The ability to identify specific factors that affect the economic system for a business is essential because new opportunities can be discovered, and a business can become more competitive. Economics is the study of how individuals make choices under scarce conditions. Chapter 2 introduces the principles of economics and their impact on the business environment.

Microeconomics is the study of individual behaviors when making choices related to the economy. Microeconomics is important to business because it helps determine how likely a consumer is going to spend money, how a company should best allocate its resources, and how to strategize prices.

Macroeconomics is the study of the behavior and performance of the economy (national or regional level), when making choices within the economy. The gross domestic product, unemployment, inflation, and savings and interest rates are primary indicators of macroeconomics that provide insight into the health of the economy.

The principles of economics are essential because they influence the economic development of business markets. Depending on the health of a economy, a country's government can directly or indirectly influence the price of goods or services and determine how resources are distributed. Therefore, it is imperative to recognize positive and negative microeconomic and macroeconomic factors that may affect the success of business operations (and profits), as well as the factors that are not within the control of the business

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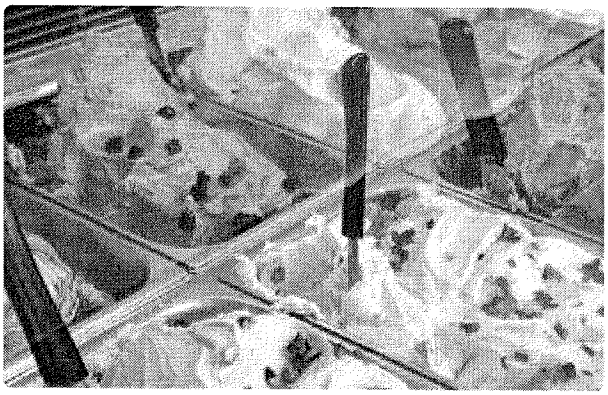
Learning Resource

Economic Environment: Why It Matters

Why learn about the economic environment?



Economics is about *choices*: namely, how we choose to allocate scarce resources and how our choices impact others. Beyond that, it's about the choices made by businesses, government, and other countries. Let's begin with ice cream—something familiar and tasty to most people—and use it as a framework for thinking about economics.

Let's say you live in Boise, Idaho, and decide to go out for ice cream with your friend Charlie, who has been reading about ice cream flavored with Persian saffron. That's the kind he wants, but none of the five ice-cream shops you visit has it. Why not? Why can't they meet his demand? Because Charlie is the only person in Boise who has ever asked for it, and none of the shops has decided to carry something so expensive (the saffron costs nearly $1,000 per ounce) that is not popular locally. They have chosen to offer ice cream that is low-cost, high-demand, and easy to manufacture.

The next day, Charlie is still obsessed with saffron ice cream, and he's discovered a shop in Dubai, where, for the mere price of $816 (per scoop, fancy toppings included), one can try this exotic treat. Now Charlie has some economic choices to make. Including the $1,800 airfare, plus the other travel expenses (hotel, cabs, etc.), the trip to Dubai will cost $2,600—at least. It will also cost Charlie time: the time it takes to plan the trip, the days off work, and travel time. Then, there's the opportunity cost. While he is planning, traveling, and eating his ice cream,

Charlie's giving up the opportunity to do other things with his time and money. And there are unforeseen choices and expenses: What if he gets to Dubai and they've run out of saffron ice cream? Does he hang around in Dubai, investing more resources and waiting for them to restock? What if he tries Persian saffron ice cream and says, "Yuck!"—and wishes he'd bought banana ice cream back in Boise?

This is an extreme, unlikely situation, of course. However, the choices that ice-cream manufacturers, ice-cream shops, and people like Charlie make every day are all examples of economic decisions: at every turn, a choice has to be made about the allocation of limited resources. What economic decisions do you make in your life?

The purpose of this chapter is to give you an understanding of the fundamental principles of economics, some of the factors that drive economies, and how economics shapes the business environment. You will likely learn more about economics as you continue your education, but this section should serve as an excellent introduction and give you some tools to think about the impact of economics on your daily life.

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Learning Resource

What Is Economics?

What you'll learn to do: Explain what economics is and why it's important

In order to understand economics it's important to master a set of key concepts and understand how they interconnect. We'll cover these concepts next.

Learning Outcomes

- Explain scarcity
- Explain opportunity cost
- Explain division of labor and specialization
- Distinguish between macroeconomics and microeconomics

Scarcity and Choice

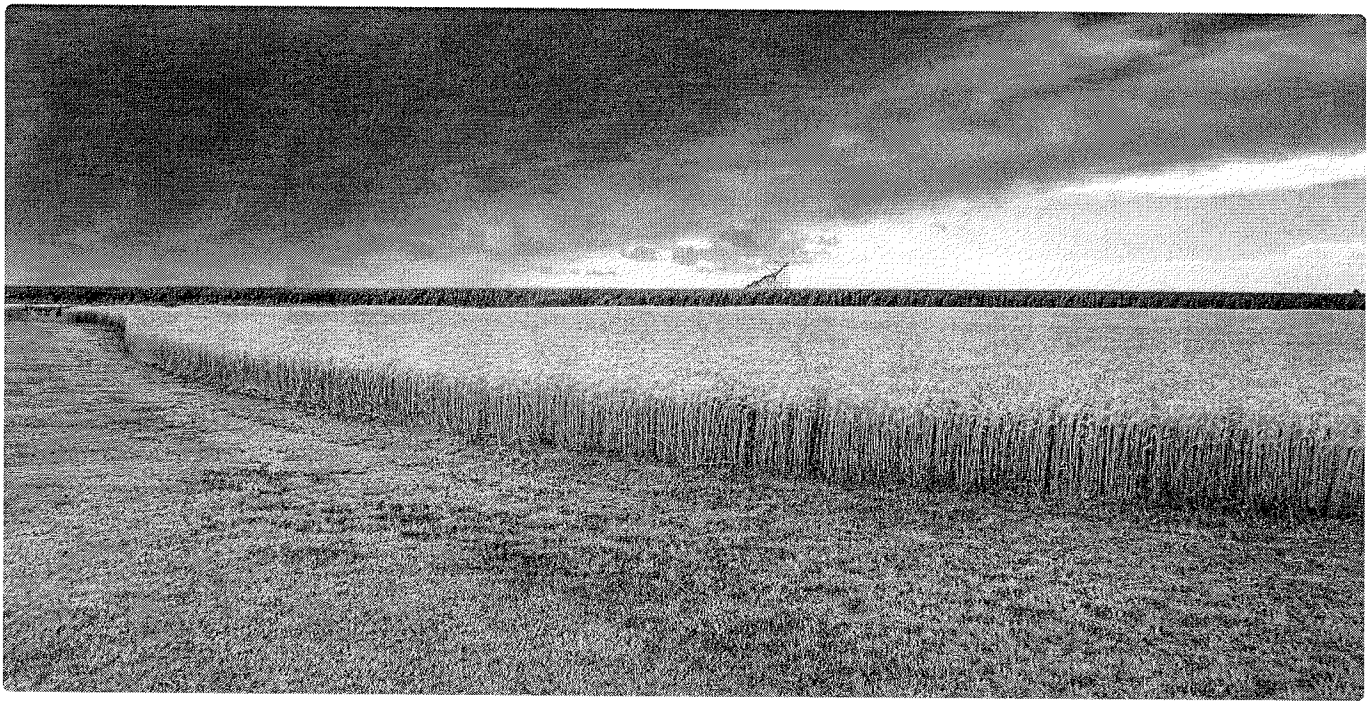
Throughout this chapter you'll encounter short videos that explain complex economic concepts in very simple terms. Take the time to watch them! They'll help you master the basics before heading to the readings (which tend to cover the same information in more depth).

[video] https://youtu.be/yoVc_S_gd_0 (https://youtu.be/yoVc_S_gd_0)

As you watch the video, consider the following key points:

1. Economics is the study of how humans make choices under conditions of scarcity.
2. Scarcity exists when human wants for goods and services exceed the available supply.
3. People make decisions in their own self-interest, weighing benefits and costs.

Understanding Scarcity and Economics



Scarcity

The resources that we value—time, money, labor, tools, land, and raw materials—exist in limited supply. There are simply never enough resources to meet all our needs and desires. This condition is known as *scarcity*.

At any moment in time, there is a finite amount of resources available. Even when the number of resources is very large, it's limited. For example, according to the US Bureau of Labor Statistics, in 2016, the labor force in the United States contained more than 158 million workers—that's a lot, but it's not infinite. Similarly, the total area of the United States is 3,794,101 square miles—an impressive amount of acreage, but not endless. Because these resources are limited, so are the numbers of goods and services we can produce with them. Combine this with the fact that human wants seem to be virtually infinite, and you can see why scarcity is a problem.

Economics

When faced with limited resources, we have to make choices. Again, economics is the study of how humans make choices under conditions of scarcity. These decisions can be made by individuals, families, businesses, or societies.

Let's consider a few decisions that we make based on limited resources. Take the following:

1. What classes are you taking this term?

Are you the lucky student who is taking every class you wanted with your first-choice professor during the perfect time and at the ideal location? The odds are that you have probably had to make trade-offs on account of scarcity. There is a limited number of time slots each day for classes and only so many faculty available to teach them. Every faculty member can't be assigned to every time slot. Only one class can be assigned to each classroom at a given time. This means that each student has to make trade-offs between the time slot, the instructor, and the class location.

2. Where do you live?

Think for a moment, if you had all the money in the world, where would you live? It's probably not where you're living today. You have probably made a housing decision based on scarcity. What location did you pick? Given limited time, you may have chosen to live close to work or school. Given the demand for housing, some locations are more expensive than others, and you may have chosen to spend more money for a convenient location or to spend less money for a place that leaves you spending more time on transportation. There is a limited amount of housing in any location, so you are forced to choose from what's available at any time. Housing decisions always have to take into account what someone can afford. Individuals making decisions about where to live must deal with limitations of financial resources, available housing options, time, and often other restrictions created by builders, landlords, city planners, and government regulations.

The Problem of Scarcity

Every society, at every level, must make choices about how to use its resources. Families must decide whether to spend their money on a new car or a fancy vacation. Towns must choose whether to put more of the budget into police and fire protection or into the school system. Nations must decide whether to devote more funds to national defense or to protecting the environment. In most cases, there just isn't enough money in the budget to do everything.

Economics helps us understand the decisions that individuals, families, businesses, or societies make, given the fact that there are never enough resources to address all needs and desires.

The Concept of Opportunity Cost

Two Doors

The Idea of Opportunity Cost

Since resources are limited, every time you make a choice about how to use them, you are also choosing to forego other options. Economists use the term **opportunity cost** to indicate what must be given up to obtain something that's desired. A fundamental principle of economics is that every choice has an opportunity cost. If you sleep through your economics class (not recommended, by the way), the opportunity cost is the learning you miss. If you spend your income on video games, you cannot spend it on movies. If you choose to marry one person, you give up the opportunity to marry anyone else. In short, opportunity cost is all around us.

The idea behind opportunity cost is that the cost of one item is the lost opportunity to do or consume something else; in short, opportunity cost is the value of the next best alternative.

Since people must choose, they inevitably face trade-offs in which they have to give up things they desire to get other things they desire more.

Opportunity Cost and Individual Decisions

In some cases, recognizing the opportunity cost can alter personal behavior. Imagine, for example, that you spend $8 on lunch every day at work. You may know perfectly well that bringing a lunch from home would cost only $3 a day, so the opportunity cost of buying lunch at the restaurant is $5 each day (that is, the $8 that buying lunch costs minus the $3 your lunch from home would cost). Five dollars each day does not seem to be that much. However, if you project what that adds up to in a year—250 workdays a year × $5 per day equals $1,250—it's the cost, perhaps, of a decent vacation. If the opportunity cost were described as "a nice vacation" instead of "$5 a day," you might make different choices.

