

Economics

Coursebook



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Introduction

Economics is the study of the making and distribution of resources, goods, and services, and the human-created institutions and systems that are involved. Economics is a human science because it is about what humans have done in the past and do today. It is about the ways people organize themselves to make and consume things, and it is about how people replicate their systems of organization. Essentially, economics is the study of people going about their everyday business, contributing to a system that, ideally, meets the needs of everyone.

Economics is important because everyone participates in it every day, and everyone is affected by it. Societies are shaped and organized by it. Economics is small things, like the price you pay for a can of soda, and it is big things, like the number of people employed and unemployed in a country. Economics affects our decisions, large and small. Cumulatively, our individual choices *are* economics because economics is about the conditions in which people make decisions, the decisions they make, and how those decisions affect others. Because money is the means by which goods and services are exchanged, it is at the center of the study of economics, and it is the topic of the first lesson.

Course Materials

This course uses the following text:

- *The Economics Book: Big Ideas Simply Explained*

Other books will be referenced, and you may want to consult other economics textbooks or online sources. (One good textbook is *Economics* by Paul A. Samuelson and William D. Nordhaus.)

This course also uses a variety of online resources, which are listed in the lessons and can be easily accessed through Oak Meadow's Curriculum Links page at oakmeadow.com/curriculum-links. Take a moment to locate and bookmark this page for quick access to these online resources.

Course Structure

The course is divided into six units with three lessons each:

- **Unit 1, Foundations of the Modern Economy**, covers fundamental concepts such as money, property, price, international trade, banking, and taxation.

- **Unit 2, Capitalism in Theory and Practice**, covers ideas such as Adam Smith’s “invisible hand,” the division of labor, *Homo Economicus*, laissez-faire economics, government spending and borrowing, population growth, supply and demand, and the boom-and-bust business cycle.
- **Unit 3, Capitalism and Its Critics**, looks at free-market competition, monopoly, cartels, “conspicuous consumption,” religion and the market, Marxism, and labor unions.
- **Unit 4, Capitalism and Its Crises**, covers topics such as unemployment, wages, depressions, tariffs, consumer choices, and centrally planned economies.
- **Unit 5, Institutions and Theories in Postwar Economics**, covers the World Bank and the International Monetary Fund (IMF), economic development, globalization, gross domestic product (GDP), theories of economic behavior, socialism, monetarism, and Keynesianism.
- **Unit 6, Contemporary Economics**, covers the Bretton Woods system, international finance, supply side economics, fiat currencies, consumer behaviors, external costs, environmental effects and regulations, global wealth inequality, neoliberalism, the Washington Consensus, and the effects of technological change.

Because economics is a human science, its terms and ideas are tied to the people who invented them, and so the study of those people—philosophers, economists, mathematicians, and politicians—and their ideas will be central to this course. Attaching people to their ideas is historically correct, and it also helps us remember, name, and put things in chronological order so that we can comprehend cause and effect.

There is a rough chronology in the organization of this course that follows the identification and articulation of important concepts by economists; however, there is also considerable jumping back and forth in time since older, more fundamental concepts remain relevant today.

Lesson Structure

This single-semester course is divided into 18 lessons, and each lesson is designed to take about one week to complete (approximately 5–7 hours per week). This course is designed for independent learning, so hopefully you will find it easy to navigate. However, it is assumed you will have an adult supervising your work and providing support and feedback. (This person will be referred to as “your teacher” throughout this course.) If you have a question about your work, please ask them for help!

In the lessons, you will find the following sections:

An **Assignment Checklist** is included at the beginning of each lesson. You can see all the assignments at a glance, clarify with your teacher which ones are required and which are optional, and check off assignments as you complete them. Assignments are fully explained in the lesson.

The **Learning Objectives** outline the main goals of the lesson and give you an idea of what to expect.

The **Lesson Introduction** provides essential background information on the lesson's topics and themes. Pay particular attention to the bolded **key terms**, which call your attention to some of the most important vocabulary for each lesson.

Reading sections direct you to the assigned text; feel free to supplement this reading with additional relevant and reputable print or online sources.

Knowledge and Comprehension Checks and **Application, Analysis, and Synthesis** assignments give you ways to demonstrate and apply the knowledge and skills you are learning. Each lesson includes a variety of assignments—you may not be required or expected to do all of them; consult with your teacher to find out what is expected.

Activities provide additional ways to explore and apply the lesson topics in creative and personally meaningful ways.

The **Share Your Work** section provides reminders and information for students who are submitting their work to a teacher.

When you begin each lesson, scan the entire lesson first. Take a quick look at the number of assignments and amount of reading. Having a sense of the whole lesson will help you manage your time effectively.

Assignments and Activities

The written assignments in this course fall under two categories:

Knowledge and Comprehension questions are designed to help you determine whether you know and understand the most important concepts in each lesson.

Application, Analysis, and Synthesis questions ask you to put together concepts in creative ways, use concepts to look at other things, and put ideas in the context of the things you've learned previously.

All the questions are designed to prompt answers that allow you to show what you know and how you know it. The assignments are not meant to be tricky or especially difficult, and there are many ways to get a right answer. If you show that you're thinking through the concepts, you're on the right track. There will be just a little bit of basic math, but most of the questions are about demonstrating knowledge of the concepts and using logic to apply them.

In addition to the assignments, each lesson includes an activity, where you will be prompted to do a creative project that uses some of the relevant concepts covered in the lesson. You may complete all the activities if you wish, but your teacher will help you determine whether each activity is required or optional. There is also an optional final project, which your teacher may or may not require.

