Advanced Placement Microeconomics

Summer Assignment

Congratulations on your choice to take AP Microeconomics!

Enclosed are your introductory readings and assignments for the 2013-2014 school year. This packet has been used at Wesley Chapel High School as a preparation for this course and has proven to successfully jump start student's learning. You are being provided with readings and assignments that will give you a solid overview of the basic economic principles and concepts.

After reading this packet you should be prepared to summarize and explain all the concepts and topics. In addition, you should complete all assignments and questions, located at the end of the reading assignments.

You will be expected to turn in your work (10 assignments) on the 2nd day of class and you will be given a preliminary assessment to gauge your level of understanding on this material.

A supplemental text is also suggested to augment your economic studies.

Strive for a 5: Preparing for the Microeconomics AP Examination. Ray, Margaret. Worth Publishers 2011

Good luck and see you in August!

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Reading Sources:
Economics by Example. Anderson, David. Worth Publishers 2007
Foundations of Economics. Bade, Robin. Pearson Education
Advanced Placement Economics: Micro Student Activities. Morton, John. 2005
Freakonomics. Levitt and Dubner. Harper Collins. 2005

Economic Key/Essential Ideas

- Scarcity exists because we have limited resources and unlimited wants. No society has ever had enough resources to produce all the goods and services its members wanted.
- Goods and services are produced from productive resources. These resources — land, labor, capital and entrepreneurship — are limited.
- Scarcity requires people to make choices. If we use scarce resources for one purpose, we cannot use them for another.
- Opportunity cost is the forgone benefit of the next best alternative when resources are used for one purpose rather than another.
- Because of scarcity, every decision has an opportunity cost.
- Economic costs take account of the opportunity cost of doing one thing rather than another.
- Economic costs include explicit costs, which are paid directly, and implicit costs, which are not paid directly. Both implicit and explicit costs are opportunity costs.
- Using free goods does not involve opportunity cost because free goods are available in unlimited quantities.
- Economics is concerned with marginal decision making. In economics, "making decisions at the margin" is very important. Marginal choices involve the effects of additions and subtractions from the current situation the amount of the other good that must be given up in order to produce the additional amount of the first good.
- Because resources are scarce, using them efficiently allows us to get the most from them. Efficiency is increased through specialization and trade. Economists use the concepts of absolute advantage and comparative advantage to explain why trade takes place between countries and between individuals. These concepts are based on the differences in the opportunity costs of producing goods and services in different areas or by different individuals.
- Because of scarcity, people and societies use economic systems to determine what to produce, how to produce and for whom to produce.
- Throughout history, nations have used tradition, command and market systems to allocate resources.
- The law of comparative advantage shows how everyone can gain through trade.
- Economic theory is useful in analyzing and understanding the world around us.
- The test of an economic theory is its ability to predict correctly the future consequences of economic actions.
- The broad social goals of a society influence decisions about how best to use resources.

- A diagram of the circular flow of resources, goods and services, and money-income payments is a simplified way of illustrating how a market economy operates. Prices in the product market and prices in the factor, or resource, market are determined by the interaction of supply and demand. This diagram is also called the circular flow of income.
- A production possibilities, curve can be used to illustrate scarcity, choices and opportunity cost diagrammatically.
- The slope of a production possibilities curve shows the opportunity cost of producing another unit of one good in terms of the other.

What's to Love About Economics? Virtues of the Economic Way of Thinking

Once a year, 100 fun-loving individuals descend on a college town for a week of work and play. The group includes surfers, Ironman triathletes, hula dancers, weight lifters, vegetarians, musicians, world travelers, and water polo coaches. They frequent local ballgames, racetracks, and karaoke nights, where songs such as "Sweet Transvestite" and "New York, New York" are belted out with gusto. They flood the sushi bars, bistros, and trendy cafes. What's the common denominator among this crowd of hip, talented women and men? They're all economics instructors like your own, gathered to grade a standardized national economics exam. What makes economics so exciting that it inspires all sorts of people to devote their lives to conveying its wisdom? There are many answers to that question; what follows is the tip of the iceberg.