Opportunity Cost and Societal Decisions

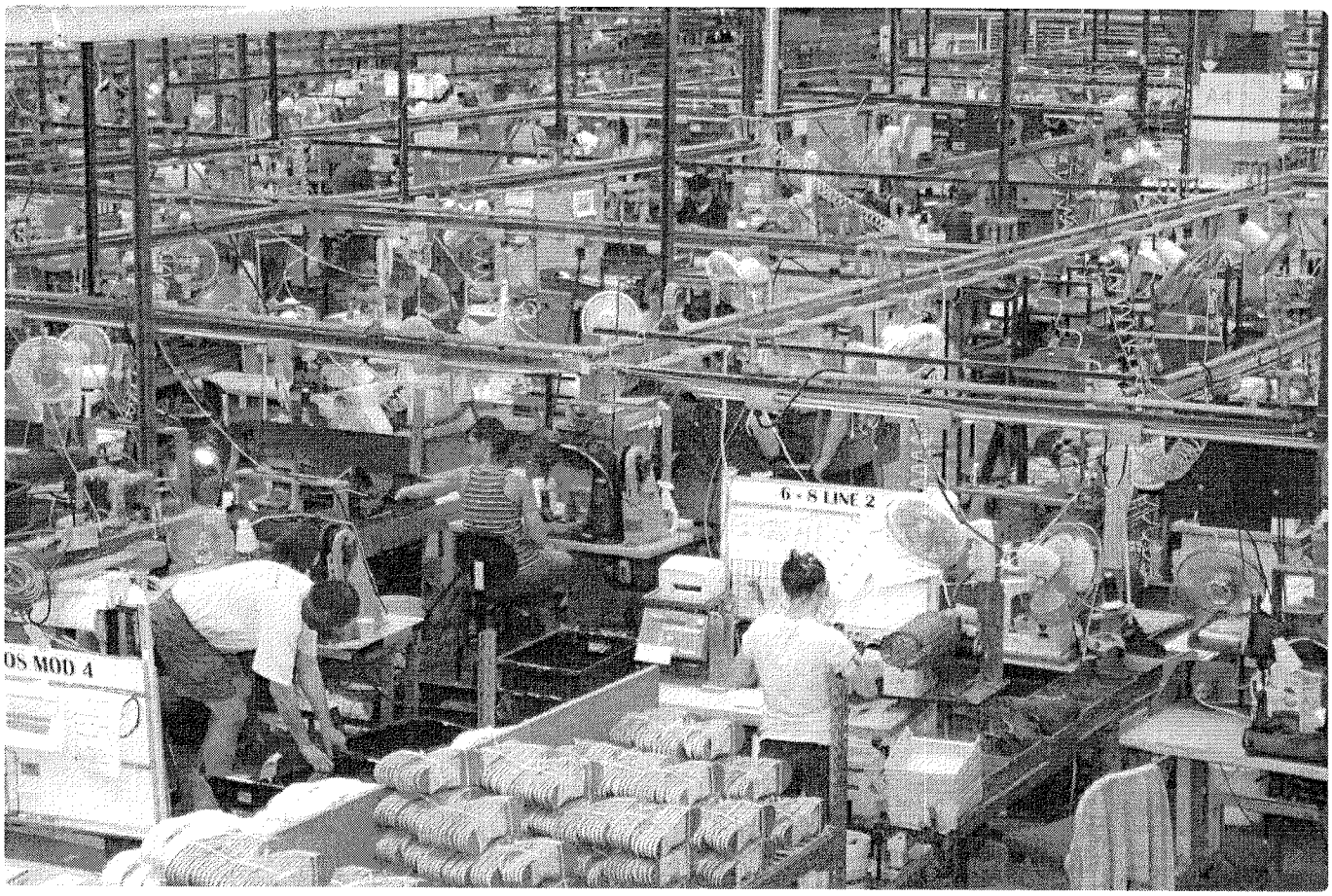
Opportunity cost also comes into play with societal decisions. Universal health care would be nice, but the opportunity cost of such a decision would be less housing, environmental protection, or national defense. These trade-offs also arise with government policies. For example, after the terrorist plane hijackings on September 11, 2001, many proposals, such as the following, were made to improve air travel safety:

- The federal government could provide armed "sky marshals" who would travel inconspicuously with the rest of the passengers. The cost of having a sky marshal on every flight would be roughly $3 billion per year.
- Retrofitting all U.S. planes with reinforced cockpit doors to make it harder for terrorists to take over the plane would have a price tag of $450 million.
- Buying more sophisticated security equipment for airports, like three-dimensional baggage scanners and cameras linked to face-recognition software, would cost another $2 billion.

However, the single biggest cost of greater airline security doesn't involve money. It's the opportunity cost of additional waiting time at the airport. According to the US Department of Transportation, more than 800 million passengers took plane trips in the United States in 2012. Since the 9/11 hijackings, security screening has become more intensive, and consequently, the procedure takes longer than in the past. Say that, on average, each air passenger spends an extra 30 minutes in the airport per trip. Economists commonly place a value on time to convert an opportunity cost in time into a monetary figure. Because many air travelers are relatively highly paid businesspeople, conservative estimates set the average "price of time" for air travelers at $20 per hour. Accordingly, the opportunity cost of delays in airports could be as much as 800 million (passengers) × 0.5 hours × $20—or, $8 billion per year. Clearly, the opportunity costs of waiting time can be just as substantial as costs involving direct spending.

[video] https://youtu.be/PSU-_n81QT0 (https://youtu.be/PSU-_n81QT0)

Division of Labor and Specialization



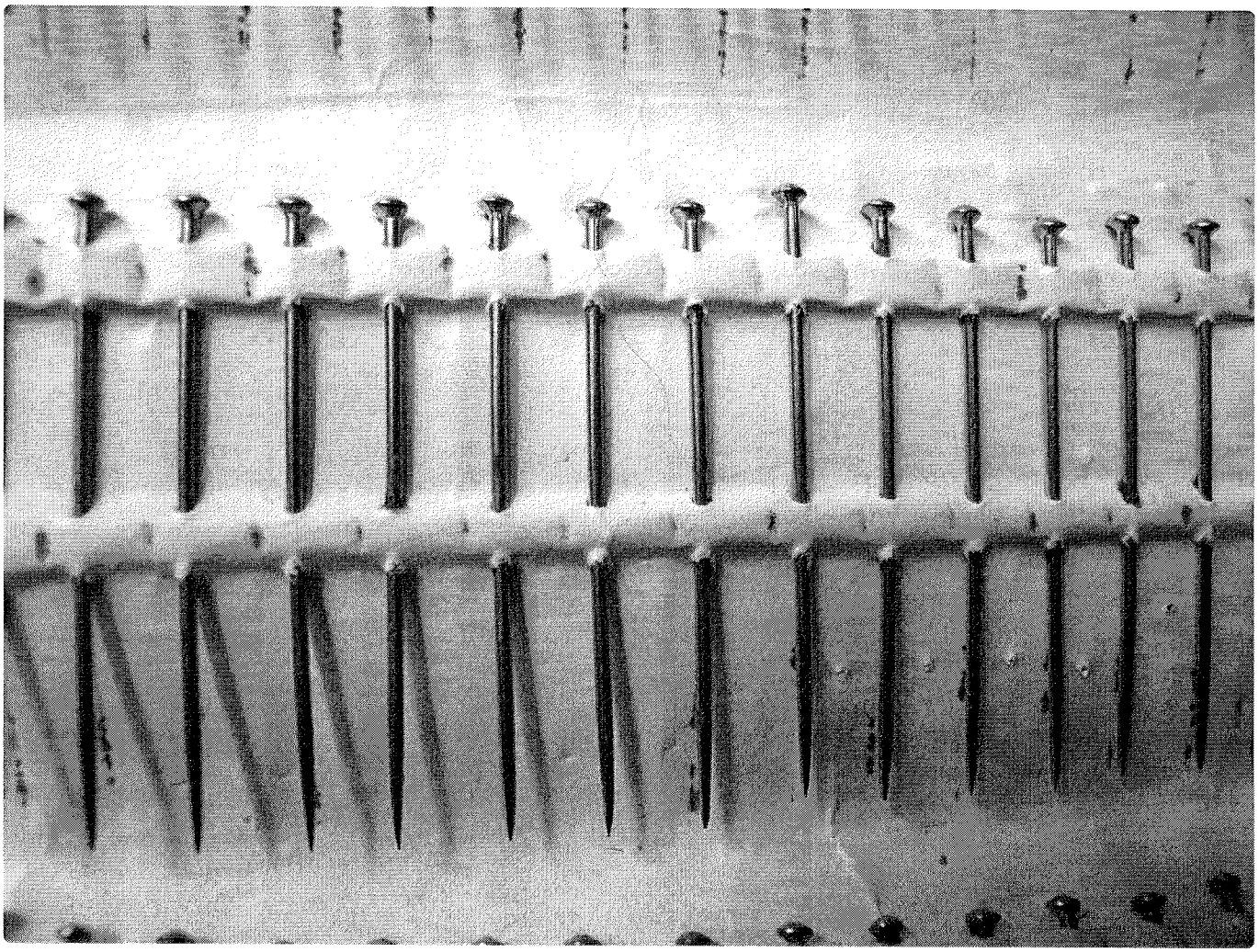
Red Wing Shoes Factory

The Division and Specialization of Labor

We have learned that there aren't enough resources to fulfill all of our wants, and this reality forces us to make choices that have opportunity costs. How do we get the most we can from the resources we have? Over time, markets and trade have come into existence and have become highly efficient mechanisms for optimizing our use of resources and bringing us the most and best combination of goods and services.

Think back to pioneer days, when the average person knew how to do so much more on his or her own than someone today—everything from shoeing a horse to growing, hunting, and preserving food, to building a house and repairing equipment. Most of us don't know how to do all—or any—of those things. It's not because we're not capable of learning them. It's because we don't have to. The reason for this is something called the "division and specialization of labor," a production innovation first put forth by Adam Smith.

The formal study of economics began when Smith (1723–1790) published his famous book, *The Wealth of Nations*, in 1776. Many authors had written about economics in the centuries before Smith, but he was the first to address the subject in a comprehensive way.



Card of Old Pins

In the first chapter of the book, Smith introduces the idea of the **division of labor**, which means that the way a good or service is produced is divided into a number of tasks that are performed by different workers, instead of all the tasks being performed by the same person. To illustrate the division of labor, Smith counted how many tasks were involved in making a pin: drawing out a piece of wire, cutting it to the right length, straightening it, putting a head on one end and a point on the other, packaging pins for sale, and so on. Smith counted 18 distinct tasks that were typically performed by different people—all for a pin!

Modern companies divide tasks, too. Even a relatively simple business like a restaurant divides up the task of serving meals into a range of jobs: top chef, sous chefs, less-skilled kitchen help, host/hostess, waiters/waitresses, janitors, a business manager to handle accounts and paychecks, etc. A complex business like a large manufacturing factory or a hospital can have hundreds of job classifications.

Why the Division of Labor Increases Production

When the tasks involved with producing a good or service are divided and subdivided, workers and businesses can produce a greater quantity of those goods or services. In his study of pin factories, Smith observed that one worker alone might make 20 pins in a day, but that a small business of 10 workers (some of whom would need to do 2 or 3 of the 18 tasks involved in pin making), could make 48,000 pins in a day. How can a group of workers, each specializing in certain tasks, produce so much more than the same number of workers who try to produce the entire good or service by themselves? Smith offered three reasons.

First, **specialization** in a particular small job allows workers to focus on the parts of the production process in which they have an advantage. People have different skills, talents, and interests, so they will be better at some jobs than at others. The particular advantages may be based on educational choices, which are shaped, in turn, by interests and talents. Only those with medical training qualify to become doctors, for instance. For some goods, specialization will be affected by geography—it's easier to be a wheat farmer in North Dakota than in Florida, but easier to run a tourist hotel in Florida than in North Dakota. If you live in or near a big city, it's easier to attract enough customers to operate a successful dry-cleaning business or movie theater than if you live in a sparsely populated rural area. Whatever the reason, if people specialize in the production of what they do best, they will be more productive than if they produce a combination of things, some of which they are good at and some of which they are not.