Time Management

It is recommended that you establish and stick to a consistent schedule to help you keep on track with your schoolwork. Completing one lesson per week is the recommended pace.

Students vary greatly in terms of reading speed, reading comprehension, and writing ability. Some may find the reading in this course takes longer than expected; others may find the writing assignments or activities take a great deal of time. To help your teacher gauge and adjust the difficulty of the curriculum, you may want to keep a log of how many hours you spend each week for the first few lessons of this course. If you are regularly completing lessons in substantially less than five hours, you and your teacher may want to increase the length and detail of your responses or the number of assignments you're completing. If you regularly need more time to complete the work, your teacher can help you modify some lessons to focus on fewer assignments or skip activities in some lessons to spend more time on other assignments.

Modifications like these will allow you to produce work of a higher quality. With your teacher's help, you can adjust the requirements of the course to help you better balance your time among your various courses, and between schoolwork and the rest of your life.

Academic Expectations

You are expected to approach this course with integrity and honesty. Plagiarism (representing another author's words or ideas as your own) and other forms of cheating are not only a serious breach of academic ethics, but they also undercut your own learning and development as a student.

The appendix contains important material that you will need to read and incorporate into your work throughout the year. Take some time to familiarize yourself with the resources in the appendix. You will find information about original work guidelines, tips on how to avoid accidental plagiarism, and details on citing sources and images.

As you go through this course, remember that the goal is to gain a broad understanding of economic concepts—economics is a complex field, and you are not expected to become an economist with this one course! Do your best and reach out when you have questions. Pay careful attention to your teacher's feedback on your work, and apply their comments and suggestions to future assignments. Economics influences your life now and in the future, so we hope you find this course interesting, relevant, and useful.

Lesson

1

Money, Property, and Price

Learning Objectives

In this lesson, you will:

- Distinguish between different kinds of money.
- Explain how private property is the premise on which market exchange is based.
- Describe how the price of goods establishes a relationship between buyer and seller and facilitates the efficient distribution of scarce goods and resources.

Lesson Introduction

A common story about the origin of **money** is that it came about historically to replace **barter**, or the direct exchange of goods for goods with no medium (instrument) of exchange. Even one of the most standard, widely used textbooks on economics tells a version of this story: “As economies develop, people no longer barter one good for another. Instead, they sell goods for money and then use money to buy other goods they wish to have” (Samuelson and Nordhaus 466). One can imagine how extraordinary it would be for traders in some ancient marketplace to encounter one another and discover that they have a *double coincidence of wants* with regard to their available goods for exchange—each needs precisely what the other has to offer and in the correct quantity. The implausibility of such a scenario makes the appearance of money seem like an inevitable, logical solution to a profound impracticality, and for that reason, the story is very tempting as an explanation.

And yet, according to anthropologist David Graeber, this story is a myth. In fact, while barter has existed at various times and in various places in human history—usually as a ritual or improvisation for lack of better alternatives—no society has been based on it as a normal form of trade. Instead, what the historical record presents is evidence of **credits and debts**, meaning money borrowed and the obligation to pay it back to the lender. In fact, records of such transactions are among the earliest written documents that still exist, in the form of Mesopotamian tablets recording money owed to temples for the rent of temple lands, specified in units of grain and silver. Money is a way to quantify a

ASSIGNMENT CHECKLIST

- Read the lesson introduction.
- Read selections in *The Economics Book*.
- Complete the Knowledge and Comprehension Check.
- Complete the Application, Analysis, and Synthesis assignments.
- Activity: Inflation Calculation

unit of account that expresses a credit, debt, or obligation between parties engaged in trade or transactions. When a unit of currency is exchanged—a quantity of silver or a Mexican peso, for instance—it may have the effect of settling the account, completing the transaction, and allowing the parties to walk away.

But what gives that money its value, and why is it worth having outside of such a discrete transaction? There are many possible answers to this question, but one compelling answer is called the Chartalist approach, which asserts that money has value precisely because it is what a state or government authority accepts as payment in taxes in a designated unit of account (e.g., U.S. dollars) that is very often issued by the state or government authority itself. Since everyone will ultimately need to pay taxes—as Benjamin Franklin once said, nothing in this world is certain “except death and taxes”—the kind of money required by the state authority acquires value outside of that specific situation because it will always be useful for taxes in the end. In this way, money acquires intrinsic value.

The fact that people have long been in the habit of trading goods with one another is based on another premise that is so natural in the modern world that it is almost taken for granted: **private property**, or the possession of a thing or a good by a person or an institution. Many societies in the past have held property collectively (as a group). Even today, much property is held in common, being owned either by a state authority, by the people, or by no one at all. But the trading of goods between private persons or corporations requires the legal concept that a thing or good may be possessed by someone. The ancient Greek philosopher Aristotle believed that private property was a good thing because it instilled in people the will and incentive to maintain and improve things.

Given that people have things to trade and money as a means to facilitate such trade, what form might that money take? There are two basic kinds of money: **commodity money** and **fiat money**. Commodity money has some intrinsic value, often in the form of a precious metal such as gold or silver. Fiat money has little or no intrinsic value beyond the value printed or stamped on it by the issuing authority, such as the central bank of a state (in the United States, that bank is the Federal Reserve). Paper money is a kind of fiat money. Today, most transactions occur electronically and use **bank money**, which has been deposited at a bank or financial institution.

