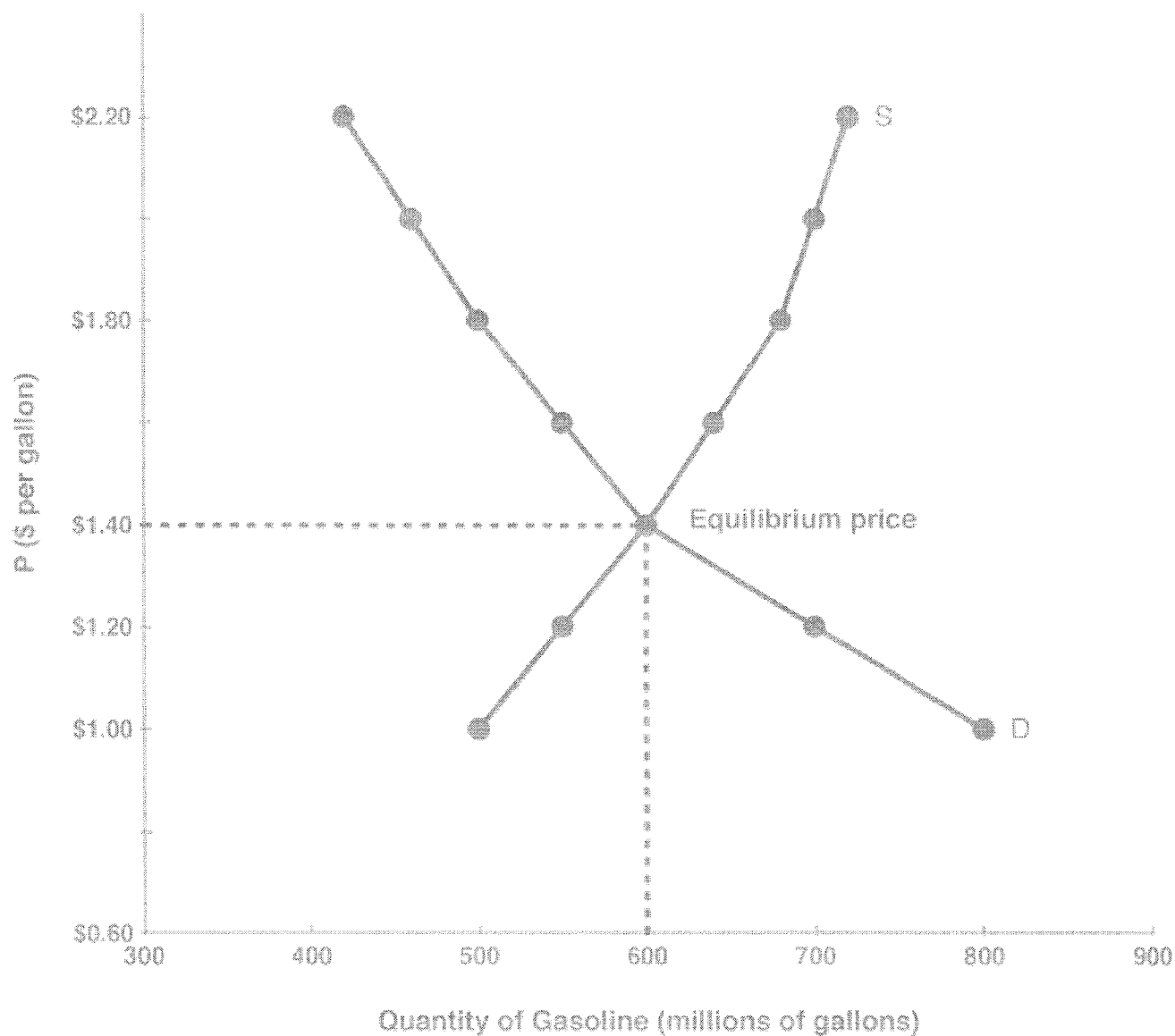
As you can see, the quantity supplied or quantity demanded in a free market will correct over time to restore balance, or equilibrium.

Equilibrium and Economic Efficiency

Equilibrium is important to create both a balanced market and an efficient market. If a market is at its equilibrium price and quantity, then it has no reason to move away from that point, because it's balancing the quantity supplied and the quantity demanded. However, if a market is not at equilibrium, then economic pressures arise to move the market toward the equilibrium price and equilibrium quantity. This happens either because there is more supply than what the market is demanding or because there is more demand than the market is supplying. This balance is a natural function of a free-market economy.

Also, a competitive market that is operating at equilibrium is an efficient market. Economists typically define efficiency in this way: when it is impossible to improve the situation of one party without imposing a cost on another. Conversely, if a situation is inefficient, it becomes possible to benefit at least one party without imposing costs on others.

Efficiency in the demand and supply model has the same basic meaning: The economy is getting as much benefit as possible from its scarce resources, and all the possible gains from trade have been achieved. In other words, the optimal amount of each good and service is being produced and consumed.



Demand and Supply for Gasoline: Equilibrium

<https://youtu.be/W5nHpAn6FvQ> (<https://youtu.be/W5nHpAn6FvQ>)

Equilibrium occurs at the point where quantity supplied = quantity demanded.

Check Your Knowledge

Answer the following questions to see how well you understand the topics covered in this section. This short quiz does not count toward your grade in the class, and you can retake it as many times as you wish.