Second, workers who specialize in certain tasks often learn to produce more quickly and with higher quality. This pattern holds true for many workers, including assembly-line laborers who build cars, stylists who cut hair, and doctors who perform heart surgery. In fact, specialized workers often know their jobs well enough to suggest innovative ways to do their work faster and better. A similar pattern often operates within businesses. In many cases, a business that focuses on one or a few products is more successful than firms that try to make a wide range of products.

Third, specialization allows businesses to take advantage of **economies of scale**, which means that, for many goods, as the level of production increases, the average cost of producing each individual unit declines. For example, if a factory produces only 100 cars per year, each car will be quite expensive to make on average. However, if a factory produces 50,000 cars each year, then it can set up an assembly line with huge machines and workers performing specialized tasks, and the average cost of production per car will drop. Economies of scale implies that production is becoming more efficient as the scale of production rises.

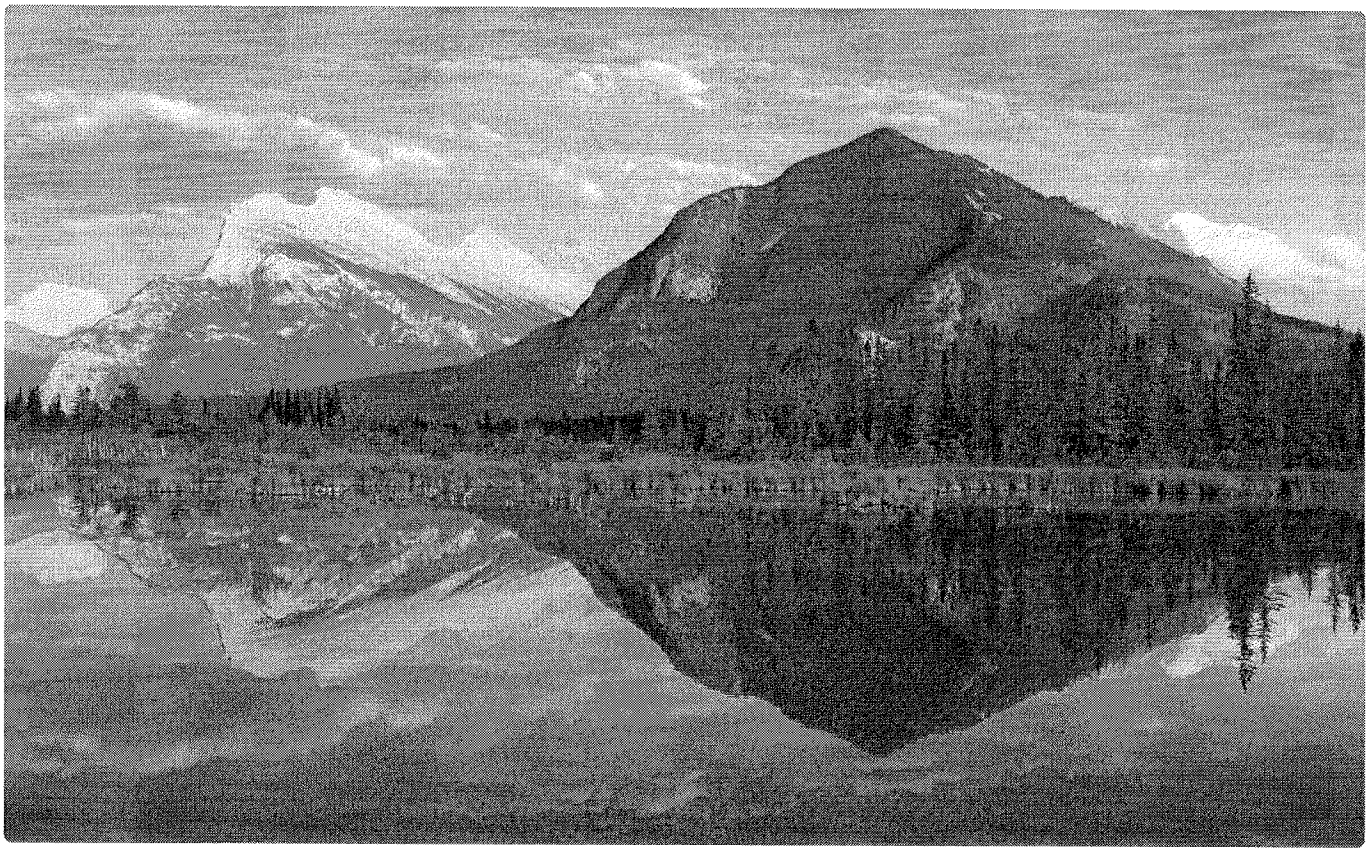
The ultimate result of workers who can focus on their preferences and talents, learn to do their specialized jobs better, and work in larger organizations is that society as a whole can produce and consume far more than if everyone tried to produce all of their own goods and services. The division and specialization of labor has been a force against the problem of scarcity.

Trade and Markets

Specialization only makes sense, though, if workers (and other economic agents such as businesses and nations) can use their income to purchase the other goods and services they need. In short, specialization requires trade. You do not have to know anything about electronics or sound systems to play music—you just buy an iPod or MP3 player, download the music, and listen. You don't have to know anything about textiles or the construction of sewing machines if you need a jacket—you just buy the jacket and wear it. Instead of trying to acquire all the knowledge and skills involved in producing all of the goods and services that you wish to consume, the market allows you to learn a specialized set of skills and then use the pay you receive to buy the goods and services you need or want. This is how our modern society has evolved into a strong economy.

Microeconomics and Macroeconomics

[video] https://youtu.be/w8tUIq7Blsg (https://youtu.be/w8tUIq7Blsg)



Vermillion Lake

It should be clear by now that economics covers a lot of ground. That ground can be divided into two parts: **Microeconomics** focuses on the actions of individual agents within the economy, like households, workers, and businesses. **Macroeconomics** looks at the economy as a whole. It focuses on broad issues such as growth, unemployment, inflation, and trade balance. Microeconomics and macroeconomics are not separate subjects but are, rather, complementary perspectives on the overall subject of the economy.

To understand why both microeconomic and macroeconomic perspectives are useful, consider the problem of studying a biological ecosystem like a lake. One person who sets out to study the lake might focus on specific topics: certain kinds of algae or plant life; the characteristics of particular fish or snails; or the trees surrounding the lake. Another person might take an overall view and instead consider the entire ecosystem of the lake from top to bottom: what eats what, how the system remains in balance, and what environmental stresses affect this balance. Both approaches are useful, and both researchers study the same lake, but the viewpoints are different. In a similar way, both microeconomics and macroeconomics study the same economy, but each has a different starting point, perspective, and focus.

Whether you are looking at lakes or economics, the micro and the macro insights should illuminate each other. In studying a lake, the "micro" insights about particular plants and animals help us to understand the overall food chain, while the "macro" insights about the overall food chain help to explain the environment in which individual plants and animals live.

In economics, the micro decisions of individual businesses are influenced by the health of the macroeconomy—for example, firms will be more likely to hire workers if the overall economy is growing. In turn, the performance of the macroeconomy ultimately depends on the microeconomic decisions made by individual households and businesses.

Microeconomics

What determines how households and individuals spend their budgets? What combination of goods and services will best fit their needs and wants, given the budget they have to spend? How do people decide whether to work, and if so, whether to work full time or part time? How do people decide how much to save for the future, or whether they should borrow to spend beyond their current means?

What determines the products, and how many of each, a firm will produce and sell? What determines the prices a firm will charge? What determines how a firm will produce its products? What determines how many workers it will hire? How will a firm finance its business? When will a firm decide to expand, downsize, or even close? In the microeconomic part of this text, we will learn about the theory of consumer behavior and the theory of the firm.

Macroeconomics

What determines the level of economic activity in a society or nation—that is, how many goods and services does it actually produce? What determines how many jobs are available in an economy? What determines a nation's standard of living? What causes the economy to speed up or slow down? What causes firms to hire more workers or lay them off? Finally, what causes the economy to grow over the long term?

An economy's macroeconomic health can be assessed by a number of standards or goals. The most important macroeconomic goals are the following:

- Growth in the standard of living
- Low unemployment
- Low inflation

Macroeconomic policy pursues these goals through monetary policy and fiscal policy:

- **Monetary policy**, which involves policies that affect bank lending, interest rates, and financial capital markets, is conducted by a nation's central bank. For the United States,

this is the Federal Reserve.

- **Fiscal policy**, which involves government spending and taxes, is determined by a nation's legislative body. For the United States, this is the Congress and the executive branch, which establishes the federal budget.

To keep the differences between these policies straight, remember that the term *monetary* relates to money, and the term *fiscal* relates to government revenue or taxes.

These are the main tools the government has to work with. In the United States, we tend to expect that government can fix whatever economic problems we encounter, but to what extent is that expectation realistic? These are just some of the issues that will be explored later in this course.

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

Which of the following items is not scarce?

- air
- money
- land

Question 2

_____ is the way a service or good is produced and divided into a variety of tasks performed by different workers, instead of the same person performing all the tasks.

- Opportunity cost
- Division of labor
- Economics

Question 3

What will we never do in a world of scarcity?

- Use all economic resources such that we satisfy the maximum amount of wants.
- Satisfy all basic human needs.
- Meet all of society's wants.

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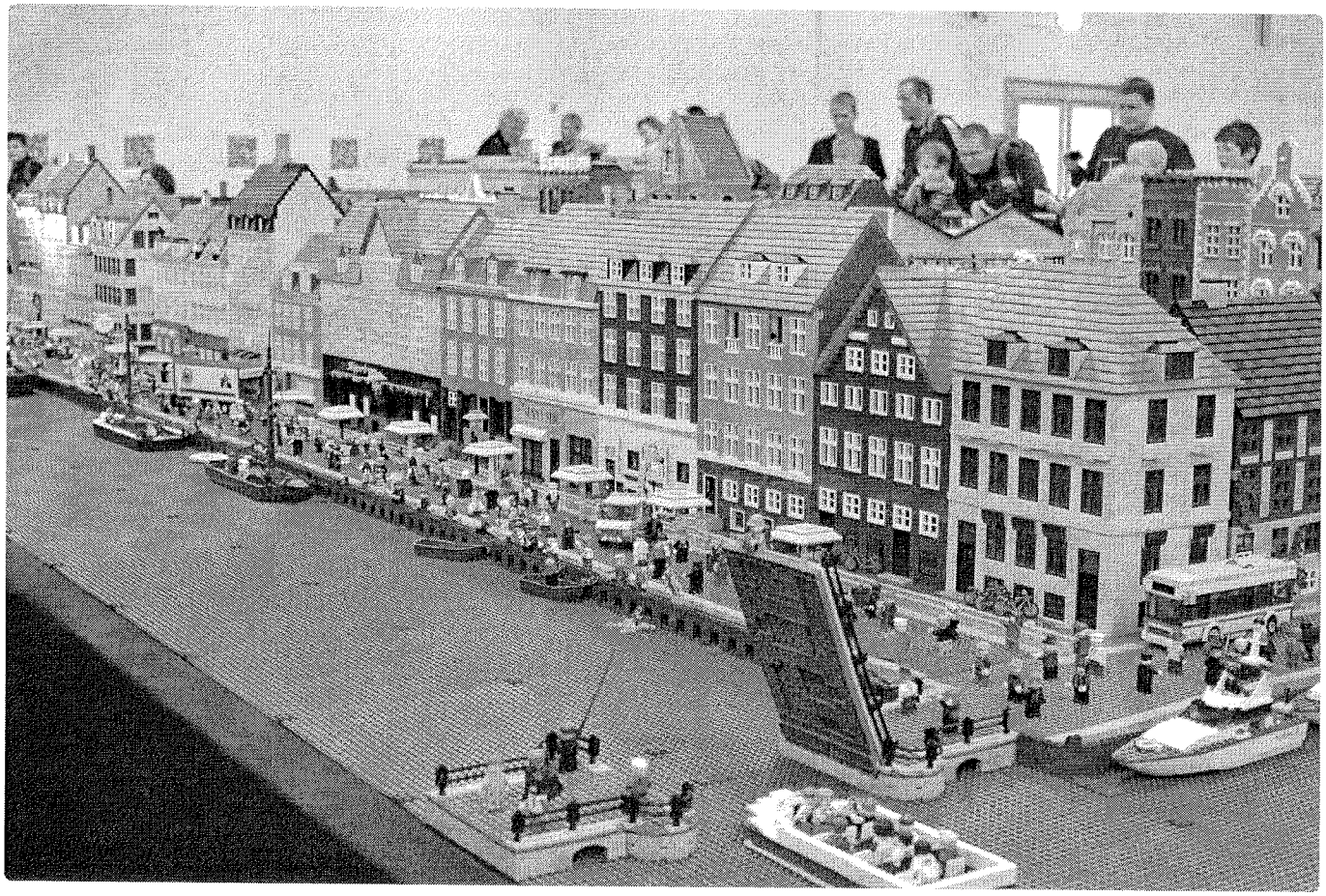
Learning Resource

Economic Systems

What you'll learn to do: Describe and differentiate major economic systems

In this section, you'll learn about the basic organizing principles of different types of economies. Understanding the characteristics of a competitive market, in particular, is an important foundation for understanding the mechanisms of supply and demand, which you'll learn about later in this chapter.