Money is a way of quantifying value in the form of a currency, and the units of currency applied to a good or commodity in a market exchange marks its **price**. How is the price determined? For some, the issue of price has a moral dimension, and an excessive price is thought to be wrong or even sinful. The thirteenth-century philosopher **St. Thomas Aquinas** believed that a merchant had the right to charge a “**just price**,” which would permit some profit but avoid excessive gains. Ultimately, however, price is simply what a buyer is willing to pay for something. In a competitive marketplace with multiple buyers and sellers of similar goods, the price is effectively regulated by the desire of sellers to attract buyers and the desire of buyers not to spend more than they must to get what they want or need.

Yet even a settled price is not necessarily a fixed thing. There are essentially two kinds of prices: the **nominal price**, which is the value of a good measured in a unit of currency (e.g., \$50), and the **real price**, which is the real quantity of a thing that may be exchanged for a real quantity of another thing (e.g., two weeks of work for a month’s rent or an hour’s wages for bus fare), whatever the nominal

price. The reason for making the distinction is that there are many circumstances in which the real price may remain the same while the nominal price changes, or vice versa. For instance, if the nominal price increases (rent or bus fare costs more) and your wages increase proportionately, the real price has stayed the same. This is because the value of currency may change for several reasons. In the sixteenth century, the French theorist Jean Bodin made the case that prices were rising not because the currency had been “debased” (coined with less pure metal), as was commonly believed, but because the overall supply of money had increased. This increase in the **money supply** led to a situation of more money “chasing” fewer goods, which causes the currency to be devalued (worth less) and prices to rise correspondingly. This phenomenon is called **inflation**, meaning a higher nominal price is required for the same good. The idea that the ratio of the supply of money to the availability of goods for purchase has an effect on the overall price level is called the **quantity theory of money**.

The economist **Irving Fisher** elaborated on the quantity theory of money by introducing the notion of the **velocity of money**, or the rate at which money **circulates** or changes hands between buyers and sellers or creditors and debtors. Fisher introduced the formula $MV = PT$, where M is the supply of money, V is the velocity of money, P is the general price level, and T is yearly transactions. According to the equation, the supply of money and the velocity of money will rise or fall in proportion to the price level and the number of transactions. In practical terms, this means that in periods of high inflation (rising prices), money will change hands faster because people will tend to be eager to exchange money for goods when their money is rapidly losing its real value.

Key Concepts

The following concepts and people are central to your understanding of economics. These terms and people are described in the lesson introduction and assigned reading. If you need further clarification, seek additional sources or reach out to your teacher.

Concepts and terminology

- barter
- credits and debts
- private property
- money
- unit of account
- commodity money
- fiat money
- bank money
- price
- “just price”
- real price
- nominal price
- inflation
- circulation
- money supply
- velocity of money
- quantity theory of money

Important thinkers

- St. Thomas Aquinas
- Irving Fisher

Reading

In *The Economics Book: Big Ideas Simply Explained*, read the following sections. Most sections are just two pages long, so while it may look like a lot of reading, you will find the sections are concise and quick to read. They also include graphics that will help you absorb the information.

- Introduction (12–15)
- Introduction to Let the Trading Begin: 400 BCE–1770 CE (16–19)
- Property Should Be Private: Property Rights (20–21)
- What Is a Just Price? Markets and Morality (22–23)
- You Don't Need to Barter When You Have Coins: The Function of Money (24–25)
- Money Causes Inflation: The Quantity Theory of Money (30–33)

As you read, you might want to make note of any questions you have or concepts you'd like to learn more about.

Knowledge and Comprehension Check

1. Why is private property a necessary precondition for the exchange of goods in a marketplace? Describe the incentives that motivate buyers and sellers in a marketplace, and explain what would be different in a society in which private property did not exist and everything was held in common.
2. What is the difference between commodity money and fiat money? Explain the advantages of each form of money, and present a theory as to why fiat money has become much more common in the present day.
3. What is the difference between the nominal price and the real price of a good? Present two plausible scenarios in which (1) the nominal price of a good goes up while the real price of that good remains the same; and (2) the nominal price remains the same while the real price goes down. What changed in each scenario?

Application, Analysis, and Synthesis

1. Why would a theoretical economy based on barter exchange be an inefficient system for the distribution of goods? How does money help facilitate the “coincidence” of wants between buyers and sellers in a marketplace (real or virtual), and how does an agreed-upon price of goods bring buyers and sellers together?
2. Imagine that you are the chair (presiding officer) of the Federal Reserve, the central bank of the United States. The rate of inflation in the country is very high, which means that prices are rising rapidly. As chair, you have control over the money supply, and your aim is to bring inflation

under control and stop prices from rising so rapidly. Would you use your authority to increase or decrease the money supply? Explain why you took this action.

Activity: Inflation Calculation

Make a list of five items you own that are like those that would have been available when your parent/guardian was your age (such as a pair of shoes). Record the price of each item as accurately as you can recall (or check online, if possible). Now, go to the Consumer Price Index Inflation Calculator maintained by the U.S. Bureau of Labor Statistics:

CPI Inflation Calculator

(All online resources can be accessed through Oak Meadow's Curriculum Links page at oakmeadow.com/curriculum-links.)

Enter the price for each item in the current month and year, and set the calculator to adjust the price to see what it would have been in the year that your parent/guardian was your age. Record the prices for each item and present the list to your parent/guardian—are the prices what they would have expected to pay for such goods when they were your age? If the prices of today's goods, adjusted for inflation, are markedly different (higher or lower), do you or your parent/guardian have a theory as to why? Include your list and inflation calculations with your responses.

