Faculdade de Ciências Humanas e Sociais

Departamento de Ciências Empresariais e da Comunicação

Ingresso para Maiores de 23 anos

1. What is economics?
   1.1. Scarcity and choice
   1.2. Ten principles of economics
2. Current economics themes
   2.1. How to read numbers
   2.2. Inflation, Unemployment and Growth

1. What is economics?

1.1. Scarcity and choice

Hall, Robert e Lieberman, Marc (2013). *Microeconomics: Principles and Applications.* Mason, OH: South-Western Cengage Learning.

1.2. Ten principles of economics

Mankiw, N. Gregory (2017). *Principles of microeconomics.* Stamford, CT: South-Western Cengage Learning.

CHAPTER 1

What Is Economics?

Economics. The word conjures up all sorts of images: manic stock traders on Wall Street, an economic summit meeting in a European capital, a somber television news anchor announcing good or bad news about the economy. . . . You probably hear about economics several times each day. What exactly *is* economics?

First, economics is a *social science*. It seeks to explain something about *society*, just like other social sciences, such as psychology, sociology, and political science. But economics is different from these other social sciences because of *what* economists study and *how* they study it. Economists ask different questions, and they answer them using tools that other social scientists find rather exotic.

A good definition of economics, which stresses its differences from other social sciences, is the following:

> ***Economics** is the study of choice under conditions of scarcity.*

Economics The study of choice under conditions of scarcity.

This definition may appear strange to you. Where are the familiar words we ordinarily associate with economics: "money," "stocks and bonds," "prices," "budgets," . . . ? As you will soon see, economics deals with all of these things and more. But first, let's take a closer look at two important ideas in this definition: scarcity and choice.

Scarcity and Individual Choice

Think for a moment about your own life. Is there anything you don't have that you'd *like* to have? Anything you'd like *more* of? If your answer is "no," congratulations! You are well advanced on the path of Zen self-denial. The rest of us, however, feel the pinch of limits to our material standard of living. This simple truth is at the very core of economics. It can be restated this way: We all face the problem of **scarcity**.

Scarcity A situation in which the amount of something available is insufficient to satisfy the desire for it.

At first glance, it may seem that you suffer from an infinite variety of scarcities. There are so many things you might like to have right now—a larger room or apartment, a new car, more clothes . . . the list is endless. But a little reflection suggests that your limited ability to satisfy these desires is based on two other, more basic limitations: scarce *time* and scarce *spending power*.

> *As individuals, we face a scarcity of time and spending power. Given more of either, we could each have more of the goods and services that we desire.*

The scarcity of spending power is no doubt familiar to you. We've all wished for higher incomes so that we could afford to buy more of the things we want. But the scarcity of time is equally important. So many of the activities we enjoy—seeing movies, taking vacations, making phone calls—require time as well as money. Just as we have limited spending power, we also have a limited number of hours in each day to satisfy our desires.

Because of the scarcities of time and spending power, each of us is forced to make *choices*. We must allocate our scarce *time* to different activities: work, play, education, sleep, shopping, and more. We must allocate our scarce *spending power* among different goods and services: housing, food, furniture, travel, and many others. And each time we choose to buy something or do something, we also choose *not* to buy or do something else.

Economists study the choices we make as individuals, as well as their consequences. When some of the consequences are harmful, economists study what—if anything—the government can or should do about them.

For example, in the United States, as incomes have risen, more and more people have chosen to purchase automobiles. The result is increasing traffic jams in our major cities. The problem is even worse in rapidly developing countries. In China and India, for example, recent income growth and migration from rural to urban areas has led to an explosion of driving. Economists have come up with some creative ideas to reduce traffic congestion, while preserving individual choices about driving. A few cities have used these ideas, with some success, and more are considering them.

The Concept of Opportunity Cost

What does it cost you to go to the movies? If you answered 9 or 10 dollars because that is the price of a movie ticket, then you are leaving out a lot. Most of us are used to thinking of "cost" as the money we must pay for something. Certainly, the money we pay for goods or services is a *part* of its cost. But economics takes a broader view of costs. The true cost of any choice we make—buying a car, producing a computer, or even reading a book—is everything we must *give up* when we take that action. This cost is called the *opportunity cost* of the action, because we give up the opportunity to have other desirable things.

Opportunity cost What is given up when taking an action or making a choice.

> *The* ***opportunity cost*** *of any choice is what we must forego when we make that choice.*

Opportunity cost is the most accurate and complete concept of cost—the one we should use when making our own decisions or analyzing the decisions of others.

Suppose, for example, it's 8 P.M. on a weeknight and you're spending a couple of hours reading this chapter. As authors, that thought makes us very happy. We know there are many other things you could be doing: going to a movie, having dinner with friends, playing ping pong, earning some extra money, watching TV. . . . But, assuming you're still reading—and you haven't just run out the door because we've given you better ideas—let's relate this to opportunity cost.

What *is* the opportunity cost of reading this chapter? Is it *all* of those other possibilities we've listed? Not really, because in the time it takes to read this chapter, you'd probably be able to do only *one* of those other activities. You'd no doubt

choose whichever one you regarded as best. So, by reading, you sacrifice only the *best* choice among the alternatives that you could be doing instead.

When the alternatives to a choice are mutually exclusive, only the next best choice—the one that would actually be chosen—is used to determine the opportunity cost of the choice.

For many choices, a large part of the opportunity cost is the money sacrificed. If you spend $15 on a new DVD, you have to part with $15, which is money you could have spent on something else (whatever the best choice among the alternatives turned out to be). But for other choices, money may be only a small part, or no part, of what is sacrificed. If you walk your dog a few blocks, it will cost you time but not money.

Still, economists often like to attach a monetary value even to the parts of opportunity cost that *don't* involve money. The opportunity cost of a choice can then be expressed as a dollar value, albeit a roughly estimated one. That, in turn, enables us to compare the cost of a choice with its benefits, which we also often express in dollars.

An Example: The Opportunity Cost of College

Let's consider an important choice you've made for this year: to attend college. What is the opportunity cost of this choice? A good starting point is to look at the actual monetary costs—the annual out-of-pocket expenses borne by you or your family for a year of college. Table 1 shows the College Board's estimates of these expenses for the average student (ignoring scholarships). For example, the third column of the table shows that the average in-state resident at a four-year state college pays $6,585 in tuition and fees, $1,077 for books and supplies, $7,748 for room and board, and $2,916 for transportation and other expenses, for a total of $18,326 per year.

So, is that the average opportunity cost of a year of college at a public institution? Not really. Even if $18,326 is what you or your family actually pays out for college, this is not the dollar measure of the opportunity cost.

TABLE 1

Average Cost of a Year of College, 2008–2009

Type of Institution	Two-Year Public	Four-Year Public	Four-Year Private
Tuition and fees	$2,402	$6,585	$25,143
Books and supplies	$1,036	$1,077	$1,054
Room and board	$7,341	$7,748	$8,989
Transportation and other expenses	$3,275	$2,916	$2,204
Total out-of-pocket costs	$14,054	$18,326	$37,390

Source: *Trends in College Pricing*, 2008, The College Board, New York, NY.

Notes: Averages are enrollment-weighted by institution, to reflect the average experience among students across the United States. Average tuition and fees at public institutions are for in-state residents only. Room and board charges are for students living on campus at four-year institutions, and off-campus (but not with parents) at two-year institutions. Four-year private includes nonprofit only.

First, the $18,326 your family pays in this example includes some expenses that are *not* part of the opportunity cost of college. For example, room and board is something you'd need no matter *what* your choice. For example, if you didn't go to college, you might have lived in an apartment and paid rent. But suppose, instead, that if you didn't go to college you would have chosen to live at home in your old room. Even then, you could not escape a cost for room and board. Your family *could* have rented out the room to someone else, or used it for some other valuable purpose. Either way, something would be sacrificed for room and board, whether you go to college or not.

Let's suppose, for simplicity, that if you weren't in college, you or your family would be paying the same $7,748 for room and board as your college charges. Then, the room and board expense should be excluded from the opportunity cost of going to college. And the same applies to transportation and other expenses, at least the part that you would have spent anyway even if you weren't in college. We'll assume these other expenses, too, are the same whether or not you go to college.

Now we're left with payments for tuition and fees, and for books and supplies. For an in-state resident going to a state college, this averages $6,585 + $1,077 = $7,662 per year. Since these dollars are paid only when you attend college, they represent something sacrificed for that choice and are part of its opportunity cost. Costs like these—for which dollars are actually paid out—are called **explicit costs**, and they are *part* of the opportunity cost.

Explicit cost The dollars sacrificed—and actually paid out—for a choice.

Implicit cost The value of something sacrificed when no direct payment is made.

But college also has **implicit costs**—sacrifices for which no money changes hands. The biggest sacrifice in this category is *time*. But what is that time worth? That depends on what you *would* be doing if you weren't in school. For many students, the alternative would be working full-time at a job. If you are one of these students, attending college requires the sacrifice of the income you *could* have earned at a job—a sacrifice we call *foregone income*.

How much income is foregone when you go to college for a year? In 2008, the average yearly income of an 18- to 24-year-old high school graduate who worked full-time was about $24,000. If we assume that only nine months of work must be sacrificed to attend college and that you could still work full-time in the summer, then foregone income is about 3/4 of $24,000, or $18,000.

Summing the explicit and implicit costs gives us a rough estimate of the opportunity cost of a year in college. For a public institution, we have $7,662 in explicit costs and $18,000 in implicit costs, giving us a total of $25,662 per year. Notice that this is significantly greater than the total charges estimated by the College Board we calculated earlier. When you consider paying this opportunity cost for four years, its magnitude might surprise you. Without financial aid in the form of tuition grants or other fee reductions, the average in-state resident will sacrifice about $103,000 to get a bachelor's degree at a state college and about $177,000 at a private one.

Our analysis of the opportunity cost of college is an example of a general, and important, principle:

The opportunity cost of a choice includes both explicit costs and implicit costs.

A Brief Digression: Is College the Right Choice?

Before you start questioning your choice to be in college, there are a few things to remember. First, for many students, scholarships reduce the costs of college to less than those in our example. Second, in addition to its high cost, college has substantial *benefits*, including financial ones. In fact, over a 40-year work life, the average college graduate will make about $2.5 million, which is about a million dollars *more* than the average high school graduate.

True, much of that income is earned in the future, and a dollar gained years from now is worth less than a dollar spent today. Also, *some* of the higher earnings of college graduates result from the personal characteristics of people who are likely to attend college, rather than from the education or the degree itself. But even when we make reasonable adjustments for these facts, attending college appears to be one of the best *financial* investments you can make.[1]

Finally, remember that we've left out of our discussion many important aspects of this choice that would be harder to estimate in dollar terms but could be very important to you. Do you *enjoy* being at college? If so, your enjoyment is an added benefit, even though it may be difficult to value that enjoyment in dollars. (Of course, if you *hate* college and are only doing it for the financial rewards or to satisfy your parents, that's an implicit cost—which is part of your opportunity cost—that we haven't included.)

Time Is Money

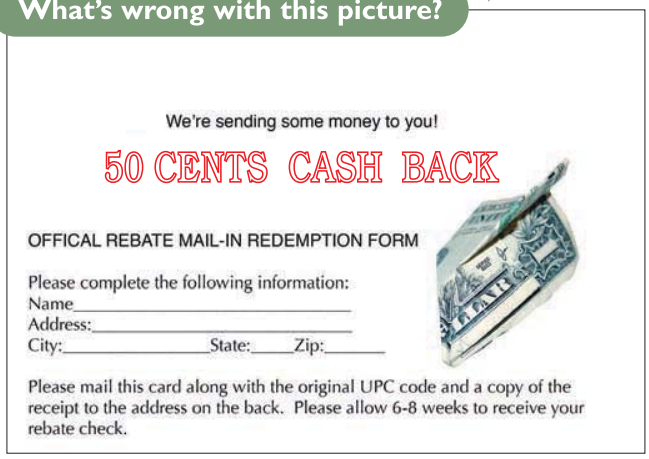
Our analysis of the opportunity cost of college points out a general principle, one understood by economists and noneconomists alike. It can be summed up in the expression, "Time is money."