LEGO World - Fan Zone

Legoland, Billund, Denmark: Picture of a Planned Economy?

Learning Outcomes

- Distinguish between market, planned, and mixed economies

Types of Economies

Consider how complex a modern economy is. It includes all production of goods and services, all buying and selling, all employment. The economic life of every individual is interrelated, at least to a small extent, with the economic lives of thousands or even millions of other individuals. Who organizes and coordinates this system? Who insures that, for example, the number of televisions a society produces is the same as the amount it needs and wants? Who insures that the right number of employees works in the electronics industry? Who makes sure that televisions are produced in the best way possible? How does it all get done? The answer to these important questions depends on the kind of economic system a society uses.

In the modern world today, there is a range of economic systems, from market economies to planned (or command) economies.

Market Economies

A **market** is any situation that brings together buyers and sellers of goods or services. Buyers and sellers can be either individuals or businesses. In a **market economy**, economic decision making happens through markets. Market economies are based on private enterprise: The means of production (resources and businesses) are owned and operated by private individuals or groups of private individuals. Businesses supply goods and services based on demand. Which goods and services are supplied depends on what is demanded by consumers or other businesses. A person's income is based on his or her ability to convert resources (especially labor) into something that society values. The more society values the person's output, the higher the income they will earn (think Lady Gaga or LeBron James).

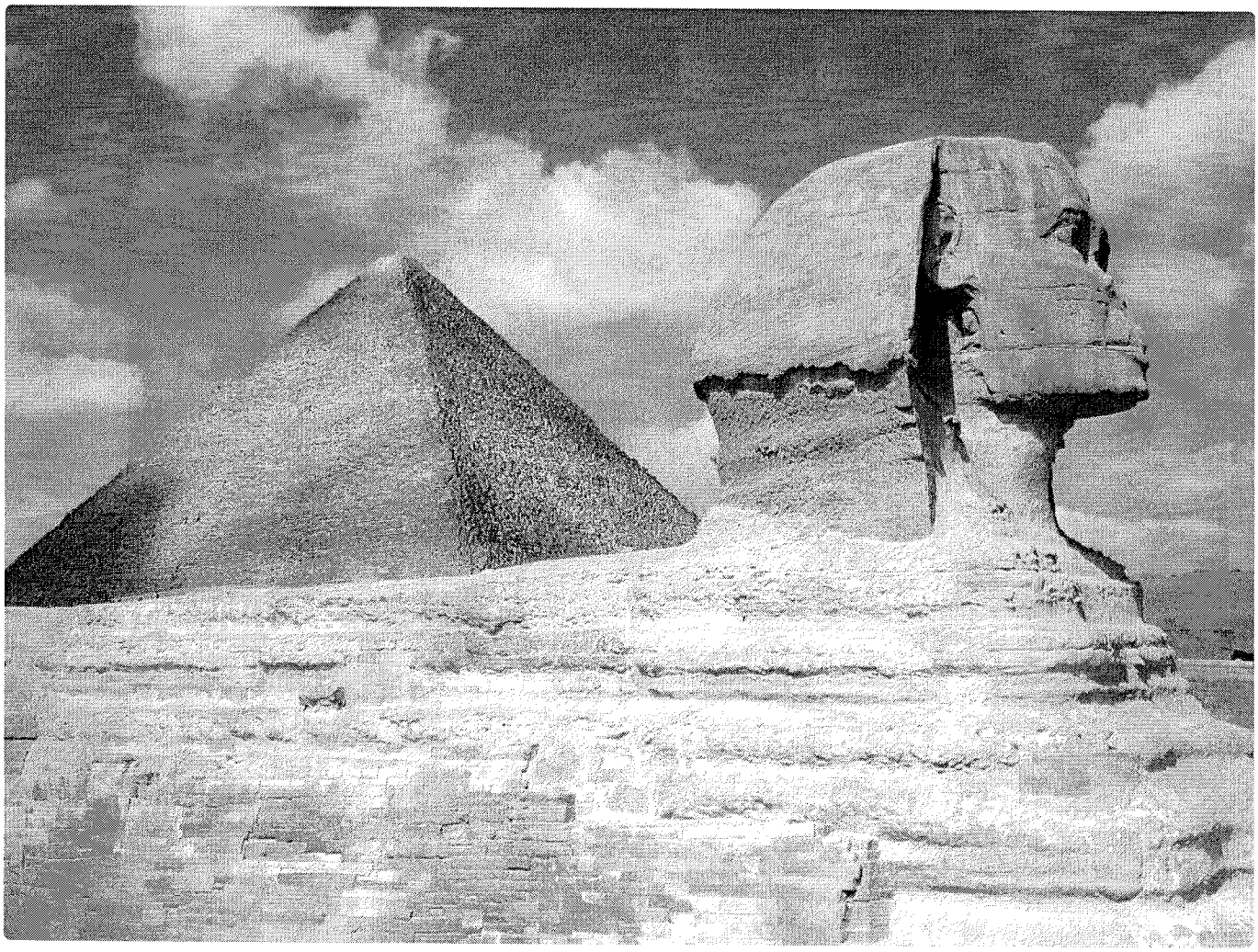
Examples of free-market economies include Hong Kong, Singapore, Australia, and the United States.

Free Markets

In a market economy, decisions about what products are available and at what prices are determined through the interaction of supply and demand. A **competitive market** is one in which there is a large number of buyers and sellers, so that no one can control the market price. A **free market** is one in which the government does not intervene in any way. A free and competitive market economy is the ideal type of market economy, because what is supplied is exactly what consumers demand.

Price controls are an example of a market that is not free. When government intervenes, the market outcomes will be different from those that would occur in a free and competitive market model. When markets are less than perfectly competitive (e.g., monopolistic), the market outcomes will also differ.

Planned (or Command) Economies



Sphinx

Command economies operate very differently. In a **command economy**, economic effort is devoted to goals passed down from a ruler or ruling class. Ancient Egypt was a good example: A large part of economic life was devoted to building pyramids for the pharaohs. Medieval

manor life is another example: The lord provided the land for growing crops and protection in the event of war. In return, vassals provided labor and soldiers to do the lord's bidding. In the last century, communism emphasized command economies.

In a command economy, resources and businesses are owned by the government. The government decides what goods and services will be produced and what prices will be charged for them. The government decides what methods of production will be used and how much workers will be paid. Some necessities like health care and education are provided for free, as long as the state determines that you need them. Currently, North Korea and Cuba have command economies.

The primary distinction between a free and command economy is the degree to which the government determines what can be produced and what prices will be charged. In a free market, these determinations are made by the collective decisions of the market itself (which is comprised of producers and consumers). Producers and consumers make rational decisions about what will satisfy their self-interest and maximize profits, and the market responds accordingly. In a planned economy, the government makes most decisions about what will be produced and what the prices will be, and the market must follow that plan.

Most economies in the real world are mixed; they combine elements of command and market systems. The US economy is positioned toward the market-oriented end of the spectrum. Many countries in Europe and Latin America, while primarily market-oriented, have a greater degree of government involvement in economic decisions than in the US economy. China and Russia, while they are closer now to having a market-oriented system than several decades ago, remain closer to the command-economy end of the spectrum.

The following Crash Course video provides additional information about the broad economic choices that countries make when they decide between planned and market economies. The narrators talk fast, so you'll need to listen closely and possibly watch the video a second time!

https://youtu.be/B43YEW2FvDs (https://youtu.be/B43YEW2FvDs)

Economic systems determine the following:

- what to produce
- how to produce it
- who gets it

In a planned economy, government controls the factors of production:

- In a true communist economy, there is no private property—everyone owns the factors of production. This type of planned economy is called a *command economy*.
- In a socialist economy, there is some private property and some private control of industry.

In a free-market (capitalist) economy, individuals own the factors of production:

- Privately owned businesses produce products.
- Consumers choose the products they prefer, causing the companies that product them to make more profit.

Even in free markets, governments will

- maintain the rule of law
- create public goods and services such as roads and education
- step in when the market gets things wrong (e.g., setting minimum wage, establishing environmental standards)

In reality, economies are neither completely free-market nor completely planned. Neither exists in "pure" form, since all societies and governments regulate their economies to varying degrees. Throughout this course we will consider a number of ways in which the US government influences and controls 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.

Choose the **BEST** answer.

Question 1

A competitive market is one in which:

- government makes most decisions about what will be produced.
- everyone owns the factors of production.
- there are a large number of buyers and sellers.

Question 2

A free market is described by which of the following statements?

- The government does not intervene in any way.
- The price of outputs is controlled by the government.
- Inputs are free to sellers.

Question 3

Which country has characteristics of a command economy?

- United States
- Singapore
- Russia

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UNIVERSITY OF MARYLAND
University College

Learning Resource

The Law of Demand

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

Imagine that the price of Ben & Jerry's ice cream decreases by 25 percent during the next summer. What do you think will happen to the amount of Ben & Jerry's ice cream that people will want to buy? Clearly, the demand for ice cream will increase. By the same token, if the price of the ice cream were to rise by 25 percent, then the demand for the ice cream would fall. In this section, you will examine the law of demand and see why this simple concept is essential to understanding economics.

Learning Outcomes

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

https://youtu.be/uXlZIn6W7Ew (https://youtu.be/uXlZIn6W7Ew)

The law of demand states that, other things being equal

- More of a good will be bought the lower its price
- Less of a good will be bought the higher its price

Ceteris paribus means "other things being equal."

What Is Demand?

Demand for Goods and Services

Economists use the term **demand** to refer to the amount of some good or service consumers are willing and able to purchase at each price. Demand is based on needs and wants—a consumer may be able to differentiate between a need and a want, but from an economist's perspective, they are the same thing. Demand is also based on ability to pay. If you can't pay for it, you have no effective demand.

What a buyer pays for a unit of the specific good or service is called the **price**. The total number of units purchased at that price is called the **quantity demanded**. A rise in the price of a good or service almost always decreases the quantity of that good or service demanded. Conversely, a fall in price will increase the quantity demanded. When the price of a gallon of gasoline goes up, for example, people look for ways to reduce their consumption by combining several errands, commuting by carpool or mass transit, or taking weekend or vacation trips closer to home. Economists call this inverse relationship between price and quantity demanded the **law of demand**. The law of demand assumes that all other variables that affect demand are held constant.