ECONOMICS IS EVERYWHERE

Economics doesn't simply appear in books or lurk in bank vaults. Economics is above you in airplanes, below you in coal mines, behind the fabric content of your clothing, and underpinning the politics of your nation. Economics is the study of limited resources and unlimited wants. The broad scope of this discipline results from the limits on virtually every human want. Beyond money, there are limited supplies of time, information, clean water and air, potential spouses, employers, employees, NCAA Final Four basketball tickets, and everything you would buy if you won the lottery. Economics is behind your choice to go to school, the cinnamon in your latte, your adherence to laws (or lack thereof), and the public policies of your government. Economics is also the lens through which people who seek happiness should look before making decisions. Consider an example: Have you ever skipped class? Skipping is an option you confront daily, and you must decide how often to tempt fate with truancy. Economists explain that firms confront their production decisions by considering the additional cost and benefit of each unit and manufacturing more units until the additional benefit no longer exceeds the additional cost. If you're maximizing your happiness, you do the same thing when deciding whether to attend class.

Centre College student Adair Howell skipped class recently for a *Today Show* interview as the winner of the *Cosmo* Cover Model Contest. If skipping one class allows you to launch a new career, like Adair, or to get treatment for a deadly illness, the substantial benefit exceeds the limited cost of the first class missed, which might be a few hours of extra reading and note copying. The second most important reason to skip class might be that your sports team has a competition. The third best reason might be that you're simply not in the mood. As the reasons to skip become more trivial, the costs of additional misses mount. In running, they say that if you miss 1 day of training, only you know it; if you miss 2 days, the competition knows it; and if you miss 3 days, the crowd knows it. In education, an analogous story might be that missing 1 day of class affects your conscience; missing 2 days affects your grade; and missing many days affects your future.

In order to determine the number of skips that will make you as well off as possible, you should skip until the additional benefit no longer exceeds the additional cost. (Don't get the wrong impression; if you're not interviewing, ill, or bereaved, the optimal number of skips may well be 0.) With the additional benefit falling and the additional cost rising, any subsequent skips do more harm than good. Economists call the additional benefit from 1 more of something the *marginal benefit* and the additional cost of 1 more of something the *marginal cost*. Thus, you should skip until the marginal cost equals the marginal benefit.

You weigh marginal costs against marginal benefits every day. You know that eating too much pie can make you gain weight, but the first few bites create a lot of pleasure and not a lot of weight. As your hunger is satisfied, the benefit of each additional bite; decreases and its cost (in terms of excessive caloric intake)

increases. Eventually, the marginal cost of another bite of pie will exceed its marginal benefit, and it's time to stop eating. If it's the best pie you've ever tasted, the marginal benefit is higher, .and you'll eat more of it. Sometimes even indigestion is well justified. In 2005, high marginal benefits led Timothy Janus to eat 6 pounds of shoofly pie in one sitting—he won 82,000 and fame at the Alka-Seltzer U.S. Open of Competitive Eating.[1]

The study of where marginal benefit meets marginal cost leads to the efficient out comes that economists cherish. How many hours should you spend in the library? How many laps should you swim in the pool? How much time should you spend in the shower? The answer is always the same: Just do it until the marginal benefit equals the marginal cost and you couldn't do any better.

ECONOMIC TOOLS CAN ADDRESS WEIGHTY ISSUES- It's no secret that economic theory helps businesspeople make decisions about prices, production levels, and manufacturing methods that maximize profits. The economic way of thinking also applies to the most difficult dilemmas facing society. Economic theory can address troubling problems with poverty, crime, pollution, education, health care, the legal system, child care, transportation systems, water shortages, population growth, biodiversity loss, sustainable development, and energy, to name a few.

Consider the issue of how to punish people who break the law. Suppose that each song illegally downloaded from the Internet costs society $1 in lost wages for sound mixers, CD store employees, advertisers, musicians, and others in the recording industry. As mentioned in the preceding truancy example, efficiency dictates that each activity should continue until the additional (or marginal) benefit equals the additional (or marginal) cost. For simplicity, we're assuming that the marginal cost of downloading a song remains constant at $1 and that the value of the time spent downloading is negligible. If the benefit to the recipient from downloading another song exceeds the cost to society, the download creates a net gain for society and it is efficient (although still illegal) to carry it out.