SHARE YOUR WORK

At the end of each lesson, you will share your work with your teacher for feedback. (If your teacher prefers a different submission schedule, they will let you know.) You are not necessarily required to complete all the assignments for each lesson, so be sure to check with your teacher at the beginning of each lesson to make sure you understand what you are required to do.

Your teacher will let you know the best way to submit your work. If you have any questions about the lesson content, the assignments, or how to share your work, contact your teacher.

Lesson

2

Trade Between Nations

Learning Objectives

In this lesson, you will:

- Define the economic theory of mercantilism and describe its relation to the idea of the balance of trade.
- Understand the role of merchants participating in joint-stock companies in promoting mercantilism.
- Explain the economist Adam Smith’s critiques of mercantilism and protectionism.
- Describe the concepts of absolute advantage and comparative advantage in international trade.

Lesson Introduction

In the seventeenth century, with the rise of nation-states and Dutch and British **joint-stock companies** engaged in overseas trade, such as the East India Company, a view of the world economy that would come to be known as **mercantilism** become predominant. Mercantilists believed that a nation’s wealth relied on a “favorable” **balance of trade**, meaning that the inflow of gold and silver to a country through trade exceeded its outflow to other countries. This view was promoted by merchants who opposed the hoarding of gold and silver by nations, which they saw as adverse to commerce and trade and ultimately harmful to **national wealth**. According to merchants and commercial traders, outflows of gold and silver from a country did not hinder the accumulation of national wealth, and in fact contributed to it, so long as the total value of exports (the money received from selling things) exceeded the total value of imports (the money spent on buying things).

Investors in joint-stock companies lent their money in exchange for a proportional share of future profits, thereby reducing their individual risk of losses while collectively amassing money in a company capable of engaging in large-scale overseas trade. From their experience in business, these investors knew that properly invested money could generate more money, and that the outflow of gold and silver in foreign investments was necessary to facilitate trade that would eventually generate an even

ASSIGNMENT CHECKLIST

- Read the lesson introduction.
- Read selections in *The Economics Book*.
- Complete the Knowledge and Comprehension Check.
- Complete the Application, Analysis, and Synthesis assignments.
- Activity: Company Stock

greater inflow of gold and silver from the international sale of manufactured goods. Foremost among the merchants making the case for the theory of mercantilism was **Thomas Mun**, an Englishman who became the director of the East India Company in 1615. Mun was compelled to defend the company's massive silver exports to finance its overseas operations. He made the case that the company's trade would lead to more exports and ultimately result in an even greater inflow of gold and silver.

The theory of mercantilism would be challenged by the Scottish philosopher and first modern economist, **Adam Smith**. In 1776, Smith published *The Wealth of Nations*, his magnum opus (major work), in which he presented an exhaustive critique of mercantilism. Because mercantilism held that the value of exports must be greater than the value of imports in order to increase national wealth, nations would often impose restrictions on certain imports, either by imposing **tariff duties** (taxes) on them, through *sumptuary* laws meant to limit the consumption of “luxuries,” or by prohibiting them outright. The goal, according to mercantilist thinking, was to protect domestic industries, which might suffer from competition against cheaper imports. Following the balance of trade doctrine, such interventions were meant to protect homegrown industries to ensure that imports would not exceed exports, and that the nation would not thus become indebted to other nations. This economic strategy is called **protectionism**.

However, Smith argued that the whole doctrine of the balance of trade was “absurd” because it was premised on the fallacy that international trade was a *zero-sum* game, meaning that if one party won, the other lost, and vice versa. Smith contended that the concept of the balance of trade was derived from the “monopolizing spirit of merchants and manufacturers” advancing their own interests, not those of the nation more broadly. Instead, Smith insisted that trade that is freely undertaken between two countries is beneficial to *both* countries and, for that reason, national restrictions on trade were, in most but not all cases, misguided.

The British economist **David Ricardo** would largely agree with Smith, supporting free trade by strongly opposing the so-called “Corn Laws” of 1815 that restricted the importation of wheat to England. Ricardo argued that even in cases where one country had an **absolute advantage** over another country in the production of goods—meaning that it could produce those goods faster, more efficiently, and at a greater scale—each country could find a **comparative advantage** that would allow them to both prosper and engage in trade. Imagine that Country A has an absolute advantage over Country B in the production of wheat and barley, but Country A is 50 percent better at producing wheat and only 20 percent better at producing barley. It will be to the advantage of Country A to produce mainly wheat, since it would have more to lose by directing its resources to barley instead. Although Country B is at an absolute disadvantage in the production of both crops, it may be said to have a comparative advantage in the production of barley, while Country A has a comparative advantage in the production of wheat.

One of Adam Smith's most important insights was that restrictions that were supposedly designed for the “public good” were often detrimental to it. However, individuals engaged in buying and selling who were merely seeking their own gain would, through their own self-interested actions, promote the public good as though they were “led by an invisible hand” (Smith's most famous phrase). Such was

the outcome because every individual would “employ his capital in the support of domestic industry” and the “annual revenue of every society is always precisely equal to the whole annual produce of its industry” (Smith 572).

Smith’s view on cumulative domestic production was an early iteration of the modern-day idea of the **gross domestic product (GDP)**, or the total value of all the goods and services exchanged for money within a country in a particular period. The idea that the total wealth of a nation could be counted was a founding idea of economics, and the use of *empirical* methods—as in surveys and measurements of real-world data like wages, spending, and population—had been pioneered by early social scientists such as the Englishman William Petty (1623–1687).