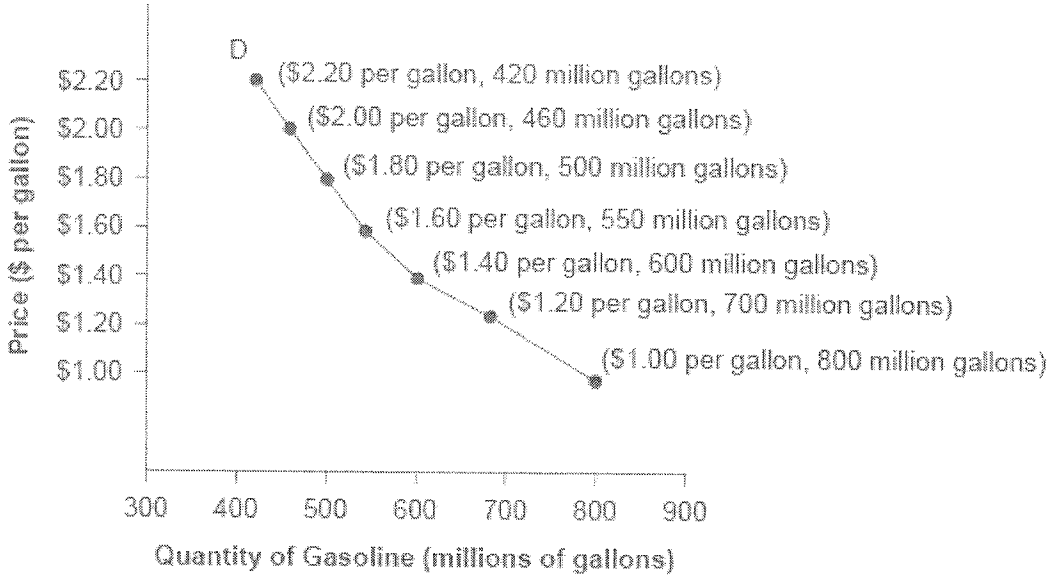
An example from the market for gasoline can be shown in the form of a table or a graph. (Refer back to "Reading: Creating and Interpreting Graphs" if you need a refresher on graphs.) A table that shows the quantity demanded at each price, such as "Price and Quantity Demanded of Gasoline," is called a **demand schedule**. Price in this case is measured in dollars per gallon of gasoline. The quantity demanded is measured in millions of gallons over some time period (for example, per day or per year) and over some geographic area (like a state or a country).

Price and Quantity Demanded of Gasoline

Price (per gallon)	Quantity Demanded (millions of gallons)
$1.00	800
$1.20	700
$1.40	600
$1.60	550

$1.80	500
$2.00	460
$2.20	420

A **demand curve** shows the relationship between price and quantity demanded on a graph like the figure, "A Demand Curve for Gasoline," below, with quantity on the horizontal axis and the price per gallon on the vertical axis. *Note that this is an exception to the normal rule in mathematics that the independent variable (x) goes on the horizontal axis and the dependent variable (y) goes on the vertical. Economics is different from math!*



A Demand Curve for Gasoline

The demand schedule, "Price and Quantity Demanded of Gasoline," shows that as price rises, quantity demanded decreases, and vice versa. These points can then be graphed, and the line connecting them is the demand curve (shown by line D in the graph, above). The downward slope of the demand curve again illustrates the law of demand—the inverse relationship between prices and quantity demanded.

The demand schedule shown and the demand curve, "A Demand Curve for Gasoline," above, are two ways of describing the same relationship between price and quantity demanded.

Demand curves will look somewhat different for each product. They may appear relatively steep or flat, or they may be straight or curved. Nearly all demand curves share the fundamental similarity that they slope down from left to right. In this way, demand curves embody the law of demand: As the price increases, the quantity demanded decreases, and conversely, as the price decreases, the quantity demanded increases.

Demand vs. Quantity Demanded

In economic terminology, *demand* is not the same as *quantity demanded*. When economists talk about demand, they mean the relationship between a range of prices and the quantities demanded at those prices, as illustrated by a demand curve or a demand schedule. When economists talk about quantity demanded, they mean only a certain point on the demand curve, or one quantity on the demand schedule. In short, demand refers to the curve, and quantity demanded refers to the (specific) point on the curve.

Change in Demand vs. Change in Quantity Demanded

https://youtu.be/aTSwcXJ700c (https://youtu.be/aTSwcXJ700c)

A change in price does not move the demand curve. It only shows a difference in the quantity demanded.

The demand curve will move left or right when there is an underlying change in demand at all prices.

Factors Affecting Demand

A Happy Shopper

Consumers Willing and Able to Purchase

We defined demand as the amount of some product that a consumer is willing and able to purchase at each price. This suggests at least two factors, in addition to price, that affect demand. "Willingness to purchase" suggests a desire to buy, and it depends on what economists call *tastes* and *preferences*. If you neither need nor want something, you won't be willing to buy it. "Ability to purchase" suggests that income is important. Professors are usually able to afford better housing and transportation than students, because they have more income. The prices of related goods can also affect demand. If you need a new car, for example, the price of a Honda may affect your demand for a Ford. Finally, the size or composition of the population can affect demand. The more children a family has, the greater their demand for clothing. The more driving-age children a family has, the greater their demand for car insurance, and the less for diapers and baby formula.

These factors matter both for demand by an individual and demand by the market as a whole. Exactly how do these various factors affect demand, and how do we show the effects graphically? To answer those questions, we need the *ceteris paribus* assumption.

The *Ceteris Paribus* Assumption

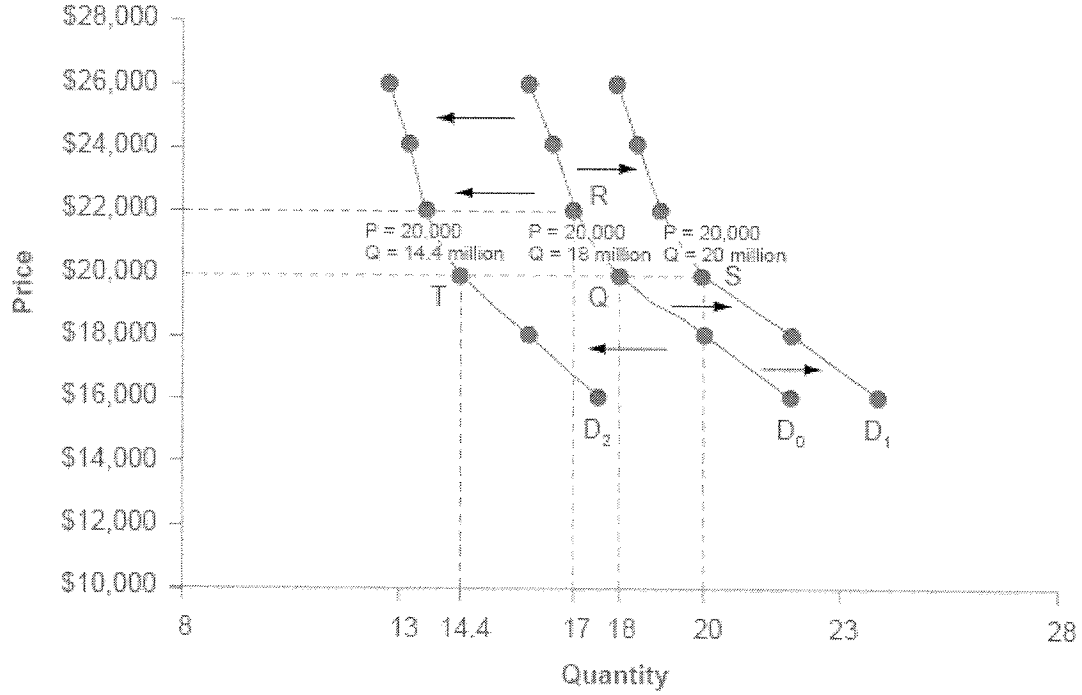
A demand curve or a supply curve is a relationship between two, and only two, variables: quantity on the horizontal axis and price on the vertical axis. The assumption behind a demand curve or a supply curve is that no relevant economic factors, other than the product's price, are changing. Economists call this assumption ***ceteris paribus***, a Latin phrase meaning "other things being equal." Any given demand or supply curve is based on the *ceteris paribus* assumption that all else is held equal. (You'll recall that economists use the *ceteris paribus* assumption to simplify the focus of analysis.) Therefore, a demand curve or a supply curve is a relationship between two, and only two, variables when all other variables are held equal. If all else is not held equal, then the laws of supply and demand will not necessarily hold.

Ceteris paribus is typically applied when we look at how changes in price affect demand or supply, but *ceteris paribus* can also be applied more generally. In the real world, demand and supply depend on more factors than just price. For example, a consumer's demand depends on income, and a producer's supply depends on the cost of producing the product. How can we analyze the effect on demand or supply if multiple factors are changing at the same time—say price rises and income falls? The answer is that we examine the changes one at a time, and assume that the other factors are held constant.

For example, we can say that an increase in the price reduces the amount consumers will buy (assuming income, and anything else that affects demand, is unchanged). Additionally, a decrease in income reduces the amount consumers can afford to buy (assuming price, and anything else that affects demand, is unchanged). This is what the *ceteris paribus* assumption really means. In this particular case, after we analyze each factor separately, we can combine the results. The amount consumers buy falls for two reasons: first because of the higher price and second because of the lower income.

The Effect of Income on Demand

Let's use income as an example of how factors other than price affect demand. The figure, "Shifts in Demand: A Car Example," below, shows the initial demand for automobiles as D_0. At point Q, for example, if the price is $20,000 per car, the quantity of cars demanded is 18 million. D_0 also shows how the quantity of cars demanded would change as a result of a higher or lower price. For example, if the price of a car rose to $22,000, the quantity demanded would decrease to 17 million, at point R.



Shifts in Demand: A Car Example

The original demand curve D_0, like every demand curve, is based on the *ceteris paribus* assumption that no other economically relevant factors change. Now imagine that the economy expands in a way that raises the incomes of many people, making cars more affordable. How will this affect demand? How can we show this graphically?

Return to the figure, "Shifts in Demand: A Car Example." The price of cars is still $20,000, but with higher incomes, the quantity demanded has now increased to 20 million cars, shown at point S. As a result of the higher income levels, the demand curve shifts to the right to the new demand curve D_1, indicating an increase in demand.The table, "Price and Demand Shifts: A Car Example," below, shows clearly that this increased demand would occur at every price, not just the original one.

Price and Demand Shifts: A Car Example

Price	Decrease to D_2	Original Quantity Demanded D_0	Increase to D_1
$16,000	17.6 million	22.0 million	22.0 million
$20,000	14.4 million	18.0 million	20.0 million
$22,000	13.6 million	17.0 million	19.0 million

$24,000	13.2 million	16.5 million	18.5 million
$26,000	12.8 million	16.0 million	18.0 million

Now, imagine that the economy slows down, so that many people lose their jobs or work fewer hours, reducing their incomes. In this case, the decrease in income would lead to a lower quantity of cars demanded at every given price, and the original demand curve D_0 would shift left to D_2. The shift from D_0 to D_2 represents such a decrease in demand: At any given price level, the quantity demanded is now lower. In this example, a price of $20,000 means 18 million cars sold along the original demand curve, but only 14.4 million sold after demand fell.

When a demand curve shifts, it does not mean that the quantity demanded by every individual buyer changes by the same amount. In this example, not everyone would have higher or lower income and not everyone would buy or not buy an additional car. Instead, a shift in a demand curve captures a pattern for the market as a whole: Increased demand means that at every given price, the quantity demanded is higher, so that the demand curve shifts to the right from D_0 to D_1. And, decreased demand means that at every given price, the quantity demanded is lower, so that the demand curve shifts to the left from D_0 to D_2.

We just argued that higher income causes greater demand at every price. This is true for most goods and services. For some—luxury cars, vacations in Europe, and fine jewelry—the effect of a rise in income can be especially pronounced. A product whose demand rises when income rises, and vice versa, is called a **normal good**. A few exceptions to this pattern do exist, however. As incomes rise, many people will buy fewer generic-brand groceries and more name-brand groceries. They are less likely to buy used cars and more likely to buy new cars. They will be less likely to rent an apartment and more likely to own a home, and so on. A product whose demand falls when income rises, and vice versa, is called an **inferior good**. In other words, when income increases, the demand curve shifts to the left.