For some people, this maxim applies directly: when they spend time on something, they *actually* give up money—money they *could* have earned during that time. Consider Jessica, a freelance writer with a backlog of projects on which she can earn $25 per hour. For each hour Jessica spends *not* working, she sacrifices $25.

What if Jessica decides to see a movie? What is the opportunity cost, in dollar terms? Suppose the ticket costs $10 and the entire activity takes three hours—including time spent getting there and back. The opportunity cost is the sum of the explicit cost ($10 for the ticket) and the implicit cost ($75 for three hours of foregone income), making the total opportunity cost $85.

The idea that a movie "costs" $85 might seem absurd to you. But if you think about it, $85 is a much better estimate than $10 of what the movie actually costs Jessica—$85 is what she sacrifices to see the movie.

What's wrong with this picture?



dangerous curves

If you think the opportunity cost of your time is zero . . . What if you can't work extra hours for additional pay, so you cannot *actually* turn time into money? Does this mean that the opportunity cost of your time is zero?

If you think the answer is yes, the authors of this textbook would like to hire you for help with some household chores, for 25 cents an hour. Does this sound like a good deal to you? It would, if the opportunity cost of your time really had no value. If it doesn't sound like a good deal, then the time you'd be giving up must have some positive value to you. If pressed, you could state that value in money terms—and it would no doubt exceed 25 cents per hour.

[1] If you are studying microeconomics, you'll learn more about the value of college as an investment and the general technique economists use to compare future earnings with current costs in a later chapter.

Our examples about the cost of college and the cost of a movie point out an important lesson about opportunity cost:

> *The explicit (direct money) cost of a choice may only be a part—and sometimes a small part—of the opportunity cost of a choice.*

Scarcity and Social Choice

Now let's think about scarcity and choice from *society*'s point of view. What are the goals of our society? We want a high standard of living for our citizens, clean air, safe streets, good schools, and more. What is holding us back from accomplishing all of these goals in a way that would satisfy everyone? You already know the answer: scarcity. In society's case, the problem is a scarcity of **resources**—the things we use to make goods and services that help us achieve our goals.

Resources The labor, capital, land (including natural resources), and entrepreneurship that are used to produce goods and services.

The Four Resources

Resources are the most basic elements used to make goods and services. We can classify resources into four categories:

- **Labor**—the time human beings spend producing goods and services.
- **Capital**—any long-lasting tool, that is itself produced, and helps us make other goods and services.

  More specifically, **physical capital** consists of things like machinery and equipment, factory buildings, computers, and even hand tools like hammers and screwdrivers. These are all long-lasting *physical* tools that we produce to help us make other goods and services.

  Another type of capital is **human capital**—the skills and knowledge possessed by workers. These satisfy our definition of capital: They are *produced* (through education and training), they help us produce *other* things, and they last for many years, typically through an individual's working life.

  Note the word *long-lasting* in the definition. If something is used up quickly in the production process—like the flour a baker uses to make bread—it is generally *not* considered capital. A good rule of thumb is that capital should last at least a year, although most types of capital last considerably longer.

  The **capital stock** is the total amount of capital at a nation's disposal at any point in time. It consists of all the capital—physical and human—created in previous periods that is still productively useful.
- **Land**—the physical space on which production takes place, as well as useful materials—*natural resources*—found under it or on it, such as crude oil, iron, coal, or fertile soil.
- **Entrepreneurship**—the ability (and the willingness to *use* it) to combine the *other* resources into a productive enterprise. An entrepreneur may be an *innovator* who comes up with an original idea for a business or a *risk taker* who provides her own funds or time to nurture a project with uncertain rewards.

Labor The time human beings spend producing goods and services.

Capital A long-lasting tool that is used to produce other goods.

Physical capital The part of the capital stock consisting of physical goods, such as machinery, equipment, and factories.

Human capital The skills and training of the labor force.

Capital stock The total amount of capital in a nation that is productively useful at a particular point in time.

Land The physical space on which production takes place, as well as the natural resources that come with it.

Entrepreneurship The ability and willingness to combine the *other* resources—labor, capital, and land—into a productive enterprise.

Anything *produced* in the economy comes, ultimately, from some combinations of the four resources.

Think about the last lecture you attended at your college. Some resources were used *directly*: Your instructor's labor and human capital (his or her knowledge of economics); physical capital (the classroom building, a blackboard or projector); and land (the property on which your classroom building sits). Somebody played the role of entrepreneur, bringing these resources together to create your college in the first place. (If you attend a public institution, the entrepreneurial role was played by your state government.)

Many other inputs—besides those special inputs we call resources—were also used to produce the lecture. But these other inputs were themselves produced from resources, as illustrated in Figure 1. For example, the electricity used to power the lights in your classroom is an input, not a resource. Electricity is produced using crude oil, coal or natural gas (land and natural resources); coal miners or oil-riggers (labor); and electricity-generating turbines and power cables (capital).

dangerous curves

Resources versus inputs The term *resources* is often confused with another, more general term—**inputs.** An input is *anything* used to make a good or service. Inputs include not only resources but also many other things made from them (cement, rolled steel, electricity), which are, in turn, used to make goods and services. *Resources*, by contrast, are the *special* inputs that fall into one of four categories: labor, land, capital, and entrepreneurship. They are the ultimate source of everything that is produced.

Input Anything (including a resource) used to produce a good or service.

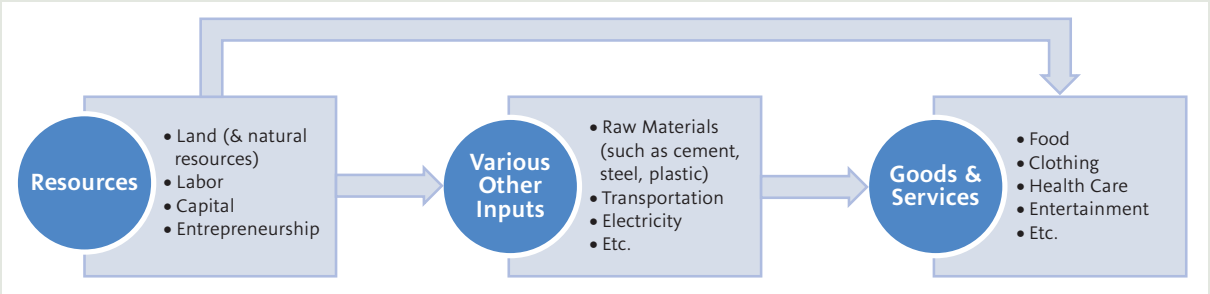
Opportunity Cost and Society's Tradeoffs

For an individual, opportunity cost arises from the scarcity of time or money. But for society as a whole, opportunity cost arises from the scarcity of *resources*. Our desire for goods is limitless, but we have limited resources to produce them. Therefore,

> *virtually all production carries an opportunity cost: To produce more of one thing, society must shift resources away from producing something else.*

For example, we'd all like better health for our citizens. What would be needed to achieve this goal? Perhaps more frequent medical checkups for more people and greater access to top-flight medicine when necessary. These, in turn, would require more and better-trained doctors, more hospital buildings and laboratories, and more high-tech medical equipment. In order for us to produce these goods and services, we would have to pull resources—land, labor, capital,

FIGURE 1 Resources and Production



All goods and services come ultimately from the four resources. Resources are used directly by firms that produce goods and services. They are also used indirectly, to make the other inputs firms use to produce goods and services.

and entrepreneurship—out of producing other things that we also enjoy. The opportunity cost of improved health care, then, consists of those other goods and services we would have to do without.

The World of Economics

The field of economics is surprisingly broad. It ranges from the mundane (why does a pound of steak cost more than a pound of chicken?) to the personal (how do couples decide how many children to have?) to the profound (could we ever have another Great Depression in the United States, with tens of millions plunged into sudden poverty?). With a field this broad, it is useful to have some way of classifying the different types of problems economists study and the different methods they use to analyze them.

Microeconomics and Macroeconomics

Microeconomics The study of the behavior of individual households, firms, and governments; the choices they make; and their interaction in specific markets.

Macroeconomics The study of the behavior of the overall economy.

Positive economics The study of how the economy works.

The field of economics is divided into two major parts: microeconomics and macroeconomics. **Microeconomics** comes from the Greek word *mikros*, meaning "small." It takes a close-up view of the economy, as if looking through a microscope. Microeconomics is concerned with the behavior of *individual* actors on the economic scene—households, business firms, and governments. It looks at the choices they make and how they interact with each other when they come together to trade *specific* goods and services. What will happen to the cost of movie tickets over the next five years? How many management-trainee jobs will open up for college graduates? These are microeconomic questions because they analyze individual *parts* of an economy rather than the *whole*.

Macroeconomics—from the Greek word *makros*, meaning "large"—takes an *overall* view of the economy. Instead of focusing on the production of carrots or computers, macroeconomics lumps all goods and services together and looks at the economy's *total output*. Instead of focusing on employment of management trainees or manufacturing workers, it considers *total employment* in the economy. Macroeconomics focuses on the big picture and ignores the fine details.

dangerous curves

Seemingly Positive Statements Be alert to statements that may *seem* purely positive, but contain hidden value judgments. Here's an example: "If we want to reduce greenhouse gas emissions, our society will have to use less gasoline." This may *sound* positive, because it seems to refer only to a fact about the world. But it's also at least partly normative. Why? Cutting back on gasoline is just *one* policy among many that could reduce emissions. To say that we *must* choose this method makes a value judgment about its superiority to other methods. A purely positive statement on this topic would be, "Using less gasoline—with no other change in living habits—would reduce greenhouse gas emissions."

Similarly, be alert to statements that use vague terms that hide value judgments. An example: "All else equal, the less gasoline we use, the better our quality of life." Whether you agree or disagree, this is *not* a purely positive statement. People can disagree over the meaning of the phrase "quality of life," and what would make it better. This disagreement could not be resolved just by looking at the facts.

Positive and Normative Economics

The micro versus macro distinction is based on the level of detail we want to consider. Another useful distinction has to do with our *purpose* in analyzing a problem. **Positive economics** explains how the economy works, plain and simple. If someone says, "The decline in home prices during 2008 and 2009 was a major cause of the recent recession," he or she is making a positive economic statement. A statement need not be accurate or even sensible to be classified as positive. For example, "Government policy has no effect on our standard of living" is a statement that virtually every economist would regard as false. But it is still a positive economic statement. Whether true or

CHAPTER

1

Ten Principles of Economics

The word *economy* comes from the Greek word *oikonomos*, which means "one who manages a household." At first, this origin might seem peculiar. But in fact, households and economies have much in common.

A household faces many decisions. It must decide which household members do which tasks and what each member receives in return: Who cooks dinner? Who does the laundry? Who gets the extra dessert at dinner? Who gets to drive the car? In short, a household must allocate its scarce resources (time, dessert, car mileage) among its various members, taking into account each member's abilities, efforts, and desires.

Like a household, a society faces many decisions. It must find some way to decide what jobs will be done and who will do them. It needs some people to grow food, other people to make clothing, and still others to design computer software. Once society has allocated people (as well as land, buildings, and machines) to various jobs, it must also allocate the goods and services

they produce. It must decide who will eat caviar and who will eat potatoes. It must decide who will drive a Ferrari and who will take the bus.

scarcity
the limited nature of society's resources

The management of society's resources is important because resources are scarce. **Scarcity** means that society has limited resources and therefore cannot produce all the goods and services people wish to have. Just as each member of a household cannot get everything she wants, each individual in a society cannot attain the highest standard of living to which she might aspire.

economics
the study of how society manages its scarce resources

Economics is the study of how society manages its scarce resources. In most societies, resources are allocated not by an all-powerful dictator but through the combined choices of millions of households and firms. Economists, therefore, study how people make decisions: how much they work, what they buy, how much they save, and how they invest their savings. Economists also study how people interact with one another. For instance, they examine how the multitude of buyers and sellers of a good together determine the price at which the good is sold and the quantity that is sold. Finally, economists analyze forces and trends that affect the economy as a whole, including the growth in average income, the fraction of the population that cannot find work, and the rate at which prices are rising.