How can we bring about the efficient level of downloading? One way would be to successfully enforce a penalty of $1 for each download. If music lovers had to pay a $1 fine per download, they would download only songs that were worth at least $1 to them. Inefficient downloads that were worth less than the $1 cost to society could not occur. The trouble is that it would be dreadfully expensive to provide the level of policing required to detect every download.

Economic theory can help with that problem, too. Suppose that downloads were monitored only half the time, but only the monitors knew which half, meaning that half of all downloads were caught. With, a fine of $2 that was paid half the time, downloader's would expect to pay an average of $1 per song downloaded. That is, with a 50 percent chance of having to pay $2, the expected fine per song downloaded would be one-half times $2, or $1. Music lovers who made decisions on the basis of the expected fine would still download only when their benefit from a song exceeded the cost to society.

The expected fine would also be $1 if there were a l-in-10 chance of paying $10, a l-in-100 chance of paying $100, or a l-in-1,000 chance of paying $1,000. For music lovers who don't have a particular preference for, or aversion to, risk taking, any of these combinations would provide the proper incentive to limit downloads to the efficient number. With this in mind, law enforcement costs can be reduced without altering the incentives to obey the law by charging higher fines and only spending enough on enforcement to catch a smaller number of offenders. You'll read more about the economics of risk and uncertainty in Part 8.

ECONOMIC FINDINGS CAN BE SPECIFIC AND COMPELLING- What special powers do people trained in economics have that allow them to make strong arguments and precise recommendations? They may not be superheroes, but they brandish advanced quantitative tools, detailed methods of reasoning, the highroad goal of maximizing social welfare, and the use of assumptions to leap tall complexities in a single bound. Let's look at each of these powers in turn.

Quantitative Tools- Economists delve deeply into quantitative methods that yield precise answers to important questions. Because economics is about the realities facing each of us on a daily basis, the meatiest topics within economics are concrete and visible and can be discussed without advanced math, as is the case in this book. If this exposition whets your appetite for an understanding of the more rigorous side of economics, you will encounter mathematical models in other textbooks— but they will turn out to be more straightforward than they look, again because they are simply representations of situations that we all experience in daily life. As you read on about economic findings, you may well become persuaded that the evidence gained by applying quantitative tools provides benefits that far exceed any associated costs.

For example, you have probably heard people debating whether forests should be cut for lumber or

preserved to protect species such as the spotted owl. Thanks to quantitative tools, economists can advance this debate from "Gee, the birds are great, but we want more homes and jobs, so we're confused" to "The long-term cost of saving the owl in terms of logging jobs and timber prices is $0.62 million, whereas the long-term value of owl preservation to humans is $1.84 million, so there's a $1.22 million net gain from saving the owls" (paraphrased from a 1991 study by Rubin, Helmand, and Loomis figures adjusted for inflation). Sure, estimates may differ; depending on the research method and the underlying assumptions, but it is useful to obtain objective estimates of the costs and benefits of such decisions as an alternative to acting purely on the basis of gut feelings and stabs in the dark. The quantitative tools of economics make these estimates possible.

Economic Reasoning- The crux of economic reasoning, as you've already read in this chapter, is that any activity should be continued until the additional benefits from doing so no longer exceed the additional costs. Consideration of these costs and benefits can yield specific estimates of just how loud a sound system should be, how long one should sunbathe on the beach, how low a thermostat should be set, and how far one should go in school. The availability of specific answers to common puzzles is one reason why some people get excited about economics.