Other Factors That Shift Demand Curves

Income is not the only factor that causes a shift in demand. Other things that change demand include tastes and preferences, the composition or size of the population, the prices of related goods, and even expectations. A change in any one of the underlying factors that determine what quantity people are willing to buy at a given price will cause a shift in demand. Graphically, the new demand curve lies either to the right (an increase) or to the left (a decrease) of the original demand curve. Let's look at these factors.

Changing Tastes or Preferences

From 1980 to 2012, the per-person consumption of chicken by Americans rose from 33 pounds per year to 81 pounds per year, and consumption of beef fell from 77 pounds per year to 57 pounds per year, according to the US Department of Agriculture (USDA). Changes like these are largely due to shifts in taste, which change the quantity of a good demanded at every price; that is, they shift the demand curve for that good—rightward for chicken and leftward for beef.

Changes in the Composition of the Population

The proportion of elderly citizens in the United States population is rising. It rose from 9.8 percent in 1970 to 12.6 percent in 2000 and will be a projected (by the US Census Bureau) 20 percent of the population by 2030. A society with relatively more children, like the United States in the 1960s, will have greater demand for goods and services like tricycles and day care facilities. A society with relatively more elderly persons, as the United States is projected to have by 2030, has a higher demand for nursing homes and hearing aids. Similarly, changes in the size of the population can affect the demand for housing and many other goods. Each of these changes in demand will be shown as a shift in the demand curve.

Changes in the Prices of Related Goods

The demand for a product can also be affected by changes in the prices of related goods such as substitutes or complements. A **substitute** is a good or service that can be used in place of another good or service. As electronic books, like this one, become more available, you would expect to see a decrease in demand for traditional printed books. A lower price for a substitute decreases demand for the other product. For example, in recent years as the price of tablet computers has fallen, the quantity demanded has increased (because of the law of demand). Since people are purchasing tablets, there has been a decrease in demand for laptops, which can be shown graphically as a leftward shift in the demand curve for laptops. A higher price for a substitute good has the reverse effect.

Other goods are **complements** for each other, meaning that the goods are often used together, because consumption of one good tends to enhance consumption of the other. Examples include breakfast cereal and milk; notebooks and pens or pencils, golf balls and golf clubs; gasoline and sport utility vehicles; and the five-way combination of bacon, lettuce, tomato, mayonnaise, and bread. If the price of golf clubs rises, since the quantity of golf clubs demanded falls (because of the law of demand), demand for a complement good like golf balls

decreases, too. Similarly, a higher price for skis would shift the demand curve for a complement good like ski resort trips to the left, while a lower price for a complement has the reverse effect.

Changes in Expectations About Future Prices or Other Factors That Affect Demand

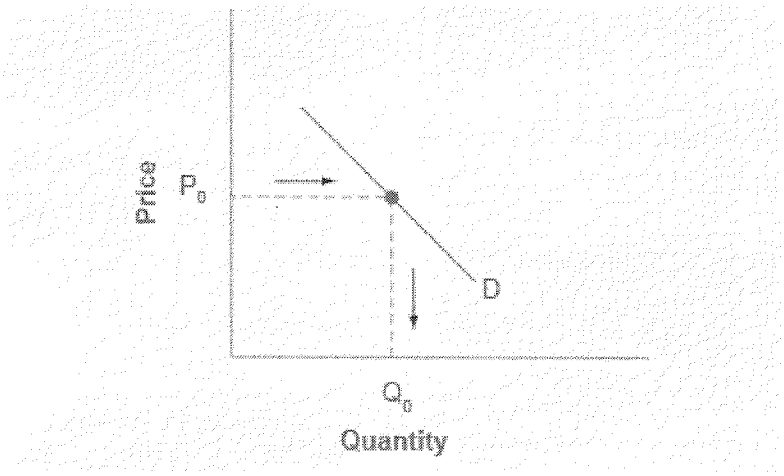
While it is clear that the price of a good affects the quantity demanded, it is also true that expectations about the future price (or expectations about tastes and preferences, income, and so on) can affect demand. For example, if people hear that a hurricane is coming, they may rush to the store to buy flashlight batteries and bottled water. If people learn that the price of a good like coffee is likely to rise in the future, they may head for the store to stock up on coffee now. These changes in demand are shown as *shifts in the curve*. Therefore, a **shift in demand** happens when a change in some economic factor (other than the current price) causes a different quantity to be demanded at every price.

Example: Shift in Demand

Shift in Demand Due to Income Increase

A shift in demand means that at any price (and at every price), the quantity demanded will be different than it was before. Following is a graphic illustration of a shift in demand due to an income increase.

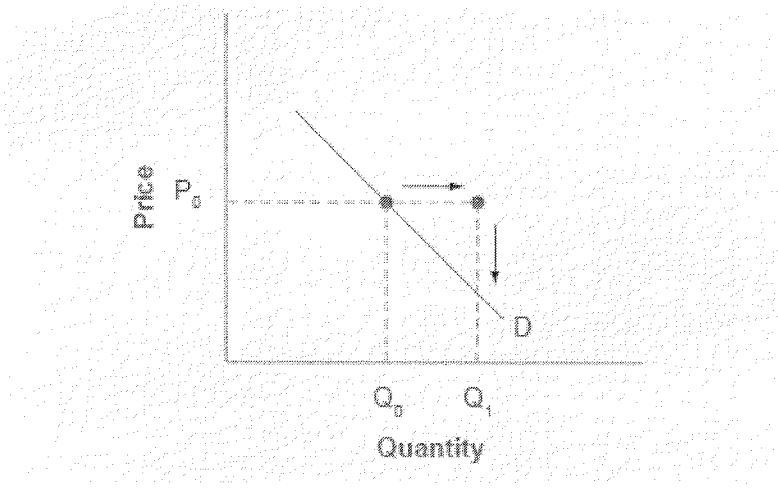
Step 1. Draw the graph of a demand curve for a normal good like pizza. Pick a price (like P_0). Identify the corresponding Q_0. An example is shown in "Demand Curve," below.



Demand Curve

A demand curve can be used to identify how much consumers would buy at any given price.

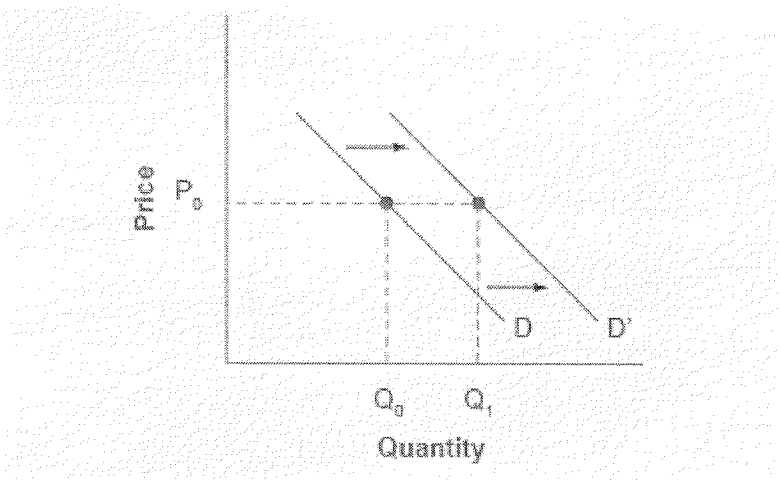
Step 2. Suppose income increases. As a result of the change, are consumers going to buy more or less pizza? The answer is more. Draw a dotted horizontal line from the chosen price, through the original quantity demanded, to the new point with the new Q_1. Draw a dotted vertical line down to the horizontal axis and label the new Q_1. An example is provided in "Demand Curve with Income Increase," below.



Demand Curve with Income Increase

With an increase in income, consumers will purchase larger quantities, pushing demand to the right.

Step 3. Now, shift the curve through the new point. You will see that an increase in income causes an upward (or rightward) shift in the demand curve, so that at any price, the quantities demanded will be higher, as shown in "Demand Curve Shifted Right," below.

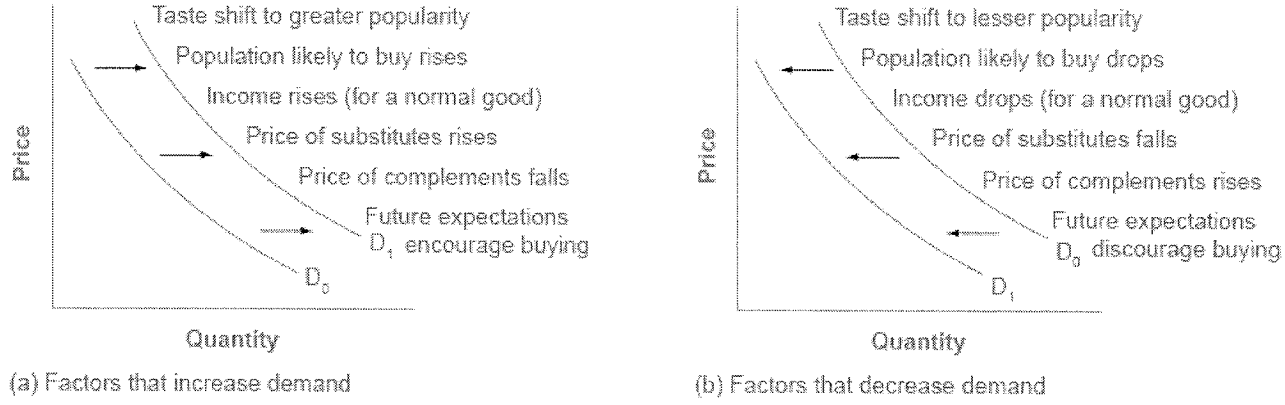


Demand Curve Shifted Right

With an increase in income, consumers will purchase larger quantities, pushing demand to the right, and causing the demand curve to shift right.

Summary of Factors That Change Demand

Six factors that can shift demand curves are summarized in "Factors That Shift Demand Curves," below. The direction of the arrows indicates whether the demand curve shifts represent an increase in demand or a decrease in demand. Notice that a change in the price of the good or service itself is not listed among the factors that can shift a demand curve. A change in the price of a good or service causes a movement along a specific demand curve, and it typically leads to some change in the quantity demanded, but it does not shift the demand curve.



Factors That Shift Demand Curves

(a) A list of factors that can cause an increase in demand from D_0 to D_1. (b) The same factors, if their direction is reversed, can cause a decrease in demand from D_0 to D_1.

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

When higher prices result in a lower quantity demanded, economists call this relationship

- the law of demand.
- price and demand model.
- the demand curve.

Question 2

What would cause the level of demand (meaning the relationship between price and quantity demanded) to shift?

- Population grows in a particular market area.
- Consumer incomes remain unchanged.
- The price of the good increases.

Question 3

According to the law of demand, assuming other factors are held constant:

- As the price of milk decreases, the quantity of milk demanded will increase.
- As the demand for milk increases, the price of milk will also increase.
- As the price of milk increases, the quantity of milk demanded will

increase.

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UNIVERSITY OF MARYLAND
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Learning Resource

The Law of Demand

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

Imagine that the price of Ben & Jerry's ice cream decreases by 25 percent during the next summer. What do you think will happen to the amount of Ben & Jerry's ice cream that people will want to buy? Clearly, the demand for ice cream will increase. By the same token, if the price of the ice cream were to rise by 25 percent, then the demand for the ice cream would fall. In this section, you will examine the law of demand and see why this simple concept is essential to understanding economics.

Learning Outcomes

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

https://youtu.be/uXlZIn6W7Ew (https://youtu.be/uXlZIn6W7Ew)

The law of demand states that, other things being equal

- More of a good will be bought the lower its price
- Less of a good will be bought the higher its price

Ceteris paribus means "other things being equal."

What Is Demand?

Demand for Goods and Services

Economists use the term **demand** to refer to the amount of some good or service consumers are willing and able to purchase at each price. Demand is based on needs and wants—a consumer may be able to differentiate between a need and a want, but from an economist's perspective, they are the same thing. Demand is also based on ability to pay. If you can't pay for it, you have no effective demand.