The study of economics has many facets, but it is unified by several central ideas. In this chapter, we look at *Ten Principles of Economics*. Don't worry if you don't understand them all at first or if you aren't completely convinced. We explore these ideas more fully in later chapters. The ten principles are introduced here to give you an overview of what economics is all about. Consider this chapter a "preview of coming attractions."

1-1 How People Make Decisions

There is no mystery to what an economy is. Whether we are talking about the economy of Los Angeles, the United States, or the whole world, an economy is just a group of people dealing with one another as they go about their lives. Because the behavior of an economy reflects the behavior of the individuals who make up the economy, we begin our study of economics with four principles about individual decision making.

1-1a Principle 1: People Face Trade-offs

You may have heard the old saying, "There ain't no such thing as a free lunch." Grammar aside, there is much truth to this adage. To get something that we like, we usually have to give up something else that we also like. Making decisions requires trading off one goal against another.

Consider a student who must decide how to allocate her most valuable resource—her time. She can spend all of her time studying economics, spend all of it studying psychology, or divide it between the two fields. For every hour she studies one subject, she gives up an hour she could have used studying the other. And for every hour she spends studying, she gives up an hour that she could have spent napping, bike riding, watching TV, or working at her part-time job for some extra spending money.

Or consider parents deciding how to spend their family income. They can buy food, clothing, or a family vacation. Or they can save some of the family income for retirement or for children's college education. When they choose to spend an extra dollar on one of these goods, they have one less dollar to spend on some other good.

When people are grouped into societies, they face different kinds of trade-offs. One classic trade-off is between "guns and butter." The more a society spends on national defense (guns) to protect its shores from foreign aggressors, the less it can spend on consumer goods (butter) to raise the standard of living at home. Also important in modern society is the trade-off between a clean environment and a high level of income. Laws that require firms to reduce pollution raise the cost of producing goods and services. Because of these higher costs, the firms end up earning smaller profits, paying lower wages, charging higher prices, or some combination of these three. Thus, while pollution regulations yield the benefit of a cleaner environment and the improved health that comes with it, the regulations come at the cost of reducing the incomes of the regulated firms' owners, workers, and customers.

Another trade-off society faces is between efficiency and equality. **Efficiency** means that society is getting the maximum benefits from its scarce resources. **Equality** means that those benefits are distributed uniformly among society's members. In other words, efficiency refers to the size of the economic pie, and equality refers to how the pie is divided into individual slices.

efficiency
the property of society getting the most it can from its scarce resources

equality
the property of distributing economic prosperity uniformly among the members of society

When government policies are designed, these two goals often conflict. Consider, for instance, policies aimed at equalizing the distribution of economic well-being. Some of these policies, such as the welfare system or unemployment insurance, try to help the members of society who are most in need. Others, such as the individual income tax, ask the financially successful to contribute more than others to support the government. Though they achieve greater equality, these policies reduce efficiency. When the government redistributes income from the rich to the poor, it reduces the reward for working hard; as a result, people work less and produce fewer goods and services. In other words, when the government tries to cut the economic pie into more equal slices, the pie gets smaller.

Recognizing that people face trade-offs does not by itself tell us what decisions they will or should make. A student should not abandon the study of psychology just because doing so would increase the time available for the study of economics. Society should not stop protecting the environment just because environmental regulations reduce our material standard of living. The poor should not be ignored just because helping them distorts work incentives. Nonetheless, people are likely to make good decisions only if they understand the options that are available to them. Our study of economics, therefore, starts by acknowledging life's trade-offs.

1-1b Principle 2: The Cost of Something Is What You Give Up to Get It

Because people face trade-offs, making decisions requires comparing the costs and benefits of alternative courses of action. In many cases, however, the cost of an action is not as obvious as it might first appear.

Consider the decision to go to college. The main benefits are intellectual enrichment and a lifetime of better job opportunities. But what are the costs? To answer this question, you might be tempted to add up the money you spend on tuition, books, room, and board. Yet this total does not truly represent what you give up to spend a year in college.

There are two problems with this calculation. First, it includes some things that are not really costs of going to college. Even if you quit school, you need a place to sleep and food to eat. Room and board are costs of going to college only to the extent that they are more expensive at college than elsewhere. Second, this

calculation ignores the largest cost of going to college—your time. When you spend a year listening to lectures, reading textbooks, and writing papers, you cannot spend that time working at a job. For most students, the earnings they give up to attend school are the single largest cost of their education.

opportunity cost
whatever must be given up to obtain some item

The **opportunity cost** of an item is what you give up to get that item. When making any decision, decision makers should be aware of the opportunity costs that accompany each possible action. In fact, they usually are. College athletes who can earn millions if they drop out of school and play professional sports are well aware that the opportunity cost of their attending college is very high. It is not surprising that they often decide that the benefit of a college education is not worth the cost.

1-1c Principle 3: Rational People Think at the Margin

rational people
people who systematically and purposefully do the best they can to achieve their objectives

Economists normally assume that people are rational. **Rational people** systematically and purposefully do the best they can to achieve their objectives, given the available opportunities. As you study economics, you will encounter firms that decide how many workers to hire and how much of their product to manufacture and sell to maximize profits. You will also encounter individuals who decide how much time to spend working and what goods and services to buy with the resulting income to achieve the highest possible level of satisfaction.

Rational people know that decisions in life are rarely black and white but usually involve shades of gray. At dinnertime, the question you face is not "Should I fast or eat like a pig?" More likely, you will be asking yourself "Should I take that extra spoonful of mashed potatoes?" When exams roll around, your decision is not between blowing them off and studying twenty-four hours a day but whether to spend an extra hour reviewing your notes instead of watching TV. Economists use the term **marginal change** to describe a small incremental adjustment to an existing plan of action. Keep in mind that *margin* means "edge," so marginal changes are adjustments around the edges of what you are doing. Rational people often make decisions by comparing *marginal benefits* and *marginal costs*.

marginal change
a small incremental adjustment to a plan of action

For example, suppose you are considering calling a friend on your cell phone. You decide that talking with her for 10 minutes would give you a benefit that you value at about $7. Your cell phone service costs you $40 per month plus $0.50 per minute for whatever calls you make. You usually talk for 100 minutes a month, so your total monthly bill is $90 ($0.50 per minute times 100 minutes, plus the $40 fixed fee). Under these circumstances, should you make the call? You might be tempted to reason as follows: "Because I pay $90 for 100 minutes of calling each month, the average minute on the phone costs me $0.90. So a 10-minute call costs $9. Because that $9 cost is greater than the $7 benefit, I am going to skip the call." That conclusion is wrong, however. Although the *average* cost of a 10-minute call is $9, the *marginal* cost—the amount your bill increases if you make the extra call—is only $5. You will make the right decision only by comparing the marginal benefit and the marginal cost. Because the marginal benefit of $7 is greater than the marginal cost of $5, you should make the call. This is a principle that people innately understand: Cell phone users with unlimited minutes (that is, minutes that are free at the margin) are often prone to make long and frivolous calls.

Thinking at the margin works for business decisions as well. Consider an airline deciding how much to charge passengers who fly standby. Suppose that flying a 200-seat plane across the United States costs the airline $100,000. In this case, the average cost of each seat is $100,000/200, which is $500. One might be tempted

to conclude that the airline should never sell a ticket for less than $500. But a rational airline can increase its profits by thinking at the margin. Imagine that a plane is about to take off with 10 empty seats and a standby passenger waiting at the gate is willing to pay $300 for a seat. Should the airline sell the ticket? Of course, it should. If the plane has empty seats, the cost of adding one more passenger is tiny. The *average* cost of flying a passenger is $500, but the *marginal* cost is merely the cost of the bag of peanuts and can of soda that the extra passenger will consume. As long as the standby passenger pays more than the marginal cost, selling the ticket is profitable.

Marginal decision making can help explain some otherwise puzzling economic phenomena. Here is a classic question: Why is water so cheap, while diamonds are so expensive? Humans need water to survive, while diamonds are unnecessary; but for some reason, people are willing to pay much more for a diamond than for a cup of water. The reason is that a person's willingness to pay for a good is based on the marginal benefit that an extra unit of the good would yield. The marginal benefit, in turn, depends on how many units a person already has. Water is essential, but the marginal benefit of an extra cup is small because water is plentiful. By contrast, no one needs diamonds to survive, but because diamonds are so rare, people consider the marginal benefit of an extra diamond to be large.

A rational decision maker takes an action if and only if the marginal benefit of the action exceeds the marginal cost. This principle explains why people use their cell phones as much as they do, why airlines are willing to sell tickets below average cost, and why people are willing to pay more for diamonds than for water. It can take some time to get used to the logic of marginal thinking, but the study of economics will give you ample opportunity to practice.

"Is the marginal benefit of this call greater than the marginal cost?"

1-1d Principle 4: People Respond to Incentives

An **incentive** is something (such as a prospect of a punishment or reward) that induces a person to act. Because rational people make decisions by comparing costs and benefits, they respond to incentives. You will see that incentives play a central role in the study of economics. One economist went so far as to suggest that the entire field could be summarized as simply "People respond to incentives. The rest is commentary."

incentive
something that induces a person to act

Incentives are crucial to analyzing how markets work. For example, when the price of an apple rises, people decide to eat fewer apples. At the same time, apple orchards decide to hire more workers and harvest more apples. In other words, a higher price in a market provides an incentive for buyers to consume less and an incentive for sellers to produce more. As we will see, the influence of prices on the behavior of consumers and producers is crucial for how a market economy allocates scarce resources.

Public policymakers should never forget about incentives: Many policies change the costs or benefits that people face and, as a result, alter their behavior. A tax on gasoline, for instance, encourages people to drive smaller, more fuel-efficient cars. That is one reason people drive smaller cars in Europe, where gasoline taxes are high, than in the United States, where gasoline taxes are low. A higher gasoline tax also encourages people to carpool, take public transportation, and live closer to where they work. If the tax were larger, more people would be driving hybrid cars, and if it were large enough, they would switch to electric cars.

When policymakers fail to consider how their policies affect incentives, they often end up with unintended consequences. For example, consider public policy regarding auto safety. Today, all cars have seat belts, but this was not true fifty

years ago. In the 1960s, Ralph Nader's book *Unsafe at Any Speed* generated much public concern over auto safety. Congress responded with laws requiring seat belts as standard equipment on new cars.

How does a seat belt law affect auto safety? The direct effect is obvious: When a person wears a seat belt, the probability of surviving an auto accident rises. But that's not the end of the story because the law also affects behavior by altering incentives. The relevant behavior here is the speed and care with which drivers operate their cars. Driving slowly and carefully is costly because it uses the driver's time and energy. When deciding how safely to drive, rational people compare, perhaps unconsciously, the marginal benefit from safer driving to the marginal cost. As a result, they drive more slowly and carefully when the benefit of increased safety is high. For example, when road conditions are icy, people drive more attentively and at lower speeds than they do when road conditions are clear.

Consider how a seat belt law alters a driver's cost–benefit calculation. Seat belts make accidents less costly because they reduce the likelihood of injury or death. In other words, seat belts reduce the benefits of slow and careful driving. People respond to seat belts as they would to an improvement in road conditions—by driving faster and less carefully. The result of a seat belt law, therefore, is a larger number of accidents. The decline in safe driving has a clear, adverse impact on pedestrians, who are more likely to find themselves in an accident but (unlike the drivers) don't have the benefit of added protection.