Key Concepts

The following concepts and people are central to your understanding of economics. These terms and people are described in the lesson introduction and assigned reading. If you need further clarification, seek additional sources or reach out to your teacher.

Concepts and terminology

- protectionism
- mercantilism
- balance of trade
- national wealth
- gross domestic product (GDP)
- joint-stock companies
- tariff duties
- absolute advantage
- comparative advantage

Important thinkers

- Thomas Mun
- Adam Smith
- David Ricardo

Reading

In *The Economics Book: Big Ideas Simply Explained*, read the following sections:

- Protect Us from Foreign Goods: Protectionism and Trade (34–35)
- The Economy Can Be Counted: Measuring Wealth (36–37)
- Let Firms Be Traded: Public Companies (38)
- Trade Is Beneficial for All: Comparative Advantage (80–85)
- Comparative Advantage Is an Accident: Trade and Geography (312)

Knowledge and Comprehension Check

1. How does the policy of protectionism follow logically from the balance of trade doctrine?

2. Adam Smith called the doctrine of the balance of trade “absurd.” Why does the theory of mercantilism rely on the doctrine of the balance of trade, and why did Smith think it was wrong?
3. If the gross domestic product (GDP) is the total value of all the goods and services exchanged for money within a country in a particular period, how could protectionist policies designed to support domestic industry reduce GDP?

Application, Analysis, and Synthesis

1. Imagine that it is the year 1615 and you are Thomas Mun, director of the East India Company. Your company’s overseas trading business has been accused of diminishing the wealth of England through the outflow of investors’ gold and silver to foreign countries to finance the company’s operations. Write a brief appeal to King James, defending the business of the East India Company and making the case that your company will make England wealthier in the end.
2. Imagine that you are the export minister of a country that is at an absolute disadvantage in the production of bananas and coffee relative to another country. The other country produces bananas 70 percent more efficiently and produces coffee 20 percent more efficiently than your country. Which crop should you choose to concentrate on producing for export, and why?

Activity: Company Stock

Imagine that you are a merchant in seventeenth-century England, and you are setting up a joint-stock company that will import goods from India and China. Invent a name for your company, and write an advertisement for publication in a newspaper inviting individuals to invest their money in your new company. Explain what kind of business your company plans to do and make the case that there is a good chance that investors will make a healthy profit from holding stock in the company. If you like, you may accompany the text of the advertisement with an eye-catching or attractive drawing or image that indicates the kinds of trade the company will be engaged in.

SHARE YOUR WORK

When you have completed this lesson, you will share your work with your teacher for feedback. You are not necessarily required to complete all the assignments for each lesson, so be sure to check with your teacher at the beginning of each lesson to make sure you understand what you are required to do.

If you have any questions about the lesson content, the assignments, or how to share your work, contact your teacher.

Lesson

6

Population, Growth, and the Business Cycle

Learning Objectives

In this lesson, you will:

- Explain the Malthusian trap and its implications for the present-day economy.
- Understand Say's Law and its relationship to overproduction and supply and demand.
- Compare the boom-and-bust business cycle to bull and bear markets.

Lesson Introduction

Writing in the late eighteenth century, the English economist **Thomas Malthus** made a dire, pessimistic prediction: as the population grew, the production of food from a fixed amount of land would not be able to keep up. The result would be malnutrition and even starvation among the poorest people, and because of this, the birth rate would fall until the level of food production was just enough to support poor workers and their families at a basic, subsistence level. For Malthus, higher wages or “poor relief” in the form of welfare benefits were ill-advised as public policy because they would only encourage the poor to have more children than the finite resources of the land could support. The **Malthusian trap** was the idea that higher living standards among the poor would only lead to a rising population that would eventually overtax the system of food production and lead to suffering and starvation. Such an outcome was thought to be the product of a natural limit on economic growth.

Fortunately for the world, Malthus was mostly wrong in his predictions, and innovations in the methods of agriculture and food production and distribution have allowed for the exponential growth of the human population since Malthus's time. However, Malthusian ideas persist to the present day—sometimes with justification, and often having to do with the ways in which human-generated economic activity extracts Earth's finite resources and disturbs the delicate ecosystem. Climate change, for example, threatens the habitability of the biosphere and is among the major threats to humanity.

ASSIGNMENT CHECKLIST

- Read the lesson introduction.
- Read selections in *The Economics Book*.
- Complete the Knowledge and Comprehension Check.
- Complete the Application, Analysis, and Synthesis assignments.
- Activity: Population and Food Projections

Atmospheric emissions that derive from the burning of fossil fuels—a source of energy that has driven the global economy since the Second Industrial Revolution of the late nineteenth century—have been a major driver of climate change.

Indeed, a kind of Malthusian idea of finite resources and their distribution is at the very heart of economics itself, which Samuelson and Nordhaus, following British economist Lionel Robbins, define as “the study of how societies use scarce resources to produce valuable commodities and distribute them among different people.” After all, if the supply of things humans need was infinite, and if there was no challenge to figuring out the distribution of those things, the field of economics would not exist. An individual consumer’s time and resources are also scarce, which means that for each economic choice there is an **opportunity cost**—the alternative choice or other opportunity that is given up for the choice actually made.