Here's an example: Using information on the costs and benefits of going to school for each year, students can pinpoint the best plans for their formal educations. Jennifer Day and Eric Newburger studied the average annual income of full-time workers in the United States.[2] Relative to a person with some high school education but no diploma; they found that the average worker with a high school diploma earns about $7,000 more each year. Workers with bachelor's degrees earn $22,000 more than the high school graduates, and those with professional degrees earn $57,000 on top of that.[3] These financial benefits are augmented by any nonfinancial benefits a particular person would receive from the higher-paying jobs to which education provides access, such as more job security, lighter physical burdens, and cleaner working conditions. For comparison, the direct costs of going to school for another year are readily available—typically about $25,000 for each year of college. These costs can be combined with the cost of forgoing work to go to school and with the nonfinancial burdens of school to determine the appropriate educational goals for a particular student. Sec www.census.gov/prod/2002pubs/p23-210.pdf.[3] The learning associated with diplomas is only part of the reason for higher earnings. Employers use educational attainment as an indication or "signal" of associated attributes, such as intelligence and diligence that make for more productive workers.

Clear and Defensible Objectives- Economic analysis can be applied in myriad contexts to pursue objectives ranging from profit maximization to everlasting bliss. When economists consider public policy, the default goal is the greatest possible net gain to society. This goal is achieved by addressing questions of what, how, and for whom to produce with an eye on *efficiency*. Think of efficiency as maximizing the size of the "pie" that represents social veil-being, profit, personal happiness, or any other particular objective. As we'll discuss in greater detail in Part 6, efficient outcomes exhaust all opportunities for net gains.

Once the net gains from government policies are maximized, society must grapple with the *equity* consideration of how to divide the pie among potential recipients. For example, public lands could be opened to loggers, sold to developers, maintained as Darks for tourists, or donated to the homeless. It would be efficient to use the land "or the purpose that provides the greatest overall net benefits, but the most efficient outcome often conflicts with equity considerations. The greatest net benefits might come from a park, but interests in equity point toward helping the homeless. Economists study taxes, subsidies, and entitlement programs that can distribute the gains from efficiency in a more equitable manner. For example, if a particular tract of public land would be more valuable to park visitors than to the homeless, the best solution might be to create a park on the land, impose a tax on visitors, and use the tax revenues to pay for homeless shelters elsewhere.

In 2006, the U.S. Forest Service sought the sale of 200,000 acres of public land to raise about $800 million for schools and road maintenance in underprivileged rural areas.[4] The Wilderness Society argued that the land

would be more valuable to the country if it remained in public hands.[5] Suppose the land is worth $800 million to the private individuals who would purchase it and $1 billion to the broader U.S. citizenry. In that case, the efficient solution is to maximize the size of the pie—the benefits from this land—by maintaining public ownership. With creative slicing of the pie, the goals of the land sale can be achieved even if the land is not sold. For example, the public beneficiaries of the $1 billion worth of land could be taxed $800 million to pay for rural schools and roads. In this way, the land would be used for its most valued purpose, the rural areas would benefit as under a land sale, and the U.S. public would receive a $200 million net gain equal to the $1 billion in benefits from the land minus the $800 million in new taxes. www.manbc.msn.com/idyiI257m/

Simplifying Assumptions- Sometimes less is more. Just as it's easier to follow a map that isn't muddled with markings for every tree, telephone wire, and parking space, researchers find simplifications useful when studying cause and effect. Consider the common assumption of ceteris paribus, a Latin phrase meaning that influences other than the one being studied remain unchanged. Suppose Lance Armstrong is biking down a mountain at 40 miles per hour (mph) and gets a flat tire. How will his speed be affected? Admittedly, many elements might come into play. If the tire blew out as Lance flew over a guardrail and went into a free fall, his speed would increase. Wet roads, a collision, or fatigue would all reduce his speed and reinforce the influence of the flat tire. Some people might throw up their hands and say it's impossible to determine for sure what would happen to Lance's speed when his tire went flat.

An economist is more likely to say, "*Ceteris paribus*, the bike will slow down." The economist is assuming that, except for the blowout, all elements of the situation—the weather, the biker's upright position, and so on—will remain the same. The *ceteris paribus* assumption allows the economist to address the issue in question without being hampered by complexities. Rather than neglecting other influences while making an estimate of speed, the economist can study each influence independently, with the assumption that the others remain unchanged. Economists use the *ceteris paribus* assumption when studying, for example, the effect of consumer demand on prices or the effect of labor unions on employee benefits. In reality, demand changes often coincide with changes in production costs that also affect prices, and unionization is one of many determinants of employee benefits; however, it is useful to isolate influences and assess them one at a time. In the end, economists can combine their data on individual influences to determine the result of several simultaneous changes, whereas skeptics who don't like to make assumptions are in free fall with a headache.