What a buyer pays for a unit of the specific good or service is called the **price**. The total number of units purchased at that price is called the **quantity demanded**. A rise in the price of a good or service almost always decreases the quantity of that good or service demanded. Conversely, a fall in price will increase the quantity demanded. When the price of a gallon of gasoline goes up, for example, people look for ways to reduce their consumption by combining several errands, commuting by carpool or mass transit, or taking weekend or vacation trips closer to home. Economists call this inverse relationship between price and quantity demanded the **law of demand**. The law of demand assumes that all other variables that affect demand are held constant.

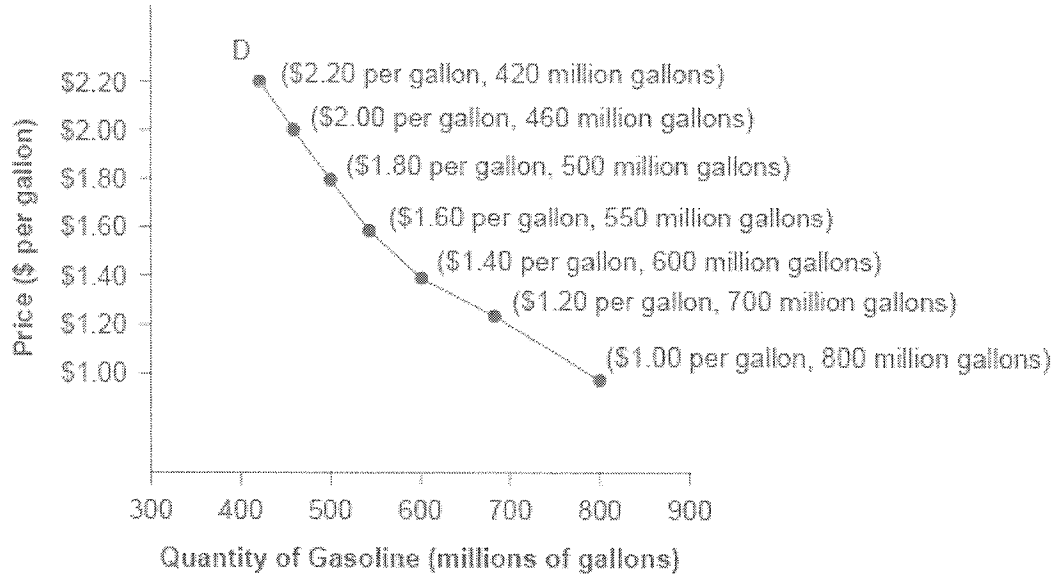
An example from the market for gasoline can be shown in the form of a table or a graph. (Refer back to "Reading: Creating and Interpreting Graphs" if you need a refresher on graphs.) A table that shows the quantity demanded at each price, such as "Price and Quantity Demanded of Gasoline," is called a **demand schedule**. Price in this case is measured in dollars per gallon of gasoline. The quantity demanded is measured in millions of gallons over some time period (for example, per day or per year) and over some geographic area (like a state or a country).

Price and Quantity Demanded of Gasoline

Price (per gallon)	Quantity Demanded (millions of gallons)
$1.00	800
$1.20	700
$1.40	600
$1.60	550

$1.80	500
$2.00	460
$2.20	420

A **demand curve** shows the relationship between price and quantity demanded on a graph like the figure, "A Demand Curve for Gasoline," below, with quantity on the horizontal axis and the price per gallon on the vertical axis. *Note that this is an exception to the normal rule in mathematics that the independent variable (x) goes on the horizontal axis and the dependent variable (y) goes on the vertical. Economics is different from math!*



A Demand Curve for Gasoline

The demand schedule, "Price and Quantity Demanded of Gasoline," shows that as price rises, quantity demanded decreases, and vice versa. These points can then be graphed, and the line connecting them is the demand curve (shown by line D in the graph, above). The downward slope of the demand curve again illustrates the law of demand—the inverse relationship between prices and quantity demanded.

The demand schedule shown and the demand curve, "A Demand Curve for Gasoline," above, are two ways of describing the same relationship between price and quantity demanded.

Demand curves will look somewhat different for each product. They may appear relatively steep or flat, or they may be straight or curved. Nearly all demand curves share the fundamental similarity that they slope down from left to right. In this way, demand curves embody the law of demand: As the price increases, the quantity demanded decreases, and conversely, as the price decreases, the quantity demanded increases.

Demand vs. Quantity Demanded

In economic terminology, *demand* is not the same as *quantity demanded*. When economists talk about demand, they mean the relationship between a range of prices and the quantities demanded at those prices, as illustrated by a demand curve or a demand schedule. When economists talk about quantity demanded, they mean only a certain point on the demand curve, or one quantity on the demand schedule. In short, demand refers to the curve, and quantity demanded refers to the (specific) point on the curve.

Change in Demand vs. Change in Quantity Demanded

https://youtu.be/aTSwcXJ700c (https://youtu.be/aTSwcXJ700c)

A change in price does not move the demand curve. It only shows a difference in the quantity demanded.

The demand curve will move left or right when there is an underlying change in demand at all prices.

Factors Affecting Demand

A Happy Shopper

Consumers Willing and Able to Purchase

We defined demand as the amount of some product that a consumer is willing and able to purchase at each price. This suggests at least two factors, in addition to price, that affect demand. "Willingness to purchase" suggests a desire to buy, and it depends on what economists call *tastes* and *preferences*. If you neither need nor want something, you won't be willing to buy it. "Ability to purchase" suggests that income is important. Professors are usually able to afford better housing and transportation than students, because they have more income. The prices of related goods can also affect demand. If you need a new car, for example, the price of a Honda may affect your demand for a Ford. Finally, the size or composition of the population can affect demand. The more children a family has, the greater their demand for clothing. The more driving-age children a family has, the greater their demand for car insurance, and the less for diapers and baby formula.

These factors matter both for demand by an individual and demand by the market as a whole. Exactly how do these various factors affect demand, and how do we show the effects graphically? To answer those questions, we need the *ceteris paribus* assumption.

The *Ceteris Paribus* Assumption

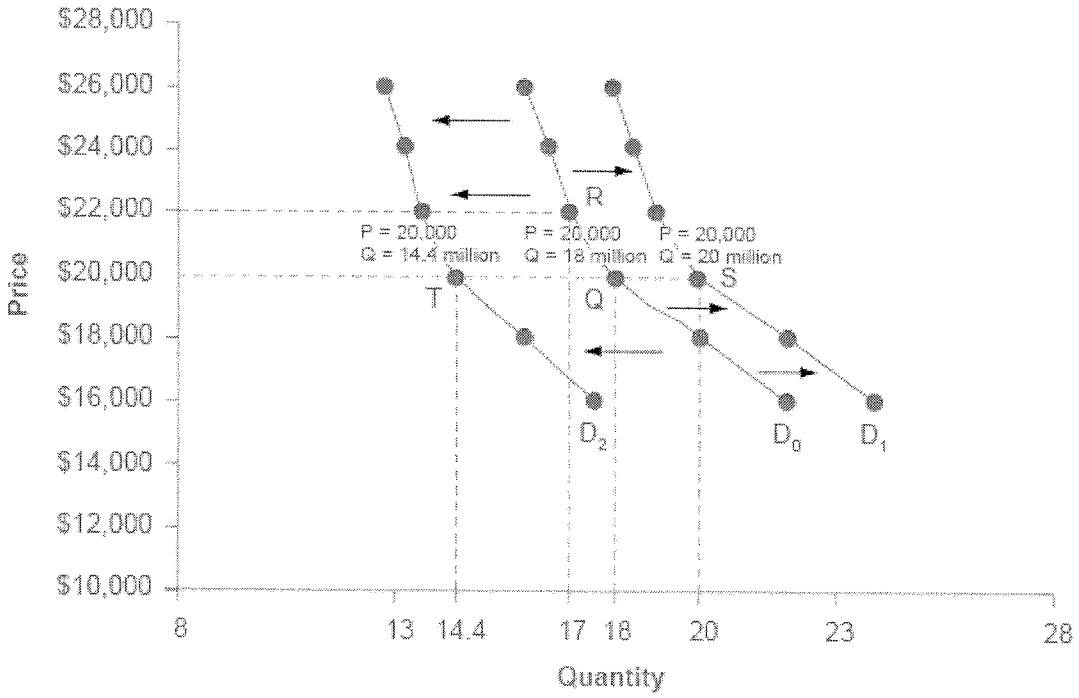
A demand curve or a supply curve is a relationship between two, and only two, variables: quantity on the horizontal axis and price on the vertical axis. The assumption behind a demand curve or a supply curve is that no relevant economic factors, other than the product's price, are changing. Economists call this assumption ***ceteris paribus***, a Latin phrase meaning "other things being equal." Any given demand or supply curve is based on the *ceteris paribus* assumption that all else is held equal. (You'll recall that economists use the *ceteris paribus* assumption to simplify the focus of analysis.) Therefore, a demand curve or a supply curve is a relationship between two, and only two, variables when all other variables are held equal. If all else is not held equal, then the laws of supply and demand will not necessarily hold.

Ceteris paribus is typically applied when we look at how changes in price affect demand or supply, but *ceteris paribus* can also be applied more generally. In the real world, demand and supply depend on more factors than just price. For example, a consumer's demand depends on income, and a producer's supply depends on the cost of producing the product. How can we analyze the effect on demand or supply if multiple factors are changing at the same time—say price rises and income falls? The answer is that we examine the changes one at a time, and assume that the other factors are held constant.

For example, we can say that an increase in the price reduces the amount consumers will buy (assuming income, and anything else that affects demand, is unchanged). Additionally, a decrease in income reduces the amount consumers can afford to buy (assuming price, and anything else that affects demand, is unchanged). This is what the *ceteris paribus* assumption really means. In this particular case, after we analyze each factor separately, we can combine the results. The amount consumers buy falls for two reasons: first because of the higher price and second because of the lower income.

The Effect of Income on Demand

Let's use income as an example of how factors other than price affect demand. The figure, "Shifts in Demand: A Car Example," below, shows the initial demand for automobiles as D_0. At point Q, for example, if the price is $20,000 per car, the quantity of cars demanded is 18 million. D_0 also shows how the quantity of cars demanded would change as a result of a higher or lower price. For example, if the price of a car rose to $22,000, the quantity demanded would decrease to 17 million, at point R.



Shifts in Demand: A Car Example

The original demand curve D_0, like every demand curve, is based on the *ceteris paribus* assumption that no other economically relevant factors change. Now imagine that the economy expands in a way that raises the incomes of many people, making cars more affordable. How will this affect demand? How can we show this graphically?

Return to the figure, "Shifts in Demand: A Car Example." The price of cars is still $20,000, but with higher incomes, the quantity demanded has now increased to 20 million cars, shown at point S. As a result of the higher income levels, the demand curve shifts to the right to the new demand curve D_1, indicating an increase in demand.The table, "Price and Demand Shifts: A Car Example," below, shows clearly that this increased demand would occur at every price, not just the original one.

Price and Demand Shifts: A Car Example

Price	Decrease to D_2	Original Quantity Demanded D_0	Increase to D_1
$16,000	17.6 million	22.0 million	22.0 million
$20,000	14.4 million	18.0 million	20.0 million
$22,000	13.6 million	17.0 million	19.0 million

$24,000	13.2 million	16.5 million	18.5 million
$26,000	12.8 million	16.0 million	18.0 million

Now, imagine that the economy slows down, so that many people lose their jobs or work fewer hours, reducing their incomes. In this case, the decrease in income would lead to a lower quantity of cars demanded at every given price, and the original demand curve D_0 would shift left to D_2. The shift from D_0 to D_2 represents such a decrease in demand: At any given price level, the quantity demanded is now lower. In this example, a price of $20,000 means 18 million cars sold along the original demand curve, but only 14.4 million sold after demand fell.