The dynamic relationship between what is produced and what is consumed, and the way in which price mediates this relationship, is known as **supply and demand**, and it is one of the central ideas of economics. Merchants in the eighteenth century were very concerned about the problem of **overproduction** of goods, which was thought to threaten the viability of their businesses. Writing in the early nineteenth century, however, the French economist **Jean-Baptiste Say** argued that overproduction was not possible because supply would create its own demand, an idea that became known as **Say’s Law**. The reason, Say argued, was that people had no desire to hoard their money, which diminishes in value over time, and they would eagerly exchange it for whatever goods were available. Say’s Law would remain a central idea of classical economics until the twentieth century, when the calamity of the Great Depression and the theories of economist John Maynard Keynes would reveal that overproduction was not only possible but was, in fact, a very serious economic problem. Supply and demand were not always in perfect, natural balance, it turned out, and at times, government intervention was required to stimulate one or the other.

The Swiss historian **Jean-Charles Sismondi** had anticipated Keynes, though, in noticing that the economy tended to follow a **boom-and-bust** pattern, which he laid out in an 1819 book, *New Principles of Political Economy*. Sismondi argued that in times of economic growth (boom), workers would demand higher wages, and, subsequently, when they had more discretionary money to spend, they would consume more and thereby stimulate more production. However, because of competition in the marketplace, firms would need to reduce their prices to attract customers, which would lower their profits, leading to lower wages, layoffs, and an economic decline or recession (bust). But the cheap prices resulting from a bust would eventually stimulate demand and lead to a boom, thus starting the process—sometimes called the **business cycle**—over again. A corollary to this boom-and-bust pattern is the phenomenon of **bull and bear markets**. In boom times, the overall value of stocks and bonds tends to rise, which is called a “bull” market; in contrast, in a bust period, the overall value of stocks and bonds tends to decline, which is called a “bear” market.

Key Concepts

The following concepts and people are central to your understanding of economics. These terms and people are described in the lesson introduction and assigned reading. If you need further clarification, seek additional sources or reach out to your teacher.

Concepts and terminology

- Malthusian trap
- opportunity cost
- supply and demand
- overproduction
- Say's Law
- business cycle (boom and bust)
- bull and bear markets

Important thinkers

- Thomas Malthus
- Jean-Baptiste Say
- Jean-Charles Sismondi

Reading

In *The Economics Book: Big Ideas Simply Explained*, read the following sections:

- Population Growth Keeps Us Poor: Demographics and Economics (68–69)
- Supply Creates Its Own Demand: Gluts in Markets (74–75)
- The Economy Is a Yo-yo: Boom and Bust (78–79)
- The Cost of Going to the Movies Is the Fun You'd Have Had at the Ice Rink: Opportunity Cost (133)
- Economics Is the Science of Scarce Resources: Definitions of Economics (171)

Knowledge and Comprehension Check

1. Thomas Malthus believed that food production would not be able to keep up with a rapidly growing population, and that the effects of malnutrition and starvation from insufficient production would eventually check the growth of the population. Although Malthus was wrong in this case, the Malthusian idea of a natural limit to economic growth has persisted to the present day.

Consider the case of climate change or global warming and explain how Malthusian natural limits might check economic growth or development.

2. Say's Law says that overproduction is not possible and that supply will create its own demand because people are disinclined to hoard their money, which they prefer to exchange for available goods or properties. Presuming that Say's Law is correct (though it would come into question in the twentieth century), explain why it might be reasonable for someone to exchange their money for goods rather than hold on to it.

3. Explain the relationship between the boom-and-bust pattern of the economy and bull and bear markets. Why might the value of stocks—which are shares in publicly traded companies—tend to rise in boom times (bull market) and decline in bust times (bear market)?

Application, Analysis, and Synthesis

1. Samuelson and Nordhaus define economics as “the study of how societies use scarce resources to produce valuable commodities and distribute them among different people.” Explain how the Malthusian trap is the result of resource scarcity and the distribution of commodities.
2. If the physiocrats were correct in assuming that the true source of wealth comes through agriculture and humans’ productive work on nature, what are the implications for the concept of scarce resources? Put another way, how scarce is a resource (such as wheat) if it may be reproduced relative to a resource that cannot be reproduced (such as oil)?

Activity: Population and Food Projections

In his *An Essay on the Principle of Population*, Thomas Malthus presumed that “population, when unchecked, goes on doubling itself every twenty-five years, or increases in geometrical [exponential] ratio.” At the same time, Malthus figured that the “means of subsistence . . . could not possibly be made to increase faster than in an arithmetical [linear] ratio.” Following these presumptions—which history would prove to be incorrect—Malthus went on to make his future projections, which, if proved true, would have dire consequences:

Let us call the population of this island [Britain] eleven millions; and suppose the present produce equal to the easy support of such a number. In the first twenty-five years the population would be twenty-two millions, and the food being also doubled, the means of subsistence would be equal to this increase. In the next twenty-five years, the population would be forty-four millions, and the means of subsistence only equal to the support of thirty three-millions. In the next period the population would be eighty-eight millions, and the means of subsistence just equal to the support of half that number. At the conclusion of the first century, the population would be a hundred and seventy-six millions, and the means of subsistence only equal to the support of fifty-five millions, leaving a population of a hundred and twenty-one millions totally unprovided for.

Make a graph charting Malthus’s projections, with time in years on the x-axis and population in millions on the y-axis. (You may do this freehand or with an online graphing program.) Following Malthus, mark the x-axis with four 25-year intervals. Draw two lines, one charting Malthus’s projected population growth, and the other charting the population able to be supported by the means of subsistence (food production), according to Malthus. Which line is curved and which line is straight, and how might the disparity in the projections have led Malthus to his dire conclusion?