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Choose the **BEST** answer.

Question 1

The one unique point in which quantity demanded equals quantity supplied is called

- ☐ supply schedule.
- ☐ market stability.
- ☐ equilibrium.

Question 2

When the price in a market is above its equilibrium price

- ☐ a shortage exists.
- ☐ the quantity supplied is less than the quantity demanded.
- ☐ in the typical warehouse for that item, inventory is unintentionally rising.

Question 3

In a market with an upward sloping supply curve and a downward sloping demand curve, when the actual price must be higher than the equilibrium price, there will be

- ☐ an increase in the price.
- ☐ excess supply.
- ☐ excess demand.

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Learning Resource

Health of the Economy

What you'll learn to do: Describe how economists evaluate the health of an economy

This section will help you understand why economists use terms like GDP, CPI, and unemployment rates to assess how an economy is doing.



Part of a Dollar Bill

Learning Outcomes

- Explain the use of GDP as an economic indicator

Economic Indicators

When you go to the doctor with the flu, the nurse takes your temperature. If your temperature is much above 98.6 degrees, they declare you to have a fever. Depending on your other symptoms, they may prescribe medication to bring down your fever and fight the infection. How might you (or an economist) take the temperature of an economy, so to speak, to check for health or sickness? No single measurement like body temperature will give a complete picture, so instead economists rely on what are called economic indicators. An **economic indicator** is a statistic that provides valuable information about the economy. There is no shortage of economic indicators, and trying to follow them all would be an overwhelming task. Many different economic indicators are tracked in order to evaluate the economy in different ways, or from different perspectives.

Statistics that report the status of the economy a few months in the past are called **lagging economic indicators**. One such lagging indicator is the average length of unemployment. If unemployed workers have remained out of work for a long time, we may infer that the economy has been slow. Indicators that predict the status of the economy 3 to 12 months into the future are called **leading economic indicators**. For example, the number of building permits issued is often a good way to assess the strength of the housing market. An increase in this statistic—which tells us how many new housing units are being built—indicates that the economy is improving, because increased building brings money into the economy not only through new home sales but also through sales of furniture and appliances to furnish these homes. If a leading indicator rises, the economy is likely to expand in the coming year. If it falls, the economy is likely to slow down. Governments, businesses, and investors use economic indicators as a measure of how well an economy is meeting its goals.

Economic Goals

The world's market-based economies all share the following three main goals:

1. growth
2. high employment
3. price stability

Economic indicators reveal information about how the economy is doing relative to these goals. Let's look more closely at growth, employment, and price stability, and the means used to measure them.

Growth

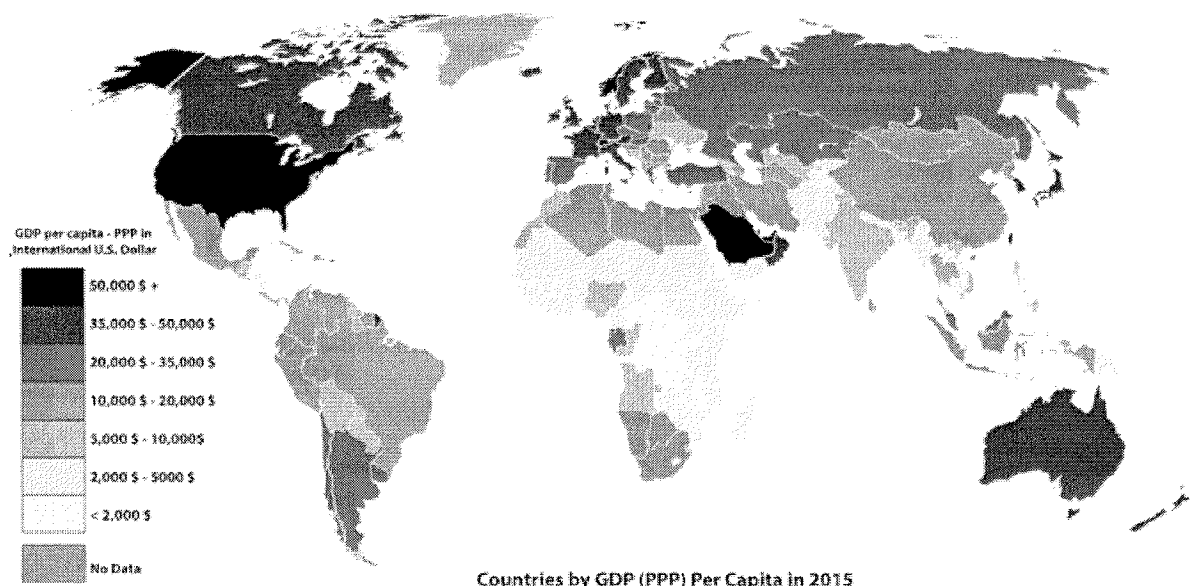
GDP

The size of a nation's overall economy is typically measured by its **gross domestic product** (GDP), which is the value of all officially recognized final goods and services produced within a country in a given period of time (usually a year). Intermediate goods (such as steel or plywood used as inputs in the production of other goods) are not included because they would cause double-counting. GDP only refers to goods produced

within a particular country. For instance, if a firm is located in one country but manufactures goods in another, those goods are counted as part of the manufacturing country's GDP, not the firm's home country. BMW is a German company, but cars manufactured in the United States are counted as part of the US GDP.