Another noteworthy and controversial assumption is that individuals behave rationally. In Chapter 2, we consider compelling evidence and implications of rational reasoning. Associated with the rationality assumption are expectations that we prefer more of a good thing, have goals, learn, and are consistent enough in *transitive preferences*. Suppose you prefer jazz to reggae music you prefer reggae to classical music. Given a choice between jazz and classical, what type of music would you select? If the answer is jazz, you are exhibiting the rationality of transitive preferences because your response is consistent with your preference ordering of jazz first, then reggae, and then classical music. An answer of classical music would violate that rationality. More generally, economists assume that appropriate decisions to maximize their happiness and that maximize their profits.

Is it rational to assume that people behave rationally? Economists think so for several reasons. Without transitive preferences it would be painfully difficult to make common decisions. If you liked cola better than water, juice better than cola, and (in violation of transitivity) water better than juice, you would cycle through these choices endlessly and spend far too much time in the beverage aisle of the grocery store. Firms with managers who behave irrationally are unlikely to last long, and the same could be said of people. Anyone who eats nails and sleeps in swimming pools is unlikely to survive to pass his or her irrational genes on to the next generation. Do business managers study the graphs and equations that indicate profit-maximizing prices and quantities? Sometimes they do, and other times they may use less formal analyses to derive similar conclusions. Likewise, Nobel laureate Milton Friedman notes that although expert pool players don't really measure all the angles and distances between billiard balls on a pool table or make complex mathematical calculations to find the speed and trajectory with which to strike the ball, they often take their shots as if they

did.

Of course, all of us have those mornings when we start to brush our hair with our toothbrushes and pour orange juice into our cereal. Economic theory can endure a few missteps by individuals or even a few people who never get things right. Economic theory yields useful conclusions as long as, on average, people's decisions are more rational than random, and that's true for most of us even on a bad day.

There are a number of schools of thought in economics that place different emphases on potential limits to human rationality. The institutionalists, inspired by the likes of Thorstein Veblen and Wesley Mitchell, emphasize social, institutional, and historical constraints on rationality, including predatory and acquisitive drives and instincts for workmanship and parenting. They argue that many decisions are made on the basis of rules of thumb and that there are bounds on rationality. In contrast, the Chicago school, whose current patriarchs include Milton Friedman and Gary Becker, is more optimistic that humans-can reliably be treated as rational actors. Chicago school economists defend the rationality of everything from family dynamics to drug addiction. As usual, each side makes valid points, and the truth probably lies somewhere in the middle. Either way, rest assured that the importance of economic theory does not require humans to be perfect.