At first, this discussion of incentives and seat belts might seem like idle speculation. Yet in a classic 1975 study, economist Sam Peltzman argued that auto-safety laws have had many of these effects. According to Peltzman's evidence, these laws produce both fewer deaths per accident and more accidents. He concluded that the net result is little change in the number of driver deaths and an increase in the number of pedestrian deaths.

Peltzman's analysis of auto safety is an offbeat and controversial example of the general principle that people respond to incentives. When analyzing any policy, we must consider not only the direct effects but also the less obvious indirect effects that work through incentives. If the policy changes incentives, it will cause people to alter their behavior.

case study

The Incentive Effects of Gasoline Prices

From 2005 to 2008 the price of oil in world oil markets skyrocketed, the result of limited supplies together with surging demand from robust world growth, especially in China. The price of gasoline in the United States rose from about $2 to about $4 a gallon. At the time, the news was filled with stories about how people responded to the increased incentive to conserve—sometimes in obvious ways, sometimes in less obvious ways.

Here is a sampling of various stories:

- "As Gas Prices Soar, Buyers Are Flocking to Small Cars"
- "As Gas Prices Climb, So Do Scooter Sales"
- "Gas Prices Knock Bicycles Sales, Repairs into Higher Gear"
- "Gas Prices Send Surge of Riders to Mass Transit"
- "Camel Demand Up as Oil Price Soars": Farmers in the Indian state of Rajasthan are rediscovering the humble camel. As the cost of running gas-guzzling tractors soars, even-toed ungulates are making a comeback.
- "The Airlines Are Suffering, but the Order Books of Boeing and Airbus Are Bulging": Demand for new, more fuel-efficient aircraft has never been greater.

The latest versions of the Airbus A320 and Boeing 737, the single-aisle workhorses for which demand is strongest, are up to 40 percent cheaper to run than the vintage planes some American airlines still use.

- "Home Buying Practices Adjust to High Gas Prices": In his hunt for a new home, Demetrius Stroud crunched the numbers to find out that, with gas prices climbing, moving near an Amtrak station is the best thing for his wallet.
- "Gas Prices Drive Students to Online Courses": For Christy LaBadie, a sophomore at Northampton Community College, the 30-minute drive from her home to the Bethlehem, Pa., campus has become a financial hardship now that gasoline prices have soared to more than $4 a gallon. So this semester she decided to take an online course to save herself the trip—and the money.
- "Diddy Halts Private Jet Flights Over Fuel Prices": Fuel prices have grounded an unexpected frequent-flyer: Sean "Diddy" Combs. . . . The hip-hop mogul said he is now flying on commercial airlines instead of in private jets, which Combs said had previously cost him $200,000 and up for a roundtrip between New York and Los Angeles. "I'm actually flying commercial," Diddy said before walking onto an airplane, sitting in a first-class seat and flashing his boarding pass to the camera. "That's how high gas prices are."

Many of these developments proved transitory. The economic downturn that began in 2008 and continued into 2009 reduced the world demand for oil, and the price of gasoline declined substantially. No word yet on whether Mr. Combs has returned to his private jet.

Quick Quiz *Describe an important trade-off you recently faced. • Give an example of some action that has both a monetary and nonmonetary opportunity cost. • Describe an incentive your parents offered to you in an effort to influence your behavior.*

1-2 How People Interact

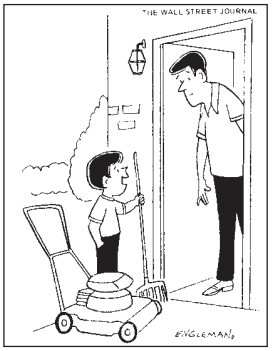
The first four principles discussed how individuals make decisions. As we go about our lives, many of our decisions affect not only ourselves but other people as well. The next three principles concern how people interact with one another.

1-2a Principle 5: Trade Can Make Everyone Better Off

You may have heard on the news that the Chinese are our competitors in the world economy. In some ways, this is true because American and Chinese firms produce many of the same goods. Companies in the United States and China compete for the same customers in the markets for clothing, toys, solar panels, automobile tires, and many other items.

Yet it is easy to be misled when thinking about competition among countries. Trade between the United States and China is not like a sports contest in which one side wins and the other side loses. In fact, the opposite is true: Trade between two countries can make each country better off.

To see why, consider how trade affects your family. When a member of your family looks for a job, she competes against members of other families who are looking for jobs. Families also compete against one another when they go shopping because each family wants to buy the best goods at the lowest prices. In a sense, each family in an economy competes with all other families.



From The Wall Street Journal - Permission, Cartoon Features Syndicate

"For $5 a week you can watch baseball without being nagged to cut the grass!"

Despite this competition, your family would not be better off isolating itself from all other families. If it did, your family would need to grow its own food, make its own clothes, and build its own home. Clearly, your family gains much from its ability to trade with others. Trade allows each person to specialize in the activities she does best, whether it is farming, sewing, or home building. By trading with others, people can buy a greater variety of goods and services at lower cost.

Countries as well as families benefit from the ability to trade with one another. Trade allows countries to specialize in what they do best and to enjoy a greater variety of goods and services. The Chinese, as well as the French and the Egyptians and the Brazilians, are as much our partners in the world economy as they are our competitors.

1-2b Principle 6: Markets Are Usually a Good Way to Organize Economic Activity

The collapse of communism in the Soviet Union and Eastern Europe in the 1980s was one of the last century's most important changes. Communist countries operated on the premise that government officials were in the best position to allocate the economy's scarce resources. These central planners decided what goods and services were produced, how much was produced, and who produced and consumed these goods and services. The theory behind central planning was that only the government could organize economic activity in a way that promoted economic well-being for the country as a whole.

market economy
an economy that allocates resources through the decentralized decisions of many firms and households as they interact in markets for goods and services

Most countries that once had centrally planned economies have abandoned the system and are instead developing market economies. In a **market economy**, the decisions of a central planner are replaced by the decisions of millions of firms and households. Firms decide whom to hire and what to make. Households decide which firms to work for and what to buy with their incomes. These firms and households interact in the marketplace, where prices and self-interest guide their decisions.

At first glance, the success of market economies is puzzling. In a market economy, no one is looking out for the economic well-being of society as a whole. Free markets contain many buyers and sellers of numerous goods and services, and all of them are interested primarily in their own well-being. Yet despite decentralized decision making and self-interested decision makers, market economies have proven remarkably successful in organizing economic activity to promote overall economic well-being.

In his 1776 book *An Inquiry into the Nature and Causes of the Wealth of Nations*, economist Adam Smith made the most famous observation in all of economics: Households and firms interacting in markets act as if they are guided by an "invisible hand" that leads them to desirable market outcomes. One of our goals in this book is to understand how this invisible hand works its magic.

As you study economics, you will learn that prices are the instrument with which the invisible hand directs economic activity. In any market, buyers look at the price when determining how much to demand, and sellers look at the price when deciding how much to supply. As a result of the decisions that buyers and sellers make, market prices reflect both the value of a good to society and the cost to society of making the good. Smith's great insight was that prices adjust to guide these individual buyers and sellers to reach outcomes that, in many cases, maximize the well-being of society as a whole.

Smith's insight has an important corollary: When a government prevents prices from adjusting naturally to supply and demand, it impedes the invisible hand's ability to coordinate the decisions of the households and firms that make

up an economy. This corollary explains why taxes adversely affect the allocation of resources: They distort prices and thus the decisions of households and firms. It also explains the great harm caused by policies that directly control prices, such as rent control. And it explains the failure of communism. In communist countries, prices were not determined in the marketplace but were dictated by central planners. These planners lacked the necessary information about consumers' tastes and producers' costs, which in a market economy is reflected in prices. Central planners failed because they tried to run the economy with one hand tied behind their backs—the invisible hand of the marketplace.

1-2c Principle 7: Governments Can Sometimes Improve Market Outcomes

If the invisible hand of the market is so great, why do we need government? One purpose of studying economics is to refine your view about the proper role and scope of government policy.

One reason we need government is that the invisible hand can work its magic only if the government enforces the rules and maintains the institutions that are

FYI

Adam Smith and the Invisible Hand

It may be only a coincidence that Adam Smith's great book *The Wealth of Nations* was published in 1776, the exact year in which American revolutionaries signed the Declaration of Independence. But the two documents share a point of view that was prevalent at the time: Individuals are usually best left to their own devices, without the heavy hand of government guiding their actions. This political philosophy provides the intellectual basis for the market economy and for free society more generally.

Why do decentralized market economies work so well? Is it because people can be counted on to treat one another with love and kindness? Not at all. Here is Adam Smith's description of how people interact in a market economy:

> *Man has almost constant occasion for the help of his brethren, and it is in vain for him to expect it from their benevolence only. He will be more likely to prevail if he can interest their self-love in his favour, and show them that it is for their own advantage to do for him what he requires of them. . . . Give me that which I want, and you shall have this which you want, is the meaning of every such offer; and it is in this manner that we obtain from one another the far greater part of those good offices which we stand in need of.*

Bettmann/Corbis

Adam Smith

> *It is not from the benevolence of the butcher, the brewer, or the baker that we expect our dinner, but from their regard to their own interest. We address ourselves, not to their humanity but to their self-love, and never talk to them of our own necessities but of their advantages. Nobody but a beggar chooses to depend chiefly upon the benevolence of his fellow-citizens. . . .*
>
> *Every individual . . . neither intends to promote the public interest, nor knows how much he is promoting it. . . . He intends only his own gain, and he is in this, as in many other cases, led by an invisible hand to promote an end which was no part of his intention. Nor is it always the worse for the society that it was no part of it. By pursuing his own interest he frequently promotes that of the society more effectually than when he really intends to promote it.*

Smith is saying that participants in the economy are motivated by self-interest and that the "invisible hand" of the marketplace guides this self-interest into promoting general economic well-being.

Many of Smith's insights remain at the center of modern economics. Our analysis in the coming chapters will allow us to express Smith's conclusions more precisely and to analyze more fully the strengths and weaknesses of the market's invisible hand.

property rights
the ability of an individual to own and exercise control over scarce resources

key to a market economy. Most important, market economies need institutions to enforce **property rights** so individuals can own and control scarce resources. A farmer won't grow food if she expects her crop to be stolen; a restaurant won't serve meals unless it is assured that customers will pay before they leave; and an entertainment company won't produce DVDs if too many potential customers avoid paying by making illegal copies. We all rely on government-provided police and courts to enforce our rights over the things we produce—and the invisible hand counts on our ability to enforce our rights.

Yet there is another reason we need government: The invisible hand is powerful, but it is not omnipotent. There are two broad reasons for a government to intervene in the economy and change the allocation of resources that people would choose on their own: to promote efficiency or to promote equality. That is, most policies aim either to enlarge the economic pie or to change how the pie is divided.

market failure
a situation in which a market left on its own fails to allocate resources efficiently

externality
the impact of one person's actions on the well-being of a bystander

market power
the ability of a single economic actor (or small group of actors) to have a substantial influence on market prices

Consider first the goal of efficiency. Although the invisible hand usually leads markets to allocate resources to maximize the size of the economic pie, this is not always the case. Economists use the term **market failure** to refer to a situation in which the market on its own fails to produce an efficient allocation of resources. As we will see, one possible cause of market failure is an **externality,** which is the impact of one person's actions on the well-being of a bystander. The classic example of an externality is pollution. When the production of a good pollutes the air and creates health problems for those who live near the factories, the market left to its own devices may fail to take this cost into account. Another possible cause of market failure is **market power,** which refers to the ability of a single person or firm (or a small group) to unduly influence market prices. For example, if everyone in town needs water but there is only one well, the owner of the well is not subject to the rigorous competition with which the invisible hand normally keeps self-interest in check; she may take advantage of this opportunity by restricting the output of water so she can charge a higher price. In the presence of externalities or market power, well-designed public policy can enhance economic efficiency.