The measurement of GDP involves counting up the production of millions of different goods and services—smartphones, cars, music downloads, computers, steel, bananas, college educations, and all other new goods and services produced in the current year—and summing them into a total dollar value. This task is straightforward: Take the quantity of everything produced, multiply it by the price at which each product sold, and add up the total. In 2014, the U.S. GDP totaled \$17.4 trillion, the largest GDP in the world.

When a country's GDP grows, its economy is likewise considered to be expanding and growing. Increases in GDP are expressed as a percentage rate of increase, and they are often expressed as GDP per capita (per person). In order to calculate GDP per capita, the GDP is divided by the total population of a country. Also, when measuring economic growth, agencies use "real GDP," which is adjusted for inflation. If the GDP figures were not adjusted for inflation, then steep rises in prices (inflation) could be mistaken for growth. Likewise, if GDP is not expressed per capita, then a country like India with a massive population would always be regarded as having one of the largest, fastest growing economies. The map, below, shows the world's GDP per capita by country.



GDP Per Capita by Country

High Employment

A country's employment level—as defined by cyclical, structural, and frictional unemployment—is one of the most important economic indicators. Unemployment has an enormous impact on business operations, from the largest multinational corporation to the smallest mom-and-pop gift shop. When people are unemployed, even temporarily, they stop spending money on nonessential goods and services, which slows down the economy. Such a slowdown leads to a decrease in revenue for businesses, which causes companies to lay off more workers, which means more unemployed people who can't purchase their goods and services. Because of this spiraling effect, unemployment is a closely watched economic indicator.

The Unemployment Rate

There are three important categories of unemployment levels that need to be understood in order to evaluate the effect of employment levels on overall economic performance: cyclical unemployment, structural unemployment, and frictional unemployment.

Cyclical Unemployment

Cyclical unemployment occurs when there is not enough total demand in the economy to provide jobs for everyone who wants to work. When demand for most goods and services falls, less production is needed, and, as a result, fewer workers are needed; wages generally stay put and do not fall to meet the equilibrium level, and mass unemployment results. With cyclical unemployment, the number of unemployed workers exceeds the number of job vacancies, so that even if full employment was reached and all open jobs were filled, some workers would still be without jobs. In economics, **full employment** is the level of employment rate where there is no cyclical unemployment.

Structural Unemployment

Structural unemployment occurs when a labor market is unable to provide jobs for everyone who wants to work, because there is a mismatch between the skills of the unemployed workers and the skills needed for the available jobs. Structural unemployment may develop or increase as a result of persistent cyclical unemployment: If an economy suffers from long-lasting low aggregate demand, many of the unemployed may become disheartened, and their skills (including job-searching skills) become rusty and obsolete. The implication is that sustained high demand may lower structural unemployment. Seasonal unemployment can be seen as a kind of structural unemployment, since it's a type of unemployment that is linked to certain kinds of jobs (construction work or migratory farm work, for instance).

Frictional Unemployment

Frictional unemployment is the time period between jobs when a worker is searching for or transitioning from one job to another. It's sometimes called *search unemployment* and can be voluntary depending on the circumstances of the unemployed individual. Frictional unemployment is always present in an economy, so the level of involuntary unemployment is really the unemployment rate minus the rate of frictional unemployment. Frictional unemployment exists because both jobs and workers are heterogeneous, and a mismatch can result between the characteristics of supply and demand. Such a mismatch can be related to any of the following reasons:

- skills
- payment
- worktime
- location
- seasonal industries
- attitude
- taste