SHARE YOUR WORK

When you have completed this lesson, you will share your work with your teacher for feedback. Be sure to check with your teacher at the beginning of each lesson so you know which assignments are required.

If you have any questions about the lesson material, contact your teacher.

Lesson

14

Theories of Choice and Economic Behavior

Learning Objectives

In this lesson, you will:

- Understand the concept of a moral hazard in economics.
- Describe a scenario that illustrates the Condorcet paradox.
- Apply the concept of a zero-sum game to a competitive duopoly.
- Work out the ideas behind rational expectation.
- Examine the concepts of ambiguity aversion and loss aversion.

Lesson Introduction

How do people make choices, and how do we *know* how they make those choices? This question is fundamental to the study of economics, and classical models such as *Homo Economicus* (discussed in lesson 4) presume that individuals are, for the most part, rational actors. Much of economic behavior has to do with **rational expectations** of what will happen and what key actors (people and institutions making decisions and doing things) such as the government are likely to do, and with adjusting one's behavior accordingly. For example, if a government cuts interest rates to boost the economy and combat unemployment, people may expect higher inflation to result, and they may adjust their spending habits accordingly.

Theories of decision-making and strategy are relevant to many activities in a free market undertaken by individuals, firms, or governments. The mathematicians John von Neumann and Oskar Morgenstern formalized **game theory** to explain the strategic interaction of competitors engaged in **zero-sum** games, where one wins and the other loses. A simplified version of a zero-sum game is rock-paper-scissors, where if one player wins, the other loses, or there is a draw. According to game theory, competitors adjust their decisions and behavior on the basis of their expectations of their opponent's future actions. The operating assumption in game theory is that one's competitor will act in their best interest. Game theory flourished during the Cold War, when anticipating the future actions of an

ASSIGNMENT CHECKLIST

- Read the lesson introduction.
- Read selections in *The Economics Book*.
- Complete the Knowledge and Comprehension Check.
- Complete the Application, Analysis, and Synthesis assignments.
- Activity: Share the Wealth

opponent (in this case, the United States versus the Soviet Union) had very high geopolitical stakes. Researchers developed laboratory scenarios to test their theories, such as the **prisoner's dilemma** (described on pages 238–239 in *The Economics Book*). These theories were applicable to firms competing in the same industry in a free market. An example of such competitive behavior is a price war, whereby each firm progressively undercuts the price of the other firm. Game theory may also be applied to the behavior of participants in an auction, where each person places their bid just slightly above what they believe others are willing to pay.

However, behavioral economists would challenge the view that people always behave in such a rational manner. Economist George Katona argued that psychological factors such as a desire for group belonging could act as “intervening variables” operating between “the stimuli of market conditions and the responses to them in the form of economic decisions.” People also tend to prefer “known unknowns” to “unknown unknowns” in making decisions, even if a decision for which probability cannot be assessed may yield a greater return. This phenomenon is called **ambiguity aversion**. A large number of variables or uncertainties may cause irrational decision-making based more on intuition than rational calculation. Another phenomenon observed by behavioral economists is called **loss aversion**, where people place more value in retaining something they already have than in potentially gaining something they do not have. Finally, the economist **Maurice Allais** identified what became known as the **Allais paradox**, which finds that individuals may change their preferences or make irrational decisions as a consequence of variations in the set of options presented to them. For example, a preference for apples over oranges may not hold with the introduction of a third option, such as a peach. This discovery challenged the **independence axiom**, the view that people will rationally evaluate their options and make choices in order to maximize their utility or satisfaction with each individual choice.

Sometimes markets do not work in ideal ways, a situation known as a **market failure**. Buyers and sellers in certain kinds of markets may have difficulty finding each other, as in job and dating markets, a problem called **search friction**. Actors in free markets may not have the information they need to make good decisions, or buyers may have less information than sellers, a phenomenon called **asymmetric information**. On the other hand, consumers of some goods may have an incentive to deceive others or behave recklessly or dishonestly. In insurance markets, for example, someone carrying an insurance policy on a car may have less incentive to behave in a careful or prudent manner, knowing that their insurance will cover their losses. This kind of perverse incentive is called a **moral hazard**. As a result, insurance for certain things may be too expensive and unaffordable to many. A related kind of market failure in insurance markets is called **adverse selection**, where those with the highest level of risk are the most likely to purchase the insurance, as in the case of private health insurance policies purchased by chronically ill people. If a larger pool of relatively healthy people were in the market, the price would go down for everyone, but because relatively healthy people (who would likely be cheaper for insurance companies to cover) may prefer to take their chances without insurance, it becomes more expensive for everyone. (The problem of adverse selection was precisely the reason for the individual health insurance mandate included as part of the Affordable Care Act of 2010.)

Social choice theory considers the ways in which individual decisions are aggregated into collective decisions. Paradoxes may arise in choices among several alternatives. An example is the **voting**

paradox, or the **Condorcet paradox**, named for the French mathematician **Nicolas de Condorcet**, who identified it. Imagine an election in which there are three candidates: A, B, and C. Voters may rank their choices. Consider an outcome in which a third of voters (group 1) ranks their choices A-B-C, a third (group 2) ranks their choices B-C-A, and the remaining third (group 3) ranks their choices C-A-B. A majority (groups 1 and 3) prefers A over B, and a majority (groups 1 and 2) prefers B over C. If a majority prefers A over B, and a majority prefers B over C, intuition would suggest that a majority would prefer A over C. However, a majority (groups 2 and 3) prefer C over A. Although simplified in this case, the Condorcet paradox has implications for any situation in which individuals must come together to make a collective decision.