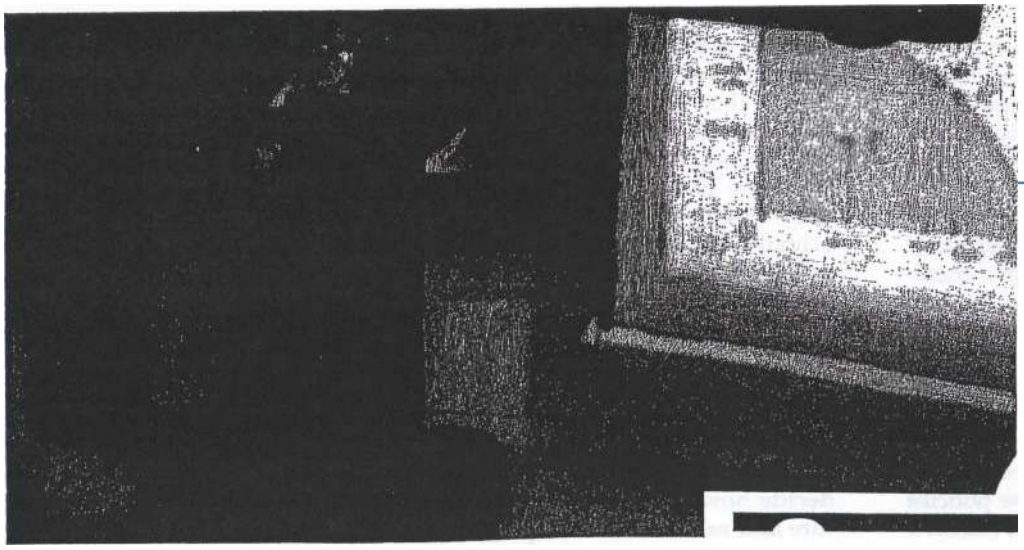
CONCLUSION

Thanks for giving economics a try. With these readings and this course under your belt, you will become more adept at making wise decisions, allocating resources, and maximizing the satisfaction of yourself and society. Regardless of whether you choose to join the surfers, singers, jocks, and karaoke singers who have devoted their professional lives to the science of economics, it's a good bet that the benefits you receive from this course will exceed the costs, and that makes it a most efficient and worthwhile undertaking.

Assignment 1:

Do law enforcement agencies really seek an efficient amount of law-breaking rather than no law-breaking?

Consider some illegal activities that might sometimes create more harm than good. How do penalties for these crimes compare with the penalties for crimes that are less likely ever to be efficient? How much should people be fined for doing something that we really want to prohibit from ever happening?



How People Make Decisions

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 actions of millions of households and firms. Economists therefore study how people make decisions: how much they work, what they bay/ 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.

Although the study of economics has many facets, the field 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 don't find them completely convincing. In later chapters, we will explore these ideas more fully. The ten principles are introduced here to give you an overview of what economics is all about. YOU can think of this chapter as a "preview of coming attractions."

Ten Principles of Economics

The word *economy* comes from the Greek word "*oikonomo*", 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 members of the household do which tasks and what each member gets in return: Who cooks dinner? Who does the laundry? Who gets the extra dessert at dinner? Who gets to choose what TV show to watch? In short, the household must allocate its scarce resources among its various members, taking into account each member's abilities, efforts, and desires.

Like a household, a society faces many decisions. A society must 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 output of goods and services that 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.

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 a household cannot give every member everything he or she wants, a society cannot give every Individual the highest standard of living to which he or she might aspire.

There is no mystery to what an economy is. Whether we are talking about the economy of Los Angeles, of the

United States, or of the whole world, an economy is just a group of people interacting 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 start our study of economics with four principles of individual decision making.

Principle 1: People Face Trade-offs

The first lesson about making decisions is summarized in the adage "There is no such thing as a free lunch." To get one thing that we like, we usually have to give up another thing that we 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; she can spend all of her time studying psychology; or she can divide her time 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 the 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 tradeoffs. The classic trade-off is between "guns and butter." The more we spend on national defense (guns) to protect our shores from foreign aggressors, the less we can spend on consumer goods (butter) to raise our standard of living at home. Also important in modern society is the trade- off between a clean environment and high level of income. Laws that require firms to reduce pollution raise the cost of producing goods and services. Because of the higher costs, these firms end up earning smaller profits, paying lower wages, charging higher prices, or some combination of these three. Thus, while pollution regulations give us the benefit of a cleaner environment and the improved health that comes with it, they have the cost of reducing the incomes of the firms' owners, workers, and customers.

Another trade-off society faces is between efficiency and equity. Efficiency means that society is getting the maximum benefits from its scarce resources. Equity means that those benefits are distributed fairly among society's members. In other words, efficiency refers to the size of the economic pie, and equity refers to how the pie is divided. Often, when government policies are designed, these two goals conflict.

Consider, for instance, policies aimed at achieving a more equal 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. Although these policies have the benefit of achieving greater equity, they have a cost in terms of reduced 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, acknowledging life's trade-offs is important because people are likely to make good decisions only if they understand the options that they have available.

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 some action is not as obvious as it might first appear.

Consider, for example, the decision to go to college. The benefit is intellectual enrichment and a lifetime of better job opportunities. But what is the cost? 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.