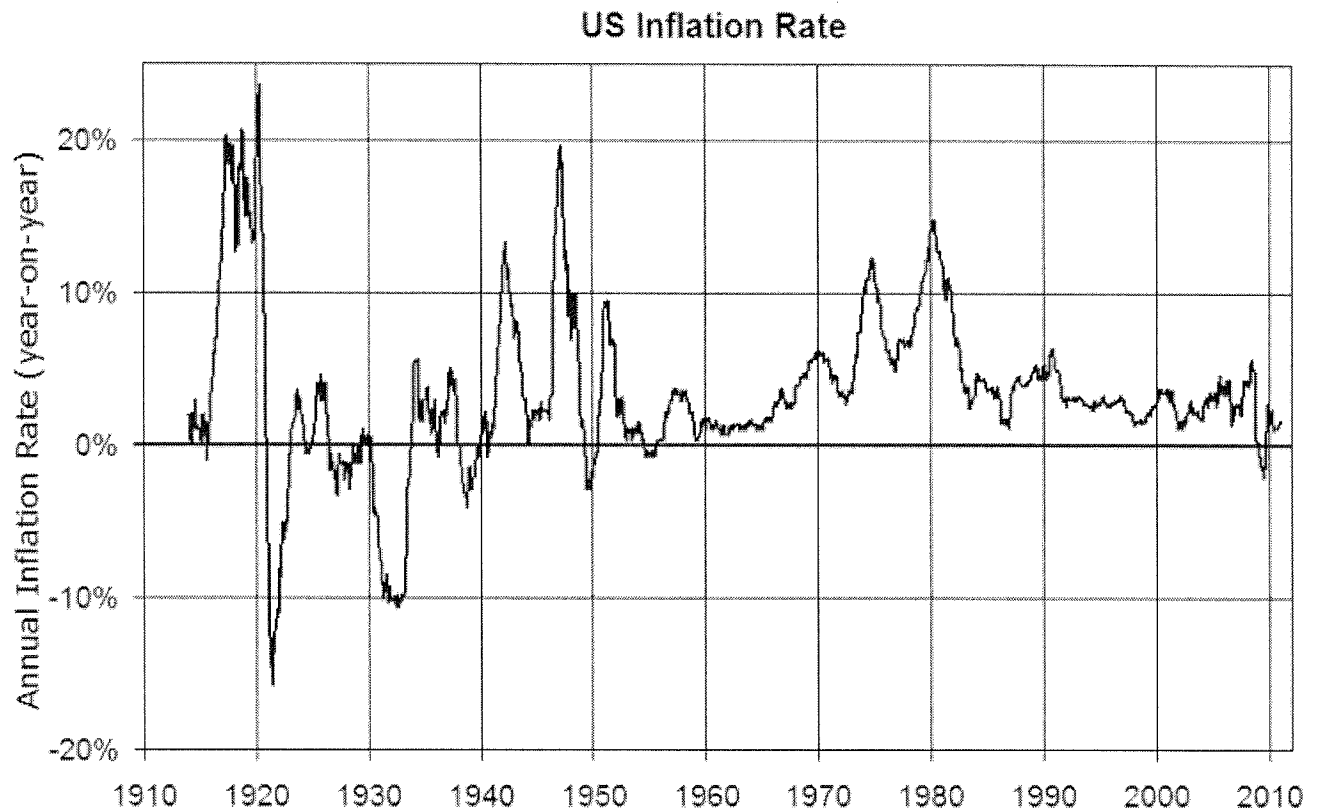
There can be a range of other factors, too. New entrants (such as graduating students) and people reentering the workforce (such as former homemakers) can also suffer a spell of frictional unemployment. Workers as well as employers accept a certain level of imperfection, risk, or compromise, but usually not right away; they will invest some time and effort to find a better match. This is in fact beneficial to the economy, since it results in a better allocation of resources.

Price Stability

The third major goal of all economies is maintaining price stability. **Price stability** occurs when prices remain largely unchanged, and there isn't rapid inflation or deflation. **Inflation** is a rise in the general price level of goods and services during a period of time. **Deflation** is a decrease in the general price level of goods and services. Price stability means that the average price for goods and services either doesn't change or changes very little. Most economists believe that steady levels of low-to-moderate inflation are ideal.

As inflation pushes prices higher (slowly), businesses increase their revenues, people put more money into the system, and assets increase in value, which are all positive economic indicators. This is why economists are careful to say that a steady level of low inflation is a positive sign in the economy. As inflation rises, prices rise and values rise, which both contribute to an increase in GDP—another measure of the health of an economy. During the past three decades, inflation has been relatively low (well below 10 percent) in the US economy, and this has contributed to the general stability of the economy. Inflation doesn't always increase slowly. A sudden, rapid rise in inflation is called **hyperinflation**. Argentina has recently (and repeatedly) experienced runaway inflation, with consumer prices increasing in some cases by 50 percent in a matter of days.

The figure, "US Inflation Rate," below, shows the US inflation rate from 1989 to 2009. As you can see, looking back at the twentieth century, there have been several periods when inflation caused the price level to rise at double-digit rates, but nothing has come close to hyperinflation.