Now consider the goal of equality. Even when the invisible hand yields efficient outcomes, it can nonetheless leave sizable disparities in economic well-being. A market economy rewards people according to their ability to produce things that other people are willing to pay for. The world's best basketball player earns more than the world's best chess player simply because people are willing to pay more to watch basketball than chess. The invisible hand does not ensure that everyone has sufficient food, decent clothing, and adequate healthcare. This inequality may, depending on one's political philosophy, call for government intervention. In practice, many public policies, such as the income tax and the welfare system, aim to achieve a more equal distribution of economic well-being.

To say that the government *can* improve on market outcomes at times does not mean that it always *will*. Public policy is made not by angels but by a political process that is far from perfect. Sometimes policies are designed simply to reward the politically powerful. Sometimes they are made by well-intentioned leaders who are not fully informed. As you study economics, you will become a better judge of when a government policy is justifiable because it promotes efficiency or equality and when it is not.

Quick Quiz *Why is a country better off not isolating itself from all other countries? • Why do we have markets, and according to economists, what roles should government play in them?*

1-3 How the Economy as a Whole Works

We started by discussing how individuals make decisions and then looked at how people interact with one another. All these decisions and interactions together make up "the economy." The last three principles concern the workings of the economy as a whole.

1-3a Principle 8: A Country's Standard of Living Depends on Its Ability to Produce Goods and Services

The differences in living standards around the world are staggering. In 2011, the average American had an income of about $48,000. In the same year, the average Mexican earned about $9,000, the average Chinese about $5,000, and the average Nigerian only $1,200. Not surprisingly, this large variation in average income is reflected in various measures of quality of life. Citizens of high-income countries have more TV sets, more cars, better nutrition, better healthcare, and a longer life expectancy than citizens of low-income countries.

Changes in living standards over time are also large. In the United States, incomes have historically grown about 2 percent per year (after adjusting for changes in the cost of living). At this rate, average income doubles every 35 years. Over the past century, average U.S. income has risen about eightfold.

What explains these large differences in living standards among countries and over time? The answer is surprisingly simple. Almost all variation in living standards is attributable to differences in countries' **productivity**—that is, the amount of goods and services produced by each unit of labor input. In nations where workers can produce a large quantity of goods and services per hour, most people enjoy a high standard of living; in nations where workers are less productive, most people endure a more meager existence. Similarly, the growth rate of a nation's productivity determines the growth rate of its average income.

productivity
the quantity of goods and services produced from each unit of labor input

The fundamental relationship between productivity and living standards is simple, but its implications are far-reaching. If productivity is the primary determinant of living standards, other explanations must be of secondary importance. For example, it might be tempting to credit labor unions or minimum-wage laws for the rise in living standards of American workers over the past century. Yet the real hero of American workers is their rising productivity. As another example, some commentators have claimed that increased competition from Japan and other countries explained the slow growth in U.S. incomes during the 1970s and 1980s. Yet the real villain was not competition from abroad but flagging productivity growth in the United States.

The relationship between productivity and living standards also has profound implications for public policy. When thinking about how any policy will affect living standards, the key question is how it will affect our ability to produce goods and services. To boost living standards, policymakers need to raise productivity by ensuring that workers are well educated, have the tools they need to produce goods and services, and have access to the best available technology.

1-3b Principle 9: Prices Rise When the Government Prints Too Much Money

In January 1921, a daily newspaper in Germany cost 0.30 marks. Less than two years later, in November 1922, the same newspaper cost 70,000,000 marks. All other prices in the economy rose by similar amounts. This episode is one of

IN THE NEWS

Why You Should Study Economics

In this excerpt from a commencement address, the former president of the Federal Reserve Bank of Dallas makes the case for studying economics.

The Dismal Science? Hardly!

By Robert D. McTeer, Jr.

My take on training in economics is that it becomes increasingly valuable as you move up the career ladder. I can't imagine a better major for corporate CEOs, congressmen, or American presidents. You've learned a systematic, disciplined way of thinking that will serve you well. By contrast, the economically challenged must be perplexed about how it is that economies work better the fewer people they have in charge. Who does the planning? Who makes decisions? Who decides what to produce?

For my money, Adam Smith's invisible hand is the most important thing you've learned by studying economics. You understand how we can each work for our own self-interest and still produce a desirable social outcome. You know how uncoordinated activity gets coordinated by the market to enhance the wealth of nations. You understand the magic of markets and the dangers of tampering with them too much. You know better what you first learned in kindergarten: that you shouldn't kill or cripple the goose that lays the golden eggs. . . .

Economics training will help you understand fallacies and unintended consequences. In fact, I am inclined to define economics as the study of how to anticipate unintended consequences. . . .

Little in the literature seems more relevant to contemporary economic debates than what usually is called the broken window fallacy. Whenever a government program is justified not on its merits but by the jobs it will create, remember the broken window: Some teenagers, being the little beasts that they are, toss a brick through a bakery window. A crowd gathers and laments, "What a shame." But before you know it, someone suggests a silver lining to the situation: Now the baker will have to spend money to have the window repaired. This will add to the income of the repairman, who will spend his additional income, which will add to another seller's income, and so on. You know the drill. The chain of spending will multiply and generate higher income and employment. If the broken window is large enough, it might produce an economic boom! . . .

Most voters fall for the broken window fallacy, but not economics majors. They will say, "Hey, wait a minute!" If the baker hadn't spent his money on window repair, he would have spent it on the new suit he was saving to buy. Then the tailor would have the new income to spend, and so on. The broken window didn't create net new spending; it just diverted spending from somewhere else. The broken window does not create new activity, just different activity. People see the activity that takes place. They don't see the activity that *would* have taken place.

The broken window fallacy is perpetuated in many forms. Whenever job creation or retention is the primary objective I call it the job-counting fallacy. Economics majors understand the non-intuitive reality that real progress comes from job destruction. It once took 90 percent of our population to grow our food. Now it takes 3 percent. Pardon me, Willie, but are we worse off because of the job losses in agriculture? The would-have-been farmers are now college professors and computer gurus. . . .

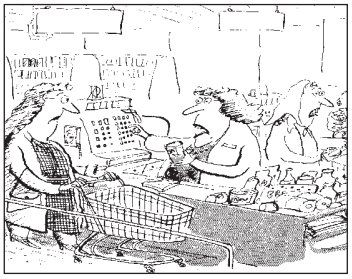
So instead of counting jobs, we should make every job count. We will occasionally hit a soft spot when we have a mismatch of supply and demand in the labor market. But that is temporary. Don't become a Luddite and destroy the machinery, or become a protectionist and try to grow bananas in New York City.

inflation
an increase in the overall level of prices in the economy

history's most spectacular examples of **inflation,** an increase in the overall level of prices in the economy.

Although the United States has never experienced inflation even close to that of Germany in the 1920s, inflation has at times been an economic problem. During the 1970s, for instance, when the overall level of prices more than doubled, President Gerald Ford called inflation "public enemy number one." By contrast, inflation in the first decade of the 21st century ran about 2½ percent per year; at this rate, it would take almost 30 years for prices to double. Because high inflation imposes various costs on society, keeping inflation at a low level is a goal of economic policymakers around the world.

What causes inflation? In almost all cases of large or persistent inflation, the culprit is growth in the quantity of money. When a government creates large quantities of the nation's money, the value of the money falls. In Germany in the early 1920s, when prices were on average tripling every month, the quantity of money was also tripling every month. Although less dramatic, the economic history of the United States points to a similar conclusion: The high inflation of the 1970s was associated with rapid growth in the quantity of money, and the low inflation of more recent experience was associated with slow growth in the quantity of money.



"Well it may have been 68 cents when you got in line, but it's 74 cents now!"

1-3c Principle 10: Society Faces a Short-Run Trade-off between Inflation and Unemployment

Although a higher level of prices is, in the long run, the primary effect of increasing the quantity of money, the short-run story is more complex and controversial. Most economists describe the short-run effects of monetary injections as follows:

- Increasing the amount of money in the economy stimulates the overall level of spending and thus the demand for goods and services.
- Higher demand may over time cause firms to raise their prices, but in the meantime, it also encourages them to hire more workers and produce a larger quantity of goods and services.
- More hiring means lower unemployment.

This line of reasoning leads to one final economy-wide trade-off: a short-run trade-off between inflation and unemployment.

Although some economists still question these ideas, most accept that society faces a short-run trade-off between inflation and unemployment. This simply means that, over a period of a year or two, many economic policies push inflation and unemployment in opposite directions. Policymakers face this trade-off regardless of whether inflation and unemployment both start out at high levels (as they did in the early 1980s), at low levels (as they did in the late 1990s), or someplace in between. This short-run trade-off plays a key role in the analysis of the **business cycle**—the irregular and largely unpredictable fluctuations in economic activity, as measured by the production of goods and services or the number of people employed.

business cycle
fluctuations in economic activity, such as employment and production

Policymakers can exploit the short-run trade-off between inflation and unemployment using various policy instruments. By changing the amount that the government spends, the amount it taxes, and the amount of money it prints, policymakers can influence the overall demand for goods and services. Changes in demand in turn influence the combination of inflation and unemployment that the economy experiences in the short run. Because these instruments of economic policy are potentially so powerful, how policymakers should use these instruments to control the economy, if at all, is a subject of continuing debate.

This debate heated up in the early years of Barack Obama's presidency. In 2008 and 2009, the U.S. economy, as well as many other economies around the world, experienced a deep economic downturn. Problems in the financial system, caused by bad bets on the housing market, spilled over into the rest of the economy, causing incomes to fall and unemployment to soar. Policymakers responded in various ways to increase the overall demand for goods and services. President Obama's first major initiative was a stimulus package of reduced taxes and increased government spending. At the same time, the nation's central bank, the Federal Reserve, increased the supply of money. The goal of these policies was to reduce unemployment. Some feared, however, that these policies might over time lead to an excessive level of inflation.

Quick Quiz *List and briefly explain the three principles that describe how the economy as a whole works.*

1-4 Conclusion

You now have a taste of what economics is all about. In the coming chapters, we develop many specific insights about people, markets, and economies. Mastering these insights will take some effort, but it is not an overwhelming task. The field of economics is based on a few big ideas that can be applied in many different situations.

Throughout this book, we will refer back to the *Ten Principles of Economics* highlighted in this chapter and summarized in Table 1. Keep these building blocks in mind: Even the most sophisticated economic analysis is founded on the ten principles introduced here.

TABLE 1

Ten Principles of Economics

How People Make Decisions

1: People Face Trade-offs
2: The Cost of Something Is What You Give Up to Get It
3: Rational People Think at the Margin
4: People Respond to Incentives

How People Interact

5: Trade Can Make Everyone Better Off
6: Markets Are Usually a Good Way to Organize Economic Activity
7: Governments Can Sometimes Improve Market Outcomes

How the Economy as a Whole Works

8: A Country's Standard of Living Depends on Its Ability to Produce Goods and Services
9: Prices Rise When the Government Prints Too Much Money
10: Society Faces a Short-Run Trade-off between Inflation and Unemployment

Summary

- The fundamental lessons about individual decision making are that people face trade-offs among alternative goals, that the cost of any action is measured in terms of forgone opportunities, that rational people make decisions by comparing marginal costs and marginal benefits, and that people change their behavior in response to the incentives they face.
- The fundamental lessons about interactions among people are that trade and interdependence can be mutually beneficial, that markets are usually a good way of coordinating economic activity among people, and that the government can potentially improve market outcomes by remedying a market failure or by promoting greater economic equality.
- The fundamental lessons about the economy as a whole are that productivity is the ultimate source of living standards, that growth in the quantity of money is the ultimate source of inflation, and that society faces a short-run trade-off between inflation and unemployment.