Key Concepts

The following concepts and people are central to your understanding of economics. These terms and people are described in the lesson introduction and assigned reading. If you need further clarification, seek additional sources or reach out to your teacher.

Concepts and terminology

- rational expectations
- game theory
- zero-sum
- prisoner's dilemma
- ambiguity aversion
- loss aversion
- Allais paradox
- independence axiom
- market failure
- search friction
- asymmetric information
- moral hazard
- adverse selection
- social choice theory
- voting paradox/
Condorcet paradox

Important thinkers

- Maurice Allais
- Nicolas de Condorcet

Reading

In *The Economics Book: Big Ideas Simply Explained*, read the following sections:

- People Are Influenced by Irrelevant Alternatives: Irrational Decision Making (194–195)
- People Will Avoid Work If They Can: Market Information and Incentives (208–209)
- There Is No Perfect Voting System: Social Choice Theory (214–215)
- What Does the Other Man Think I Am Going to Do? Game Theory (234–241)
- You Can't Fool the People: Rational Expectations (244–247)
- People Don't Care About Probability When They Choose: Paradoxes in Decision Making (248–249)

- People Are Not 100 Percent Rational: Behavioral Economics (266–269)
- Prices Tell You Everything: Efficient Markets (272)
- Over Time, Even the Selfish Cooperate with Others: Competition and Cooperation (273)
- Most Cars Traded Will Be Lemons: Market Uncertainty (274–275)
- Education Is Only a Signal of Ability: Signaling and Screening (281)
- Auction Winners Pay Over the Odds: The Winner’s Curse (294–295)
- Finding a Job Is Like Finding a Partner or a House: Searching and Matching (304–305)

Knowledge and Comprehension Check

1. A moral hazard occurs when market conditions create the incentive for individuals to behave in a careless, reckless, or antisocial way. A typical example is insurance, which, according to the theory, may lead to careless behavior by the owner of the insurance policy, who knows that they will be covered in the case of damage to a car, for example.

Consider the following scenario: Jane has just purchased a new bicycle, which is insured for theft for 100 percent of the purchase price. She rides her new bike to meet her friend at a coffee shop downtown, but she has forgotten to bring her lock. How might a moral hazard lead to careless behavior in this situation? How might the insurance policy be changed to prevent a moral hazard?

2. The Condorcet paradox describes a scenario in which a collective decision is made more difficult because the preferences of overlapping majorities are in conflict and do not produce a clear outcome. Imagine that three friends—Ashley, Boris, and Charlie—are at a movie theater trying to decide which movie to see together. There are three movies to choose from: X, Y, and Z. Ashley’s order of preference is X-Y-Z; Boris’s order of preference is Y-Z-X; and Charlie’s order of preference is Z-X-Y. A majority (Ashley and Charlie) prefers X over Y; a majority (Ashley and Boris) prefers Y over Z; and a majority (Boris and Charlie) prefers Z over X. Which movie will they see and why?
3. In a zero-sum game, one participant wins and the other loses. Imagine a town where there are two internet service providers, Radioactivity and Wavelength, each of which provides comparable service at a rate of \$50 per month. Radioactivity learns that Wavelength will be slashing its prices in half to \$25 per month. Radioactivity knows that it will lose most of its customers to Wavelength if it charges such a low rate, but it also knows that Wavelength will not be able to sustain its business for more than a year at such a low rate. What should Radioactivity do if it wishes to remain a viable business? Should it cut its prices, and if so, how much?

Application, Analysis, and Synthesis

1. Imagine that a new administration has come into power in the United States, controlling the presidency and both houses of Congress. The new government has promised to cut income taxes for middle-income families. One middle-income family, the Jacksons, have wanted to move to a bigger house, but they have been unable to afford it. However, if the promise of tax cuts from the new administration is to be believed, they may be able to afford it after all. What should the Jacksons do? Write a short dialogue between Mr. and Mrs. Jackson in which each presents their viewpoint. Mr. Jackson presents his reasons for moving, while Mrs. Jackson presents her reasons for staying.
2. Imagine that you're on the game show *Let's Make a Deal*. You've made it to the final round. You've already won \$5,000, and you have the option of keeping the \$5,000 or choosing one of three doors, behind which there is a prize, which may be of greater, equal, or lesser value than the \$5,000 you've already won. Prizes in the past have included such things as expensive new cars and lavish vacations to international destinations, but they have also included virtually worthless things, like a bag of rusty nails. Will you take the \$5,000 or will you take your chances with one of the doors? Write an internal monologue in which you debate the pros and cons with yourself before finally settling on a decision.

Activity: Share the Wealth

The object of the board game Monopoly is to “become the wealthiest player through buying, renting, and selling property.” Design a new game called Community, the goal of which is to redistribute the wealth and property of the Central Landlord, who owns everything at the beginning of the game. You may consult the rules of Monopoly for ideas:

“Monopoly (Game)”

(All online resources can be accessed through Oak Meadow's Curriculum Links page at oakmeadow.com/curriculum-links.)

SHARE YOUR WORK

When you have completed this lesson, you will share your work with your teacher for feedback. Be sure to check with your teacher at the beginning of each lesson so you know which assignments are required.

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