US Inflation Rate

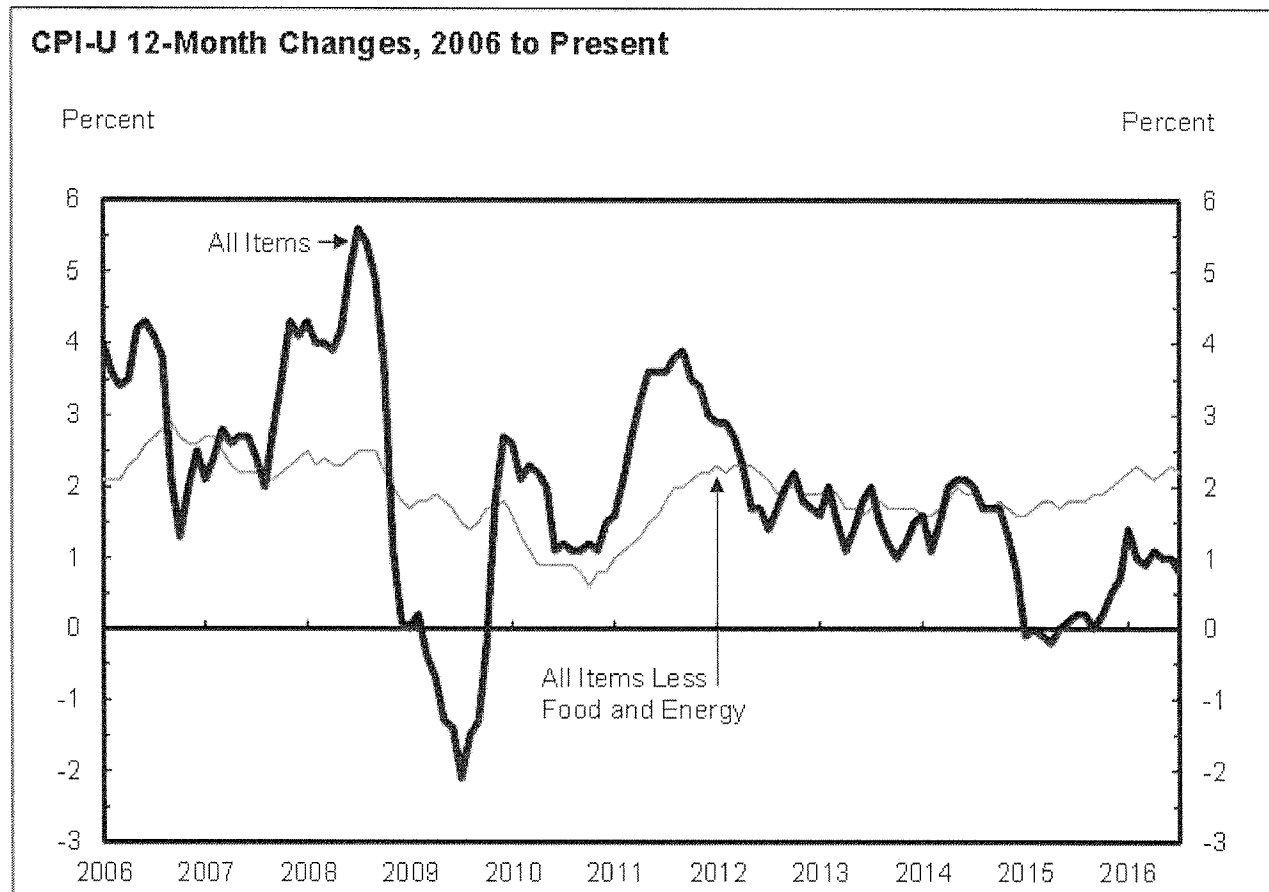
Consumer Price Index (CPI)

The most commonly cited measure of inflation in the United States is the **consumer price index (CPI)**. The CPI measures changes in the price level of consumer goods and services purchased by households. The CPI in the United States is defined by the Bureau of Labor Statistics (BLS) as “a measure of the average change over time in the prices paid by urban consumers for a market basket of consumer goods and services.”

The CPI market basket represents all the consumer goods and services purchased by urban households. Price data are collected for over 180 categories, which BLS has grouped into 8 major groups. These major groups, with examples of categories in each, are as follows:

- food and beverages (ham, eggs, carbonated drinks, coffee, meals and snacks)
- housing (rent of primary residence, fuel oil, bedroom furniture)
- apparel (men’s shirts and sweaters, women’s dresses, jewelry)
- transportation (new vehicles, gasoline, tires, airline fares)
- medical care (prescription drugs and medical supplies, physicians’ services, eyeglasses and eye care, hospital services)
- recreation (television sets, cable TV, pets and pet products, sports equipment, admissions)
- education and communication (college tuition, postage, telephone services, computer software and accessories)
- other goods and services (tobacco and smoking products, haircuts and other personal care services, funeral expenses)

The CPI simplifies the measurement of changes in prices over time. By selecting an appropriate reference base and setting the average index level for that time period equal to 100, it is possible to compare this month's (or last year's) price index level with the reference base period or to any other time period. The current standard reference base period is 1982–1984=100. That is, all price changes are measured from a base (100) that represents the average index level of the 36-month period encompassing 1982, 1983, and 1984 (US Bureau of Labor Statistics, n.d.).



Consumer Price Index 2006 to 2016 (Source: US BLS)

Consumer Confidence Index

Another important economic indicator is the **consumer confidence index**. This indicator measures the degree of optimism that consumers feel about the overall state of the economy and their personal financial situations. How confident people feel about the stability of their incomes determines their spending activity and therefore serves as one of the key indicators for the overall shape of the economy. In essence, if the economy expands, causing consumer confidence to be higher, consumers will be making more purchases. On the other hand, if the economy contracts or is in bad shape, confidence is lower, and consumers tend to save more and spend less. A month-to-month diminishing trend in consumer confidence suggests that in the current state of the economy most consumers have a negative outlook on their ability to find and retain good jobs.

The ability to predict major changes in consumer confidence allows businesses to gauge the willingness of consumers to make new purchases. As a result, businesses can adjust their operations, and the government can prepare for changing tax revenue. If confidence is dropping and consumers are expected to reduce their spending, most producers will tend to reduce their production volumes accordingly. For example, if manufacturers anticipate that consumers will reduce retail purchases, especially for expensive and durable goods, they will cut down their inventories in advance, and may delay investing in new projects and facilities. The government will get ready for the reduction in future tax revenues. On the other hand, if consumer confidence is improving, people are expected to increase their purchases of goods and services. In anticipation of that change, manufacturers can boost production and inventories. Large employers can increase hiring rates. Government can expect improved tax revenues based on the increase in consumer spending.

Consumer confidence is formally measured by the Consumer Confidence Index (CCI), a monthly release designed to assess the overall confidence, relative financial health, and spending power of the average USA consumer. The CCI is an important measure used by businesses, economic analysts, and the government in order to determine the overall health of the economy.