Key Concepts

scarcity, *p. 4*
economics, *p. 4*
efficiency, *p. 5*
equality, *p. 5*
opportunity cost, *p. 6*
rational people, *p. 6*
marginal change, *p. 6*
incentive, *p. 7*
market economy, *p. 10*
property rights, *p. 12*
market failure, *p. 12*
externality, *p. 12*
market power, *p. 12*
productivity, *p. 13*
inflation, *p. 14*
business cycle, *p. 15*

Questions for Review

1. Give three examples of important trade-offs that you face in your life.
2. What items would you include to figure out the opportunity cost of a vacation to Disneyworld?
3. Water is necessary for life. Is the marginal benefit of a glass of water large or small?
4. Why should policymakers think about incentives?
5. Why isn't trade among countries like a game with some winners and some losers?
6. What does the "invisible hand" of the marketplace do?
7. Explain the two main causes of market failure and give an example of each.
8. Why is productivity important?
9. What is inflation and what causes it?
10. How are inflation and unemployment related in the short run?

Quick Check Multiple Choice

1. Economics is best defined as the study of
   a. how society manages its scarce resources.
   b. how to run a business most profitably.
   c. how to predict inflation, unemployment, and stock prices.
   d. how the government can stop the harm from unchecked self-interest.
2. Your opportunity cost of going to a movie is
   a. the price of the ticket.
   b. the price of the ticket plus the cost of any soda and popcorn you buy at the theater.
   c. the total cash expenditure needed to go to the movie plus the value of your time.
   d. zero, as long as you enjoy the movie and consider it a worthwhile use of time and money.
3. A marginal change is one that
   a. is not important for public policy.
   b. incrementally alters an existing plan.
   c. makes an outcome inefficient.
   d. does not influence incentives.
4. Adam Smith's "invisible hand" refers to
   a. the subtle and often hidden methods that businesses use to profit at consumers' expense.
   b. the ability of free markets to reach desirable outcomes, despite the self-interest of market participants.
   c. the ability of government regulation to benefit consumers, even if the consumers are unaware of the regulations.
   d. the way in which producers or consumers in unregulated markets impose costs on innocent bystanders.
5. Governments may intervene in a market economy in order to
   a. protect property rights.
   b. correct a market failure due to externalities.
   c. achieve a more equal distribution of income.
   d. All of the above.
6. If a nation has high and persistent inflation, the most likely explanation is
   a. the central bank creating excessive amounts of money.
   b. unions bargaining for excessively high wages.
   c. the government imposing excessive levels of taxation.
   d. firms using their monopoly power to enforce excessive price hikes.

Problems and Applications

1. Describe some of the trade-offs faced by each of the following:
   a. a family deciding whether to buy a new car
   b. a member of Congress deciding how much to spend on national parks
   c. a company president deciding whether to open a new factory
   d. a professor deciding how much to prepare for class
   e. a recent college graduate deciding whether to go to graduate school
2. You are trying to decide whether to take a vacation. Most of the costs of the vacation (airfare, hotel, and forgone wages) are measured in dollars, but the benefits of the vacation are psychological. How can you compare the benefits to the costs?
3. You were planning to spend Saturday working at your part-time job, but a friend asks you to go skiing. What is the true cost of going skiing? Now suppose you had been planning to spend the day studying at the library. What is the cost of going skiing in this case? Explain.
4. You win $100 in a basketball pool. You have a choice between spending the money now and putting it away for a year in a bank account that pays 5 percent interest. What is the opportunity cost of spending the $100 now?
5. The company that you manage has invested $5 million in developing a new product, but the development is not quite finished. At a recent meeting, your salespeople report that the introduction of competing products has reduced the expected sales of your new product to $3 million. If it would cost $1 million to finish development and make the product, should you go ahead and do so? What is the most that you should pay to complete development?
6. The Social Security system provides income for people over age 65. If a recipient of Social Security decides to work and earn some income, the amount received in Social Security benefits is typically reduced.
   a. How does the provision of Social Security affect people's incentive to save while working?
   b. How does the reduction in benefits associated with higher earnings affect people's incentive to work past age 65?
7. A 1996 bill reforming the federal government's anti-poverty programs limited many welfare recipients to only two years of benefits.
   a. How does this change affect the incentives for working?
   b. How might this change represent a trade-off between equality and efficiency?
8. Explain whether each of the following government activities is motivated by a concern about equality or a concern about efficiency. In the case of efficiency, discuss the type of market failure involved.
   a. regulating cable TV prices
   b. providing some poor people with vouchers that can be used to buy food
   c. prohibiting smoking in public places
   d. breaking up Standard Oil (which once owned 90 percent of all oil refineries) into several smaller companies
   e. imposing higher personal income tax rates on people with higher incomes
   f. instituting laws against driving while intoxicated
9. Discuss each of the following statements from the standpoints of equality and efficiency.
   a. "Everyone in society should be guaranteed the best healthcare possible."
   b. "When workers are laid off, they should be able to collect unemployment benefits until they find a new job."
10. In what ways is your standard of living different from that of your parents or grandparents when they were your age? Why have these changes occurred?
11. Suppose Americans decide to save more of their incomes. If banks lend this extra saving to businesses, which use the funds to build new factories, how might this lead to faster growth in productivity? Who do you suppose benefits from the higher productivity? Is society getting a free lunch?
12. During the Revolutionary War, the American colonies could not raise enough tax revenue to fully fund the war effort; to make up the difference, the colonies decided to print more money. Printing money to cover expenditures is sometimes referred to as an "inflation tax." Who do you think is being "taxed" when more money is printed? Why?

2. TEMAS ACTUAIS DA ECONOMIA

2.1 How to read numbers

Absolute and relative numbers

Proportions and ratios

Changes and change rates

Indexes

2.2 Inflation, Unemployment and Growth

Instituto Nacional de Estatística (2022). “Instituto Nacional de Estatística (2020). “Monthly Employment and Unemployment Estimates - January 2022”. March 2nd, 2022. Lisboa, INE.

Instituto Nacional de Estatística (2022). “Consumer price index – February 2022”. February 28th, 2022. Lisboa, INE.

Instituto Nacional de Estatística (2022). “Quarterly National Accounts and Annual Preliminary Accounts - Fourth Quarter 2021 and Year 2021”. 28th February, 2022. Lisboa, INE.

An Phríomh-Oifig Staidrimh
Central Statistics Office

information
notice

Consumer Price Index

How to calculate a percentage change

The formula used to calculate the percentage change between any two periods is as follows:

$$Percentage\ Change = \left(\frac{Index_{CP} - Index_{PP}}{Index_{PP}} \right) \times 100$$

where $Index_{CP}$ is the index for the current period and $Index_{PP}$ is the index for the previous period *in the same base reference period*.

Note: the percentage changes are published rounded to 1 decimal place.

Example 1: In May 2012, the 12 months percentage change between May 2012 and May 2011 *(Base: December 2011 = 100)* was calculated as follows:

$$Percentage\ Change = \left(\frac{101.4 - 99.6}{99.6} \right) \times 100$$

$$= +1.8\%$$

Example 2: In May 2012, the 1 month percentage change between May 2012 and April 2012 *(Base: December 2011 = 100)* was calculated as follows:

$$Percentage\ Change = \left(\frac{101.4 - 101.4}{101.4} \right) \times 100$$

$$= 0\% \text{ (i.e. no change)}$$

Table 1: Consumer Price Index (CPI) (All Items) from January 2011 to December 2012 (Base: December 2011=100)

Year	Month	CPI (All Items) (Base: December 2011 = 100)
2011	January	97.4
2011	February	98.3
2011	March	99.2
2011	April	99.5
2011	May	99.6
2011	June	99.5
2011	July	99.5
2011	August	99.7
2011	September	100.0
2011	October	100.3
2011	November	100.3
2011	December	100.0
2011	**Annual Average**	**99.4**
2012	January	99.5
2012	February	100.4
2012	March	101.4
2012	April	101.4
2012	May	101.4
2012	June	101.2
2012	July	101.1
2012	August	101.7
2012	September	101.6
2012	October	101.5
2012	November	101.1
2012	December	101.2
2012	**Annual Average**	**101.1**

Note: The Annual Average CPI for any given year is a simple arithmetic average of the indices over the 12 months of the year and rounded to one decimal place.

What is the difference between the annual percentage change and the annual average percentage change?

In December 2012 (i) the annual percentage change (i.e. annual rate of inflation) for December 2012 and (ii) the annual average percentage change (i.e. annual average rate of inflation) for 2012 were published in the Consumer Price Index release.

(i) **the annual percentage change (i.e. annual rate of inflation) for December 2012** was calculated as follows:

$$Percentage\ Change = \left(\frac{Index_{CP} - Index_{PP}}{Index_{PP}} \right) \times 100$$

where $Index_{CP}$ is the index for the current period (December 2012) and $Index_{PP}$ is the index for the previous period (December 2011) *in the same base reference period*.

$$Percentage\ Change = \left(\frac{101.2 - 100.0}{100.0} \right) \times 100$$

$$= +1.2\%$$

i.e. annual rate of inflation = +1.2%

(ii) **the annual average percentage change (i.e. annual average rate of inflation) for 2012** was calculated in two steps as follows:

Step 1: The annual average CPI for the current and previous years was calculated using the following formula:

$$Annual\ Average\ CPI = \left(\frac{\sum_{t=1}^{12} CPI_t}{12} \right)$$

where CPI_t is the CPI (All Items) from t=1 to12 (i.e. January to December) and $\sum$ represents summation of the monthly CPI (All Items).

i.e. the annual average CPI for 2011 is

$$Annual\ Average\ CPI = \left(\frac{97.4 + 98.3 + \ldots\ldots + 100.0}{12} \right) = 99.4$$

i.e. the annual average CPI for 2012 is

$$\textit{Annual Average CPI} = \left(\frac{99.5 + 100.4 \ + \ ..... \ + 101.2}{12} \right) = 101.1$$

Step 2: The annual average percentage change (i.e. annual average rate of inflation) for 2012 was calculated using the following formula:

$$\textit{Percentage Change} \ = \ \left(\frac{\textit{Index}_{CP} \ - \ \textit{Index}_{PP}}{\textit{Index}_{PP}} \right) \times 100$$

where Index_{CP} is the index for the current period (i.e. annual average CPI for 2012) and Index_{PP} is the index for the previous period (i.e. annual average CPI for 2011) *in the same base reference period* (i.e. Base: December 2011=100).

$$\textit{Percentage Change} \ = \ \left(\frac{101.1 \ - \ 99.4}{99.4} \right) \times 100$$

$$= +1.7\%$$

i.e. annual average rate of inflation = +1.7%

The Central Statistics Office (CSO) neither encourages nor discourages the use of price adjustment measures in contractual agreements. The decision to employ an indexation mechanism, as well as the choice of the most suitable index, is up to the individual or party.

The CSO cannot provide assistance in relation to legal questions. The CSO can only provide basic assistance on statistical questions. However, this assistance is provided without acceptance of any responsibility by the CSO.

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March 2013

2 March 2022
MONTHLY EMPLOYMENT AND UNEMPLOYMENT ESTIMATES
January 2022

IN JANUARY, THE UNEMPLOYMENT RATE STOOD AT 6.0% AND THE LABOUR UNDERUTILISATION RATE AT 11.7%

December 2021:

- The active population (5,196.0 thousand) increased by 0.3% from the previous month, by 0.6% from three months before and by 3.1% from the same month of 2020.
- The employed population (4,893.3 thousand) increased from the three comparison periods: 0.8%, 1.2% and 4.3%, respectively.
- On the other hand, the unemployed population (302.7 thousand) decreased from November (7.0%) and September 2021 (5.7%), as well as from December 2020 (12.6%).
- The unemployment rate stood at 5.8%, down 0.5 percentage points (pp) from the previous month, down 0.6 pp from three months before and down 1.1 pp from a year earlier.
- The inactive population (2,489.7 thousand) decreased from the three comparison periods: 0.7%, 1.0% and 5.7%, respectively.
- The labour underutilisation rate was estimated at 11.4%, down 0.3 pp from the previous month, down 0.6 pp from three months before and down 2.3 pp from a year earlier.