The first problem with this answer is that 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. Indeed, the cost of room and board at your school might be less than the rent and food expenses that you would pay living on your own. In this case, the savings on room and board are a benefit of going to college. The 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 wages given up to attend school are the largest single cost of their education.

The opportunity cost of an item is what you give up to get that item. When making any decision, such as whether to attend college, 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 their opportunity cost of college is very high. It is not surprising that they often decide that the benefit is not worth the cost.

Principle 3: Rational People Think at the Margin

Economists normally assume that people are rational. Rational people systematically and purposefully do the best they can to achieve their objectives, given the opportunities they have.

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 encounter consumers who buy a bundle of goods and services to achieve the highest possible level of satisfaction, subject to their incomes and the prices of those goods and services.

Rational people know that decisions in life are rarely black and white but usually involve shades of gray. At dinnertime, the decision you face is not between fasting or eating like a pig but whether to take that extra spoonful of mashed potatoes. When exams roll around, your decision is not between blowing them off or studying 24 hours a day but whether to spend an extra hour reviewing your notes instead of watching TV. Economists use the term marginal changes to describe small incremental adjustments 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*.

For example, 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. In fact, however, the airline can raise its profits by thinking at the margin. Imagine that a plane is about to take off with ten empty seats, and a standby passenger waiting at the gate will 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 minuscule. Although the average cost of flying a passenger is $500, 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 any 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. Although water is essential, 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 can explain why airlines are willing to sell a ticket 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.

Principle 4: People Respond to Incentives

An incentive is something (such as the prospect of a punishment or a 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 simply summarized: "People respond to incentives. The rest is commentary."

Incentives are crucial to analyzing how markets work. For example, when the price of an apple rises, people decide to eat more pears and fewer apples because the cost of buying an apple is higher. At the same time, apple orchards decide to hire more workers and harvest more apples because the benefit of selling an apple is also higher. As we will see, the effect of a good's price on the behavior of buyers and sellers in a market—in this case, the market for apples— is crucial for understanding how the economy allocates scarce resources.

Public policymakers should never forget about incentives because many policies change the costs or benefits that people face and, therefore, 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 gasoline tax also encourages people to take public transportation rather than drive and to 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 results they did not intend. For example, consider public policy regarding auto safety. Today, all cars have seat belts, but this was not true 50 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 a major 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 tune and energy. When deciding how safely to drive, rational people compare the marginal benefit from safer driving to the marginal cost. They drive more slowly and carefully when the benefit of increased safety is high. It is no surprise, for instance, that people drive more slowly and carefully when roads are icy than when roads are clear. Consider how a seat belt law-alters a driver's cost-benefit calculation. Seat belts improve the chances of survival during a collision reducing 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 end 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 showed 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 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 indirect and sometimes less obvious effects that work through incentives. If the policy changes incentives, it will cause people to alter their behavior.

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.

Principle 5: Trade Can Make Everyone Better Off

You have probably heard on the news that the Japanese are our competitors in the world economy. In some ways, this is true because American and Japanese firms produce many of the same goods. Ford and Toyota compete for the same customers in the market for automobiles. Apple and Sony compete for the same customers in the market for digital music players. Yet it is easy to be misled when thinking about competition among countries.

Trade between the United States and Japan 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, he or 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. 1 So in a sense, each family in the economy is competing with all other families. 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 3 activities he or 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 Japanese, 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.

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 may be the most important change in the world during the past half century. Communist countries worked on the premise that government officials were in the best position to determine the allocation of scarce resources in the economy. 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.

Today, most countries that once had centrally planned economies have abandoned this system and are trying to develop 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.