Check Your Knowledge

Answer the following questions to see how well you understand the topics covered in this section. This short quiz does not count toward your grade in the class, and you can retake it as many times as you wish.

Use this quiz to decide whether to study the section further or move on.

Question 1

The market value of all goods and services produced by the economy in a given year is known as

- ☐ Rate of Inflation.
- ☐ Consumer Price Index (CPI).
- ☐ Gross Domestic Product (GDP).

Question 2

A business cycle reflects changes in economic activity, as measured by

- ☐ Gross Domestic Product (GDP)

- ☐ Consumer Price Index (CPI)
- ☐ rate of unemployment

Question 3

Which of the following describes a business cycle?

- ☐ regular growth rate of consumer spending
- ☐ periods of increasing and decreasing real Gross Domestic Product (GDP)
- ☐ inflation sometimes, but not others

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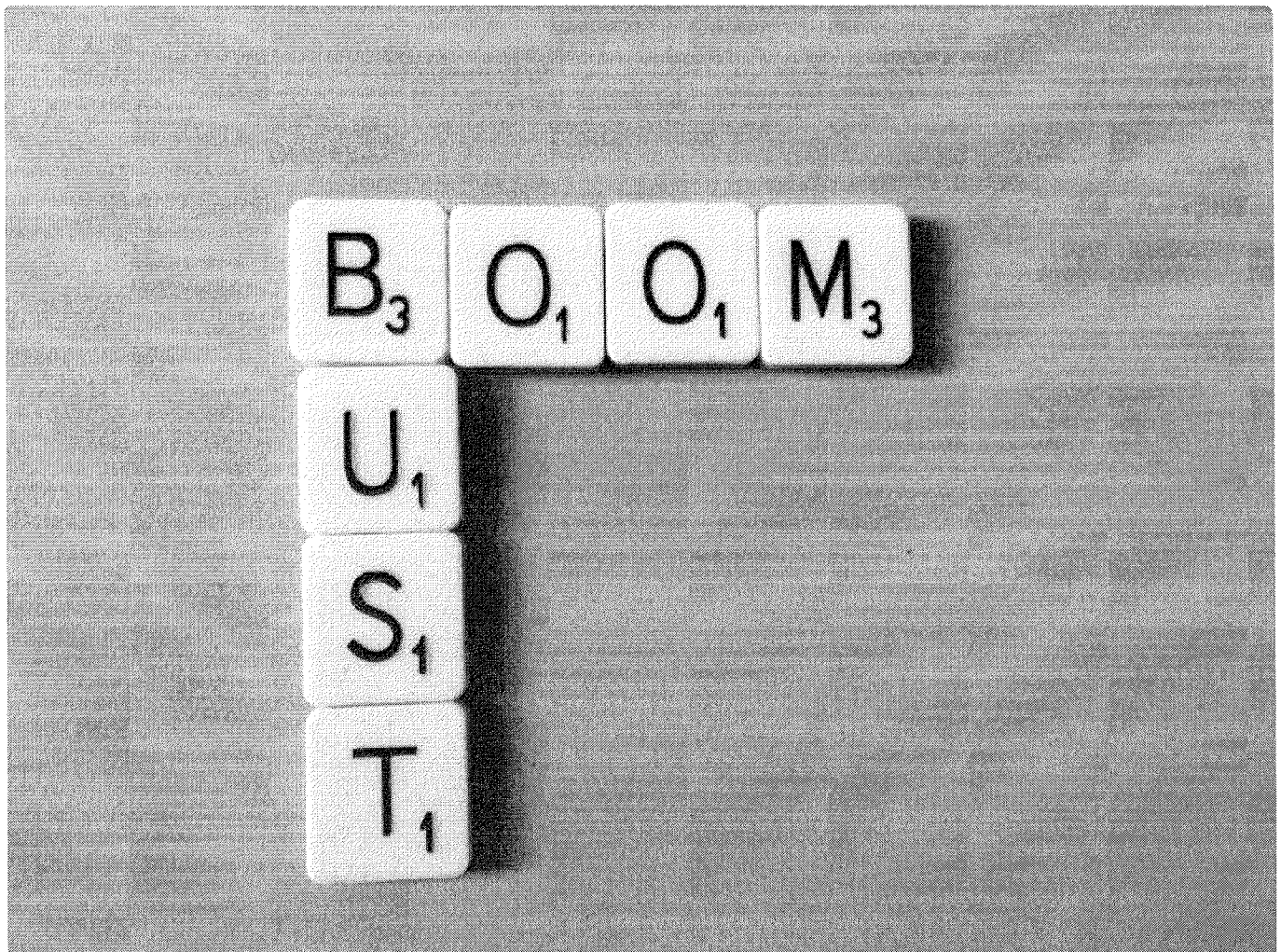
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Learning Resource

Stages of the Economy

What you'll learn to do: Identify and explain the four stages of an economy (expansion, peak, contraction, and trough), and describe their impact on business operations

Spring, summer, fall, and winter: the four seasons of the year. Expansion, peak, contraction, and trough: the four seasons of an economy. In this next section you'll learn about the cyclical nature of economies and how each of these "seasons" affects business operations.