January 2022[1]:

- The active population (5,184.1 thousand) decreased by 0.2% from December 2021 and increased by 0.3% from October and by 3.5% from January of the same year.
- Likewise, the employed population (4,875.5 thousand) decreased by 0.4% from the previous month, having increased by 0.7% from three months before and by 4.7% from a year earlier.
- On the other hand, the unemployed population (308.6 thousand) increased from the previous month (1.9%) and decreased from three months before (6.4%) and from January 2021 (12.2%).
- The unemployment rate stood at 6.0%, up 0.2 pp from the previous month, down 0.4 pp from three months before and down 1.0 pp from a year before.
- The inactive population (2,486.3 thousand) has decreased from the three periods under comparison: 0.1%, 1.1% and 6.8%, respectively.
- The labour underutilisation rate stood at 11.7%, up 0.3 pp from the previous month, the same value as in three months before and down 2.3 pp from a year earlier.

[1] The estimates for the last reference month (in this case, the quarter centred in January 2022: from December 2021 to February 2022) were calculated with incomplete information for the last month of the quarter (February 2022). These estimates will be revised next month (as described in the methodological note).

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The table below presents the main indicators of the Monthly Employment and Unemployment Estimates.

Monthly Employment and Unemployment Estimates (16 to 74)

Main Indicators

	Unit	Seasonally adjusted data						
		Dec 2020	Jan 2021	Sep 2021	Oct 2021	Nov 2021	Dec 2021	Jan 2022 (p)
Active population	Thousands	5,037.7	5,008.5	5,164.4	5,169.3	5,178.3	5,196.0	5,184.1
Employed population		4,691.3	4,657.0	4,836.0	4,839.8	4,852.8	4,893.3	4,875.5
Unemployed population		346.5	351.6	328.4	329.6	325.5	302.7	308.6
Inactive population		2,639.1	2,667.5	2,514.9	2,512.9	2,506.8	2,489.7	2,486.3
Labour underutilisation		719.9	733.2	637.8	622.4	623.3	609.2	625.4
Activity rate	%	65.6	65.2	67.3	67.3	67.4	67.6	67.6
Employment rate		61.1	60.7	63.0	63.0	63.1	63.7	63.6
Unemployment rate		6.9	7.0	6.4	6.4	6.3	5.8	6.0
Inactivity rate		34.4	34.8	32.7	32.7	32.6	32.4	32.4
Labour underutilisation rate		13.7	14.0	12.0	11.7	11.7	11.4	11.7

Source: Statistics Portugal, Labour Force Survey.

Note: (p) – Provisional estimates.

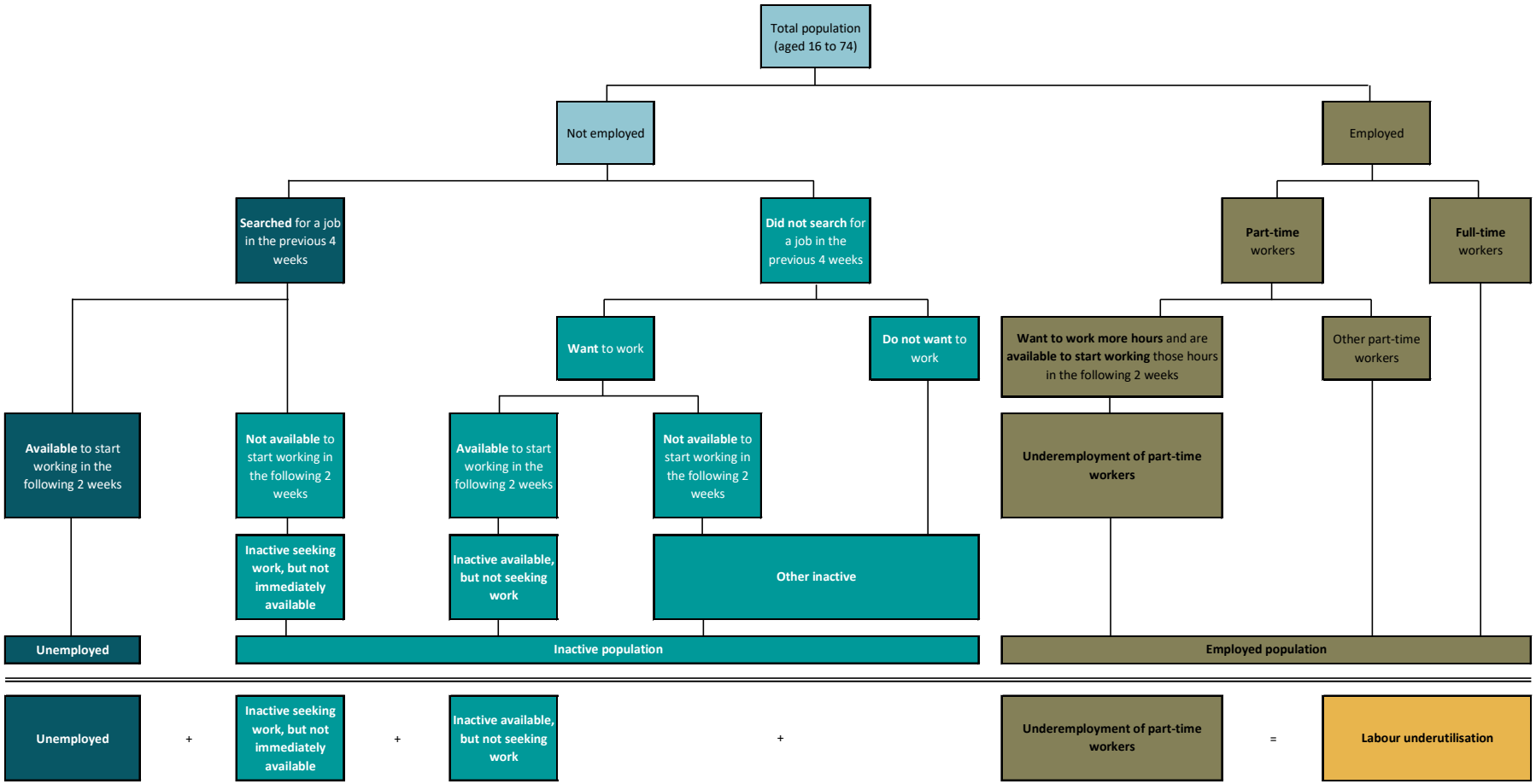
In **December 2021**, from the previous month, the active population increased (17.7 thousand people; 0.3%), while the inactive population decreased (17.1 thousand; 0.7%)[2]. The increase of the active population was due to the increase of the employed population (40.5 thousand; 0.8%) being higher than the decreased of the unemployed population (22.8 thousand; 7.0%), while the decrease of the inactive population was explained by the decrease in the number of inactive persons who have not looked for a job and were not available to work (22.5 thousand; 1.0%).

The increase of the active population compared to three months before (31.6 thousand; 0.6%) came also from the increase of the employed population (57.3 thousand; 1.2%) having more than compensated the decrease in the unemployed population (25.7 thousand; 7.8%). The inactive population decreased from September 2021 (25.2 thousand; 1.0%) mainly due the decrease in the number of inactive persons who have not looked for a job and were not available to work (25.3 thousand; 1.1%).

The increase of the active population (158.3 thousand; 3.1%) from December 2020 was followed by an increase of the employed population (202.0 thousand; 4.3%) that largely surpassed the decrease of the unemployed population (43.8 thousand; 12.6%). The inactive population decreased by 149.4 thousand people (5.7%), due to the decrease of the number of inactive persons available to work but not seeking a job (62.6 thousand; 31.3%) and the number of other inactive persons not available and not seeking a job (83.4 thousand; 3.5%).

[2] The changes in the active population and in the inactive population are not necessarily symmetrical. They are also influenced by the total population change that result from the natural balance and the net migration.

Criteria used when classifing the population aged 16 to 74 by labour status



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February 28th, 2022

CONSUMER PRICE INDEX

Flash Estimate – February 2022

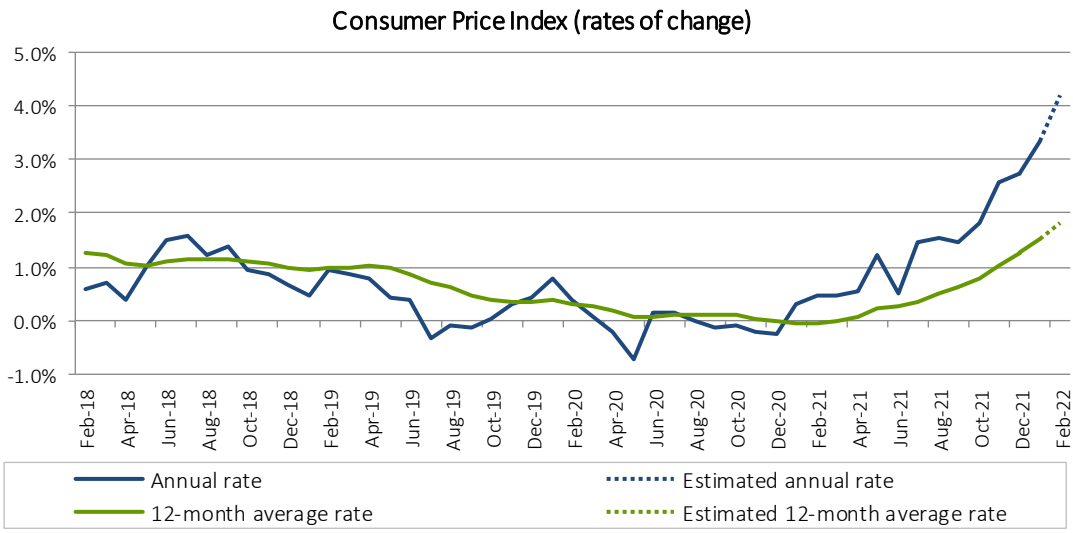
CPI ANNUAL RATE OF CHANGE ESTIMATED AT 4.2%

Based on the information available until the date of the present press release, the Consumer Price Index (CPI) annual rate is estimated to have increased to 4.2% in February (3.3% in January). The core inflation index, which excludes energy and unprocessed food products components, was 3.2% (2.4% in the previous month). The annual rate of change of the index for energy products is estimated to be 14.9% (12.1% in January) and the estimated rate for unprocessed food is 3.8% (3.4% in the previous month).

The CPI monthly rate is estimated to be 0.4% (0.3% in January and -0.5% in February 2021), while the CPI 12-month average rate was estimated to be 1.8% (1.5% in the previous month).

The estimate of the Portuguese Harmonised Index of Consumer Prices (HICP) annual rate of change was 4.4% (3.4% in the previous month).

The February CPI final results will be released on March 10th, 2022.



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Special Aggregates	Monthly rate (%)[1]		Annual rate (%)[1]		12-month average rate (%)[1]	
	Jan-22	Feb-22 (e)	Jan-22	Feb-22 (e)	Jan-22	Feb-22 (e)
CPI						
Total	0.28	**0.37**	3.34	**4.20**	1.52	**1.82**
All items excluding housing	0.27	**0.37**	3.39	**4.28**	1.50	**1.82**
All items excl. unproc. food and energy	-0.02	**0.17**	2.45	**3.19**	0.91	**1.11**
Unprocessed food	0.58	**0.13**	3.38	**3.78**	0.70	**0.90**
Energy	2.80	**2.58**	12.15	**14.87**	8.73	**10.30**
HICP						
Total	0.3	**0.5**	3.4	**4.4**	1.2	**1.5**

(e) estimated values.

[1]Rounded values to two and one decimals. For more information see the final notes.

CONSUMER PRICE INDEX

The Consumer Price Index (CPI) measures the change over time of the prices of a certain basket of goods and services bought by a "typical" consumer. The CPI has been designed to capture price changes and not to measure price levels.

For a more detailed analysis, please check the monthly CPI/HICP Press Releases.

CORE INFLATION INDEX (ALL ITEMS CPI EXCLUDING UNPROCESSED FOOD AND ENERGY PRODUCTS)

The core inflation index is compiled by excluding the prices of unprocessed food and energy products from the all items CPI. The primary objective of this index is to capture the underlying inflation pressures in the economy.