When a demand curve shifts, it does not mean that the quantity demanded by every individual buyer changes by the same amount. In this example, not everyone would have higher or lower income and not everyone would buy or not buy an additional car. Instead, a shift in a demand curve captures a pattern for the market as a whole: Increased demand means that at every given price, the quantity demanded is higher, so that the demand curve shifts to the right from D_0 to D_1. And, decreased demand means that at every given price, the quantity demanded is lower, so that the demand curve shifts to the left from D_0 to D_2.

We just argued that higher income causes greater demand at every price. This is true for most goods and services. For some—luxury cars, vacations in Europe, and fine jewelry—the effect of a rise in income can be especially pronounced. A product whose demand rises when income rises, and vice versa, is called a **normal good**. A few exceptions to this pattern do exist, however. As incomes rise, many people will buy fewer generic-brand groceries and more name-brand groceries. They are less likely to buy used cars and more likely to buy new cars. They will be less likely to rent an apartment and more likely to own a home, and so on. A product whose demand falls when income rises, and vice versa, is called an **inferior good**. In other words, when income increases, the demand curve shifts to the left.

Other Factors That Shift Demand Curves

Income is not the only factor that causes a shift in demand. Other things that change demand include tastes and preferences, the composition or size of the population, the prices of related goods, and even expectations. A change in any one of the underlying factors that determine what quantity people are willing to buy at a given price will cause a shift in demand. Graphically, the new demand curve lies either to the right (an increase) or to the left (a decrease) of the original demand curve. Let's look at these factors.

Changing Tastes or Preferences

From 1980 to 2012, the per-person consumption of chicken by Americans rose from 33 pounds per year to 81 pounds per year, and consumption of beef fell from 77 pounds per year to 57 pounds per year, according to the US Department of Agriculture (USDA). Changes like these are largely due to shifts in taste, which change the quantity of a good demanded at every price; that is, they shift the demand curve for that good—rightward for chicken and leftward for beef.

Changes in the Composition of the Population

The proportion of elderly citizens in the United States population is rising. It rose from 9.8 percent in 1970 to 12.6 percent in 2000 and will be a projected (by the US Census Bureau) 20 percent of the population by 2030. A society with relatively more children, like the United States in the 1960s, will have greater demand for goods and services like tricycles and day care facilities. A society with relatively more elderly persons, as the United States is projected to have by 2030, has a higher demand for nursing homes and hearing aids. Similarly, changes in the size of the population can affect the demand for housing and many other goods. Each of these changes in demand will be shown as a shift in the demand curve.

Changes in the Prices of Related Goods

The demand for a product can also be affected by changes in the prices of related goods such as substitutes or complements. A **substitute** is a good or service that can be used in place of another good or service. As electronic books, like this one, become more available, you would expect to see a decrease in demand for traditional printed books. A lower price for a substitute decreases demand for the other product. For example, in recent years as the price of tablet computers has fallen, the quantity demanded has increased (because of the law of demand). Since people are purchasing tablets, there has been a decrease in demand for laptops, which can be shown graphically as a leftward shift in the demand curve for laptops. A higher price for a substitute good has the reverse effect.

Other goods are **complements** for each other, meaning that the goods are often used together, because consumption of one good tends to enhance consumption of the other. Examples include breakfast cereal and milk; notebooks and pens or pencils, golf balls and golf clubs; gasoline and sport utility vehicles; and the five-way combination of bacon, lettuce, tomato, mayonnaise, and bread. If the price of golf clubs rises, since the quantity of golf clubs demanded falls (because of the law of demand), demand for a complement good like golf balls

decreases, too. Similarly, a higher price for skis would shift the demand curve for a complement good like ski resort trips to the left, while a lower price for a complement has the reverse effect.

Changes in Expectations About Future Prices or Other Factors That Affect Demand

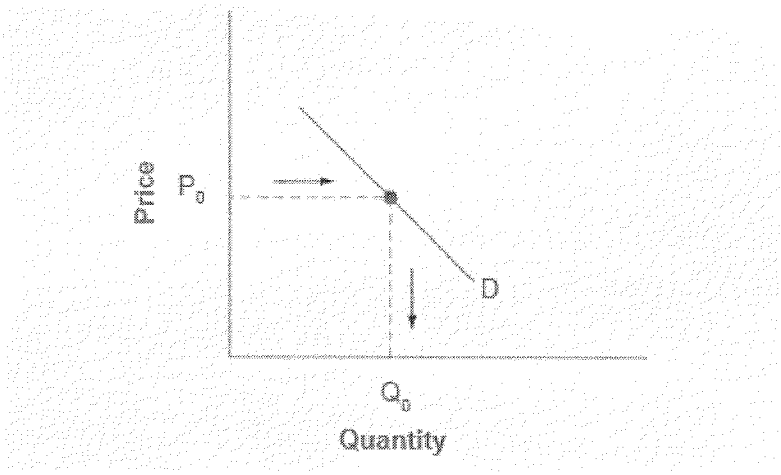
While it is clear that the price of a good affects the quantity demanded, it is also true that expectations about the future price (or expectations about tastes and preferences, income, and so on) can affect demand. For example, if people hear that a hurricane is coming, they may rush to the store to buy flashlight batteries and bottled water. If people learn that the price of a good like coffee is likely to rise in the future, they may head for the store to stock up on coffee now. These changes in demand are shown as *shifts in the curve*. Therefore, a **shift in demand** happens when a change in some economic factor (other than the current price) causes a different quantity to be demanded at every price.

Example: Shift in Demand

Shift in Demand Due to Income Increase

A shift in demand means that at any price (and at every price), the quantity demanded will be different than it was before. Following is a graphic illustration of a shift in demand due to an income increase.

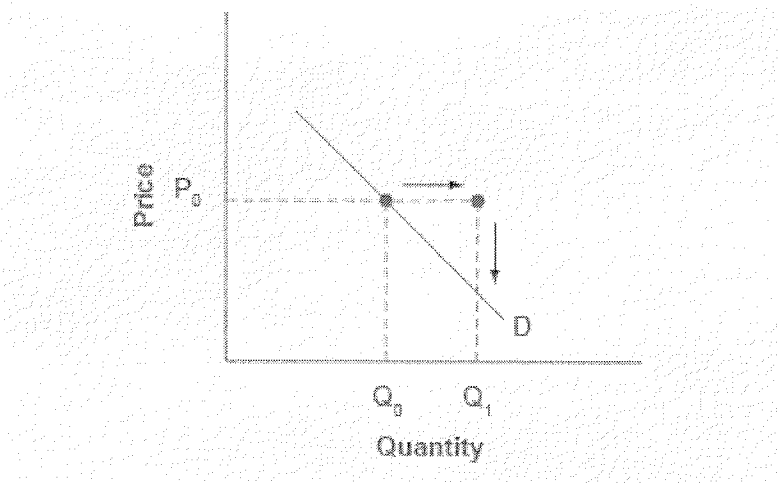
Step 1. Draw the graph of a demand curve for a normal good like pizza. Pick a price (like P_0). Identify the corresponding Q_0. An example is shown in "Demand Curve," below.



Demand Curve

A demand curve can be used to identify how much consumers would buy at any given price.

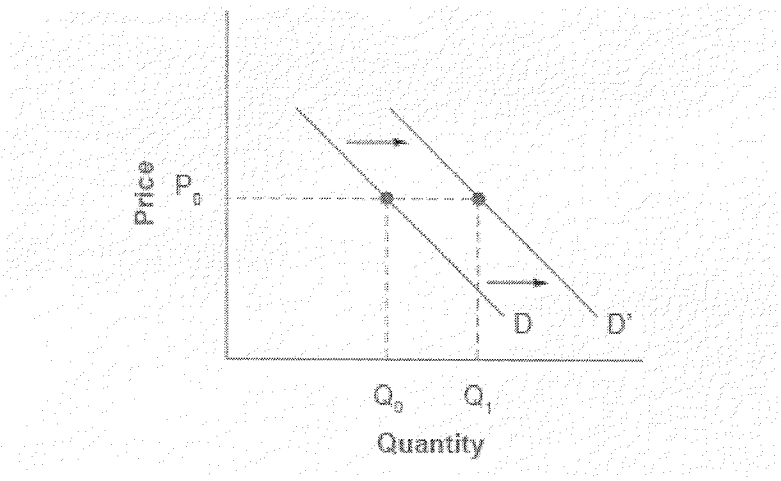
Step 2. Suppose income increases. As a result of the change, are consumers going to buy more or less pizza? The answer is more. Draw a dotted horizontal line from the chosen price, through the original quantity demanded, to the new point with the new Q_1. Draw a dotted vertical line down to the horizontal axis and label the new Q_1. An example is provided in "Demand Curve with Income Increase," below.



Demand Curve with Income Increase

With an increase in income, consumers will purchase larger quantities, pushing demand to the right.

Step 3. Now, shift the curve through the new point. You will see that an increase in income causes an upward (or rightward) shift in the demand curve, so that at any price, the quantities demanded will be higher, as shown in "Demand Curve Shifted Right," below.

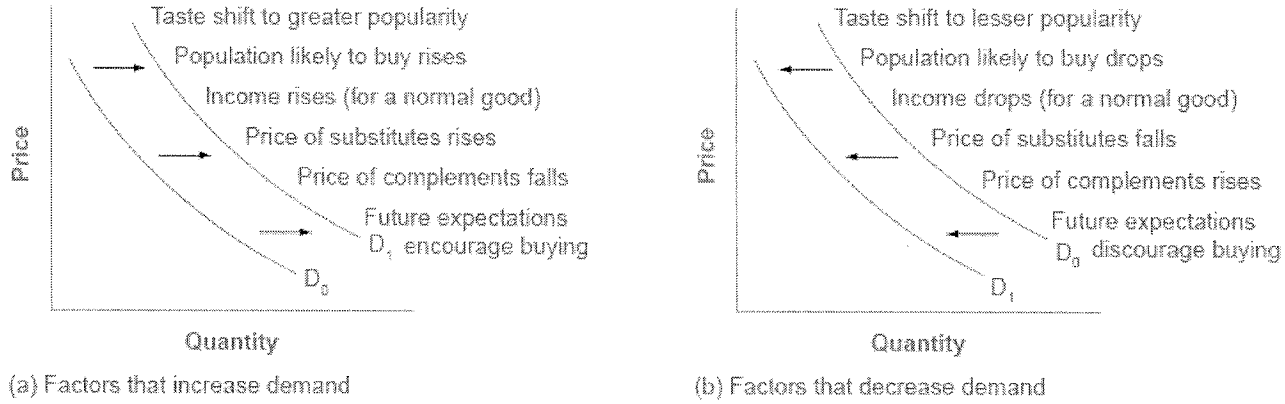


Demand Curve Shifted Right

With an increase in income, consumers will purchase larger quantities, pushing demand to the right, and causing the demand curve to shift right.

Summary of Factors That Change Demand

Six factors that can shift demand curves are summarized in "Factors That Shift Demand Curves," below. The direction of the arrows indicates whether the demand curve shifts represent an increase in demand or a decrease in demand. Notice that a change in the price of the good or service itself is not listed among the factors that can shift a demand curve. A change in the price of a good or service causes a movement along a specific demand curve, and it typically leads to some change in the quantity demanded, but it does not shift the demand curve.



Factors That Shift Demand Curves

(a) A list of factors that can cause an increase in demand from D_0 to D_1. (b) The same factors, if their direction is reversed, can cause a decrease in demand from D_0 to D_1.

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

When higher prices result in a lower quantity demanded, economists call this relationship

- the law of demand.
- price and demand model.
- the demand curve.

Question 2

What would cause the level of demand (meaning the relationship between price and quantity demanded) to shift?

- Population grows in a particular market area.
- Consumer incomes remain unchanged.
- The price of the good increases.

Question 3

According to the law of demand, assuming other factors are held constant:

- As the price of milk decreases, the quantity of milk demanded will increase.
- As the demand for milk increases, the price of milk will also increase.
- As the price of milk increases, the quantity of milk demanded will

increase.

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