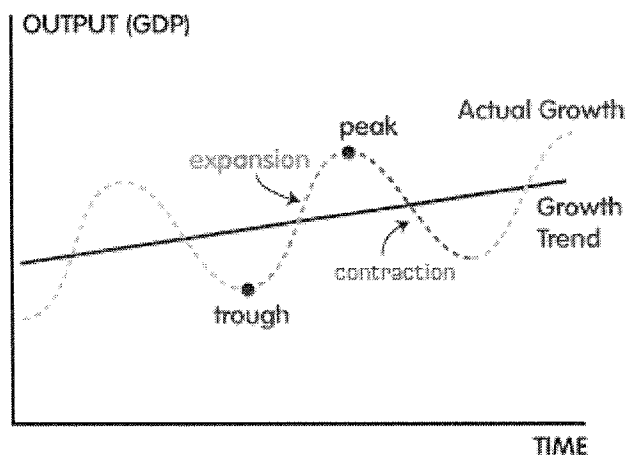


Learning Outcomes

- Explain the business cycle
- Differentiate between expansion, recession, and depression

Economic Cycle

The term **economic cycle** (or boom-bust cycle) refers to economy-wide fluctuations in production, trade, and general economic activity. From a conceptual perspective, the economic cycle is the upward and downward movements of levels of the Gross Domestic Product (GDP), and refers to periods of expansion and contraction in the level of economic activities (business fluctuations) around a long-term growth trend.



Business Cycle

Stages of the Economy

Economic cycles are identified as having four distinct economic stages: expansion, peak, contraction, and trough.

An **expansion** is characterized by increasing employment, economic growth, and upward pressure on prices. A **peak** is the highest point of the business cycle, when the economy is producing at maximum allowable output, employment is at or above full employment, and inflationary pressures on prices are evident. Following a peak, the economy typically enters into a correction that is characterized by a **contraction** where growth slows, employment

declines (unemployment increases), and pricing pressures subside. The slowing ceases at the **trough**, and at this point the economy has hit a bottom from which the next stage of expansion and contraction will emerge. In the United States, it is generally accepted that the National Bureau of Economic Research (NBER) is the final arbiter of the dates of the peaks and troughs of the economic cycle.

Since the economy is made up of businesses (both private and public), businesses are impacted by the stages of the economy or perhaps they cause the stages of the economy—or maybe a little of both! When we move from talking about stages of the economy, the terms used to describe the business cycle differ slightly, but you will see that they are almost mirror images of the economic stages.

Business Cycle Fluctuations

Business cycle fluctuations occur around a long-term growth trend just like economic cycles, but unlike economic cycles they are measured in terms of the growth rate of **Real Gross Domestic Product (Real GDP)**. This does not mean that the GDP is imaginary, but rather that GDP does not take into account inflation. Instead, Real GDP is the inflation-adjusted value of the goods and services produced by labor and property located in the United States.

An **expansion** is the period from a trough to a peak, and a **recession** is the period from a peak to a trough. The NBER identifies a recession as “a significant decline in economic activity spread across the economy, lasting more than a few months, normally visible in Real GDP, real income, employment, industrial production.” This is significantly different from the commonly cited definition of a recession being signaled by two consecutive quarters of decline in Real GDP. If the economy does not begin to expand again, then the economy may be considered to be in a state of **depression**.



Impact of the Economic Cycle on Business Operations

How the economic cycle affects business operations may be best explained by looking at how one business responds to these cycles. Normal Maintenance is a small business that provides a variety of construction services to homeowners. They specialize in roofing, deck installations, siding, and general home maintenance. They employ three full-time workers, who typically work 40 hours per week for an average of \$12 per hour. The company has been in business in the same town for more than 20 years and has a solid reputation for quality work and reliability.

Expansion

Normal Maintenance is busy and has recently had to turn down jobs because it lacks the capacity to do all the work offered. Homeowners now want to make home repairs and improvements that they had to put off during the sour economy. With the economy improving, others are fixing up their homes to sell. Faced with so much demand, the owner of Normal Maintenance must decide whether to pay his existing workers overtime (which will

increase the costs for each job and reduce profits) or hire additional workers. The competition for qualified construction labor is steep, and he is concerned that he will have to pay more than his usual rate of \$12 per hour or possibly get workers who are not as qualified as his current crew. He is, however, able to charge higher prices for his work because homeowners are experiencing long waits and delays getting bids and jobs completed. The owner purchases a new truck and invests in additional tools in order to keep up with the demand for services. Customers are willing to pay more than usual so they can get the work done. Business is expanding to such an extent that Normal Maintenance and its suppliers are starting to have trouble obtaining materials such as shingles and siding because the manufacturers have not kept pace with the economic expansion. In general, business is great for Normal Maintenance, but the expansion brings challenges.

Peak

At the peak of the business cycle, the economy can be said to be “overheated.” Despite hiring additional workers, the owner and crews of Normal Maintenance are working seven days a week and are still unable to keep up with demand. They can’t work any harder or faster. As a result, the crews are exhausted, and the quality of their work is beginning to decline. Customers leave messages requesting work and services, but the owner is so busy he doesn’t return phone calls. Jobs are getting started and completed late as the crews struggle to cover multiple job sites. As a result, customer complaints are on the rise, and the owner is worried about the long-term reputation of the business. Neither the business nor the economy can sustain this level of activity, and despite the fact that Normal Maintenance is making great money, everyone is ready for things to let up a little.