PRESENTATION OF DATA AND ROUNDING RULES

Indices are published with base 100 in 2012 since the release of the January 2013 CPI.

Due to rounding procedures, those indices may not reproduce exactly the published rates of change. However, it should be noted that the published rates prevail.

In this press release the descriptive analysis is based on rounded values to one decimal.

CPI/HICP FLASH ESTIMATE

Statistics Portugal publishes a CPI/HICP flash estimate based on provisional data and price estimates.

This publication presents estimates for the annual and monthly rates of change of those indices, following a long period of compilation and internal evaluation of their quality compared to the published final figures. Additional details can be found in the January 2018 flash estimate press release.

In line with the dissemination practices followed by Eurostat and some EU countries this information will be disseminated on the last working day of each month.

Next press release – March 10th ,2022

Next flash estimate – March 31st, 2022

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28 February 2022
QUARTERLY NATIONAL ACCOUNTS (Base 2016)
Fourth Quarter 2021 and Year 2021

GDP INCREASED BY 5.8% ON A YEAR BEFORE AND BY 1.6% ON THE PREVIOUS QUARTER. IN 2021 GDP GREW BY 4.9%.

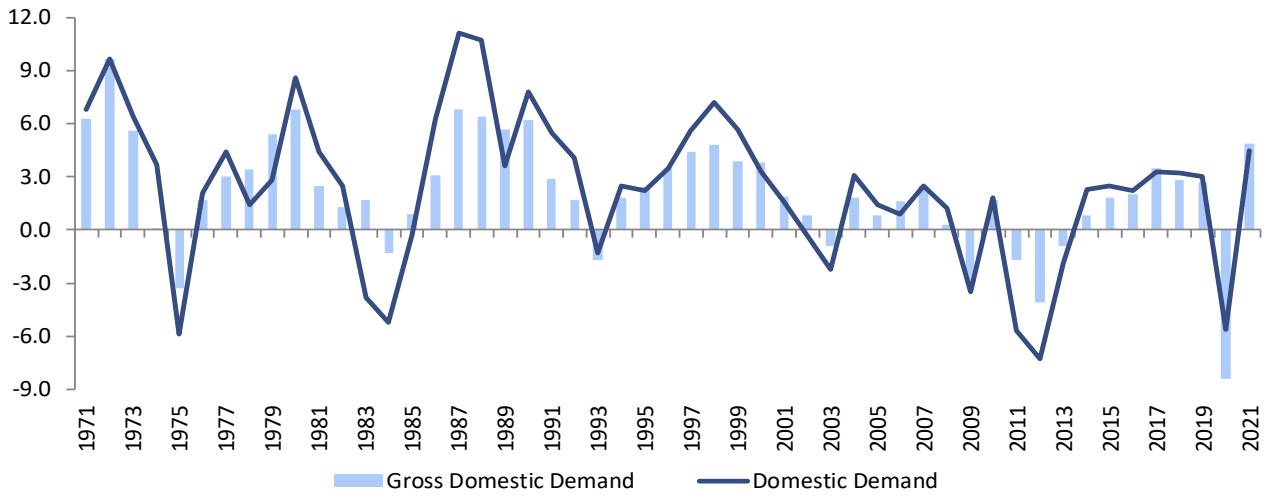
Gross Domestic Product (GDP), in real terms, registered a year-on-year rate of change of 5.8% in the fourth quarter of 2021 (4.4% in the previous quarter). The contribution of net external demand to the year-on-year rate of change of GDP was positive, contrarily to what happened in the third quarter, reflecting an acceleration of Exports of Goods and Services in volume. The contribution of domestic demand was also positive and slightly higher than in the third quarter. It should be noted that in the fourth quarter of 2021, there was a significant loss in terms of trade, more intense than in the previous two quarters, with a pronounced growth in import deflator, notably due to energy products and raw materials.

Compared to the third quarter of 2021, GDP increased by 1.6% in volume (2.8% in the previous quarter), with a decline of the positive contribution of net external demand to the quarter-on-quarter rate of change of GDP.

In 2021, GDP grew by 4.9%, in volume, the highest growth since 1990, following the historical decline of 8.4% in 2020, which resulted from the adverse effects of the COVID-19 pandemic on economic activity. Domestic demand presented a significant positive contribution to the annual rate of change of GDP, after being markedly negative in 2020, with a recovery of private consumption and investment. In the same direction, the contribution of net external demand was significantly less negative in 2021, with exports and imports of goods and services growing significantly.

In nominal terms, GDP increased by 5.7% in 2021, slightly surpassing 211 billion euros.

Figure 1. Gross Domestic Product and Domestic Demand
Volume (reference year =2016)
Annual rate of change, %



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The results presented[1] in this press release correspond to the preliminary version of the Annual National Accounts for 2021. Compared with the Flash Estimate for the fourth quarter released on the 31st of January by Statistics Portugal, there was no revision of the annual rate of change of GDP in volume. However, in quarterly terms, the use of new information resulted in revisions in the year-on-year and quarter-on-quarter rates of change of GDP of some quarters.

GDP in real terms increased by 4.9% in 2021

In 2021, GDP registered a rate of change of 4.9% in real terms, the highest since 1990, following the historical decline of 8.4% in 2020, which reflected the extraordinary negative effect of the COVID-19 pandemic on economic activity. In nominal terms, GDP increased by 5.7% in 2021 (-6.7% in 2020), slightly surpassing 211 billion euros.

Domestic demand recovered significantly in 2021, with a rate of change of 5.0% in real terms (-5.6% in the previous year), shifting from a contribution to GDP annual rate of change of -5.5 percentage points in 2020 to 5.2 percentage points in 2021.

Figure 2. **Decomposition of GDP rate of change (volume)**

	2017	2018	2019	2020	2021
	Annual rate of change (%)				
Domestic Demand	3.3	3.2	3.1	-5.6	5.0
Exports (FOB)	8.4	4.1	4.1	-18.6	13.0
Imports (FOB)	8.1	5.0	4.9	-12.1	12.8
GDP	**3.5**	**2.8**	**2.7**	**-8.4**	**4.9**
Contributions to GDP rate of change (percentage points)					
Domestic Demand	3.3	3.1	3.0	-5.5	5.2
External Demand Balance[1]	0.2	-0.3	-0.3	-2.9	-0.2

[1] - External Demand Balance (Exports less Imports)
- Differences may occur due to non-additivity of chain-linked volume data and rounding
- 2017 to 2019:final data; 2020: provisional data; 2021: preliminary data.

Private consumption (Final Consumption Expenditures of Resident Households and Non-Profit Institutions Serving Households) registered an increase of 4.4%, in real terms, partially recovering from the 7.1% reduction recorded in 2020. This evolution mainly reflected the behaviour of households' consumption expenditures in services and non-durable goods excluding food and beverages, which shifted from a contraction of 10.4% in 2020 to an increase of 5.4%. With a different behaviour, the food and beverages component slowed down, shifting from a growth rate of 4.8% in 2020 to 1.5% in 2021. The durable goods component increased by 4.6%

[1] In addition to the tables attached to this press release, a broader set of information is available on the National Accounts section of Statistics Portugal website at http://www.ine.pt/xportal/xmain?xpid=INE&xpgid=ine_cnacionais&xlang=en.

in 2021 (rate of change of -7.7% in 2020), with a slight growth in the motor vehicle component, after the historic decrease of the previous year, and an acceleration of consumption expenditures s in other durable goods.

Figure 3. Components of domestic demand

	2017	2018	2019	2020	2021
	Annual rate of change (%)				
Domestic Demand	**3.3**	**3.2**	**3.1**	**-5.6**	**5.0**
Private Consumption[1]	2.1	2.6	3.3	-7.1	4.4
Public Consumption[2]	0.2	0.6	2.1	0.4	5.0
Investment	11.9	7.8	3.3	-5.7	7.2

[1] - Final Consumption Expenditure of Resident Households and NPISHs
[2] - Final Consumption Expenditure of General Government

In 2021, public consumption (Final Consumption Expenditure of General Government) accelerated significantly in real terms, registering a rate of change of 5.0% (0.4% in the precedent year). It should be noted, that in 2020 there was a negative impact on non-market production in volume, caused by the measures adopted to reduce the spread of COVID 19, which implied the closure of several public services, particularly in the second quarter. In nominal terms, public consumption grew by 5.8% (5.1% in 2020).

Investment increased by 7.2%, in real terms, in 2021, recovering from the 5.7% contraction recorded in the previous year. Gross Fixed Capital Formation (GFCF) increased by 6.1% (-2.7% in 2020), while Change in Inventories presented a contribution of +0.2 percentage points to the annual GDP rate of change (contribution of -0.5 percentage points in 2020). GFCF in Other Machinery and Equipment registered a significant increase of 11.5% in 2021 (-6.3% in the previous year) and GFCF in Transport Equipment shifted from a marked contraction of 27.5% in 2020 to a 2.4% growth in 2021. In the same direction, GFCF in Construction accelerated in 2021 to a growth rate of 3.5% (1.6% in 2020), and GFCF in Intellectual Property Products increased by 8.2% (3.0% in the previous year).

Figure 4. Gross Fixed Capital Formation (volume)

	2017	2018	2019	2020	2021
	Annual rate of change (%)				
Total	**11.5**	**6.2**	**5.4**	**-2.7**	**6.1**
Of which:					
Transport Equipment	10.7	7.9	2.5	-27.5	2.4
Other Machinery and Equipment[1]	13.0	9.2	1.6	-6.3	11.5
Construction	12.2	4.7	7.6	1.6	3.5
Intellectual Property Products[2]	8.8	6.4	6.8	3.0	8.2

[1] - Includes weapon systems; [2] - includes Research and Development (R&D)

Net external demand presented a contribution of -0.2 percentage points, after the contribution of -2.9 percentage points in 2020. Exports and Imports of Goods and Services increased by 13.0% and 12.8% in 2021, respectively, following the significant contractions registered in 2020 (-18.6% in the case of exports and -12.1%

in the case of imports). Exports of goods increased by 11.1% in 2021 (-11.4% in 2020), while exports of services featured a rate of change of 18.6% (-34.0% in 2020). In the case of services, this result reflects the significant increase in the tourism component (25.5% rate of change), after the strong contraction observed in 2020, still remaining around 50% below the level registered in 2019. With a similar evolution, imports of goods grew by 11.9% (-10.3% in 2020), and imports of services by 18.1% (-21.1% in 2020).

Figure 5. Exports and Imports of Goods (FOB) and Services (volume)

	2017	2018	2019	2020	2021
	Annual rate of change (%)				
Exports	**8.4**	**4.1**	**4.1**	**-18.6**	**13.0**
Goods (FOB)	6.1	3.4	3.6	-11.4	11.1
Services	13.7	5.8	5.0	-34.0	18.6
Imports	**8.1**	**5.0**	**4.9**	**-12.1**	**12.8**
Goods (FOB)	8.3	4.9	4.2	-10.3	11.9
Services	7.2	5.6	8.6	-21.1	18.1

In 2021, within a context of strong price increases, particularly in the second semester, there was a significant loss in the terms of trade, with the deflator of Imports of Goods and Services registering a rate of change of 7.6% (-3.4% in 2020) and the deflator of Exports of Goods and Services increasing by 6.0% (-2.4% in 2020). This difference between deflators partially reflected the more intense effect of the increases in the prices of energy goods in the evolution of the deflator of imports.

Figure 6. Exports and Imports of Goods (FOB) and Services (Implicit deflators)

	2017	2018	2019	2020	2021
	Annual rate of change (%)				
Exports	3.0	2.3	0.5	-2.4	6.0
Imports	3.8	2.8	-0.3	-3.4	7.6
Terms of Trade	**-0.8**	**-0.5**	**0.8**	**1.1**	**-1.5**

In nominal terms, the External Balance of Goods and Services was more negative in 2021, shifting from -2.1% of GDP in 2020, to -3.0% of GDP.