Contraction

As the economy begins to contract, business begins to slow down for Normal Maintenance. They find that they are caught up on work, and they aren’t getting so many phone calls. The owner is able to reduce his labor costs by cutting back on overtime and eliminate working on the weekends. When the phone does ring, homeowners are asking for bids on work—not just placing work orders. Normal Maintenance loses out on several jobs because bids are too high. The company begins to look for new suppliers who can provide materials at a cheaper price so it can be more competitive. The building material companies start offering “deals” and specials to contractors in order to generate sales. In general, competition for work has increased, and some of the businesses that popped up during the expansion are no longer in the market. In the short term, the owner is confident that he has enough work to keep his crew busy, but he’s concerned that if things don’t pick up, he might have to lay off some of the less experienced workers.

Trough

On Monday morning, the crew of Normal Maintenance shows up to work and the owner has to send them home: There's no work for them. During the week before, they worked only three days, and the owner is down to his original crew of three employees. Several months ago he laid off the workers hired during the expansion. Although that was a difficult decision, the owner knows from hard experience that sometimes businesses fail not because their owners make bad decisions, but because they run out of money during recessions when there isn't enough customer demand to sustain them. Without enough working capital to keep the doors open, some are forced to close down.

Representatives from supply companies are stopping by the office hoping to get an order for even the smallest quantity of materials. The new truck and tools that the owner purchased during the boom now sit idle and represent additional debt and costs. The company's remaining work comes from people who have decided to fix up their existing homes because the economy isn't good enough for them to buy new ones. The owner increases his advertising budget, hoping to capture any business that might be had. He is optimistic that Normal Maintenance will weather this economic storm—they've done it before—but he's worried about his employees paying their bills over the winter.

The owner of Normal Maintenance has been in business for a long time, so he's had some experience with the economic cycle. Though each stage has its stressors, he has learned to plan for them. One thing he knows is that the economy will eventually begin to expand again and run through the cycle all over again.

Check Your Knowledge

Answer the following questions to see how well you understand the topics covered in this section. This short quiz does not count toward your grade in the class, and you can retake it as many times as you wish.

Use this quiz to decide whether to study the section further or move on.

Choose the **BEST** answer

Question 1

Rising economic indicators typically signal _____ in the economy.

☐ expansion

☐ depression

☐ recession

Question 2

The point of a business cycle fluctuation during which growth slows, unemployment increases, and pricing pressures subside is called a(n)

☐ peak

☐ expansion

☐ trough

☐ contraction

Question 3

Which of the following describes a business cycle?

☐ periods of increasing and decreasing real GDP

☐ inflation sometimes, but not others

☐ regular growth rate of consumer spending

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Learning Resource

Putting It Together: Economic Environment



Synthesis

In this chapter you learned about the fundamental economic principles that affect the environment in which businesses operate. Understanding the economy is like getting the weather forecast before you head out the door. Might you need to pack a sweater or an umbrella or grab some sunscreen? Perhaps, like Dorothy in *The Wizard of Oz*, head for the nearest cellar? If you ignore the forecast, you can find yourself unprepared and caught in a storm. Of course, economic forecasts aren't totally reliable—sometimes there's a freak weather event that no one saw coming. Nonetheless, having a basic understanding of how supply and demand work, how different economic systems function, and how the business cycle connects to the economy can help you make informed decisions—and make the best out of a rainy day.

Summary

In this chapter you learned about the fundamental principles of economics and how they shape the business environment. Below is a summary of the key points covered.

What Is Economics?

Economics focuses on the ways in which people, businesses, and governments make decisions when faced with scarce resources. Economists study the economy at either the microeconomic level (focus on individuals) or the macroeconomic level (focus on systems).

Economic Systems

Economic systems can be organized as traditional, planned, or market economies. Traditional systems are hunter-gatherer economies in which people consume what they produce. In command economies such as communism and socialism, the government exercises a high degree of control over production and pricing. In market economies such as capitalism, free-market supply and demand drives what is produced and consumed. The increasing complexity of the world has led to mixed economic systems that have characteristics of both command and market economies.

Demand

Demand is the amount that consumers are willing and able to purchase of a good or service at a given price. Quantity demanded is a specific quantity that will be supplied at a single point (price) on the demand curve.

Supply

Supply is the amount of a good or service that a business is willing to produce at a given price. Quantity supplied refers to a specific quantity that will be supplied at a single point (price) on the supply curve.

Equilibrium

Equilibrium is said to exist at the point where quantity supplied equals the quantity demanded, and therefore, there is no excess or shortage in the market. The market is "in balance." The equilibrium price is the price where the amount that consumers want to purchase is equal to the quantity that the producers are willing to supply. The equilibrium quantity is the quantity supplied and demanded at the equilibrium price.

Health of the Economy

Economists use several measures to evaluate the health of an economy. Among the most important are GDP (Gross Domestic Product), the unemployment rate, and the CPI (Consumer Price Index). These three key economic indicators are used to measure how well the economy is achieving the goals of growth, high employment, and price stability.

Economic Stages

The business environment is cyclical, meaning it goes through a cycle of stages, each of which is characterized by a different set of economic conditions. The four stages of the business environment are expansion, peak, contraction, and trough.

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