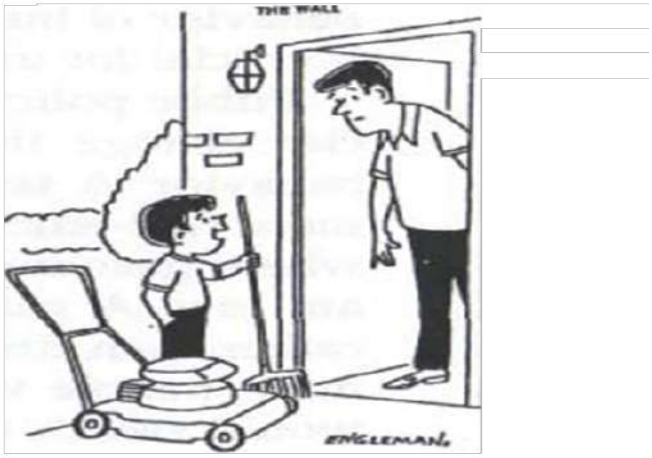
At first glance, the success of market economies is puzzling. After all, in a market economy, no one is looking out for the economic well-being of society as a whole. Free markets contain many buyers and sellers of numerous goods and services, and all of them are interested primarily in their own well-being.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

There is an important corollary to the skill of the invisible hand in guiding economic activity: When the government prevents prices from adjusting naturally to supply and demand, it impedes the invisible hand's ability to coordinate the millions of households and firms that make up the economy. This corollary explains why taxes adversely affect the allocation of resources: Taxes distort prices and thus the decisions of households and firms. It also explains the even greater 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 information that gets reflected in prices which are free to respond to market forces. Central planners failed because they tried .to run the economy with one hand tied behind their backs—the invisible hand of the marketplace



"FOR $5 A WEEK YOU CAN WATCH BASEBALL WITHOUT BEING NAGGED TO CUT THE GRASS!"

WELL IT MAY HAVE BEEN 68 CENTS WHEN YOU GOT IN LINE, BUT IT'S 74 CENTS NOW!"

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 key to a market economy. Most important, markets work only if property rights are enforced. A farmer won't grow food if he expects his crop to be stolen; a restaurant won't serve meals unless it is assured that customers will pay before they leave; and a music company won’t produce CDs 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, more profound reason we need government: The invisible hand is powerful, but it is not omnipotent. Although markets are often a good way to organize economic activity, this rule has some important exceptions. 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 and to promote

equity. That is, most policies aim either to enlarge the economic pie or to change how the pie is divided.

Consider first the goal of efficiency. Although the invisible hand usually leads markets to allocate resources efficiently, 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. 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. Another possible cause of market failure is market failure, which refers to the ability of a single person (or 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. In the presence of externalities or market power, well-designed public policy can enhance economic efficiency.

The invisible hand may also fail to ensure that economic prosperity is distributed equitably. 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. Many public policies, such as the income tax and the welfare system, aim to achieve a more equitable 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 equity and when it is not.

Assignment 2:

List and briefly explain the three principles concerning people's economic interactions.

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.

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 2003, the average American had an income of about $37,500. In the same year, the average Mexican earned $8,950, and the average Nigerian earned $900. Not surprisingly, this large variation in average income is reflected in various measures of the 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 income has risen about eightfold.

What explains these large differences in living standards among countries and over tune? 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 from each hour of a worker's time. In nations where workers can produce a large quantity of goods and services per unit of tune, 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.

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 needed to produce goods and services, and have access to the best available technology.

Principle 9: Inflation Occurs When Government Prints Too Much Money

In Germany in January 1921, a daily newspaper cost 0.30 marks. Less than 2 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 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 in Germany in the 1920s, inflation has at times been an economic problem. During the 1970s, for instance, the overall level of prices more than doubled, and President Gerald Ford called inflation "public enemy number one." By contrast, inflation in the 1990s was about 3 percent per year; at this rate, it would take more than 20 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 the 1990s was associated with slow growth in the quantity of money.

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 more 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 increase the quantity of goods and services they produce and to hire more workers to produce those 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 I regardless of whether inflation and unemployment both start out at high levels 5 (as they were in the early 1980s), at low levels (as they were in the late 1990s), or E 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 or goods and services or the number of people employed. 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 combination of inflation and unemployment that the economy experiences. Because these instruments of economic policy are j potentially so powerful, how policymakers should use these' instruments to control the economy, if at all, is a subject of

continuing debate.

Assignment 3.

List and briefly explain the three principles concerning people's economic interactions.

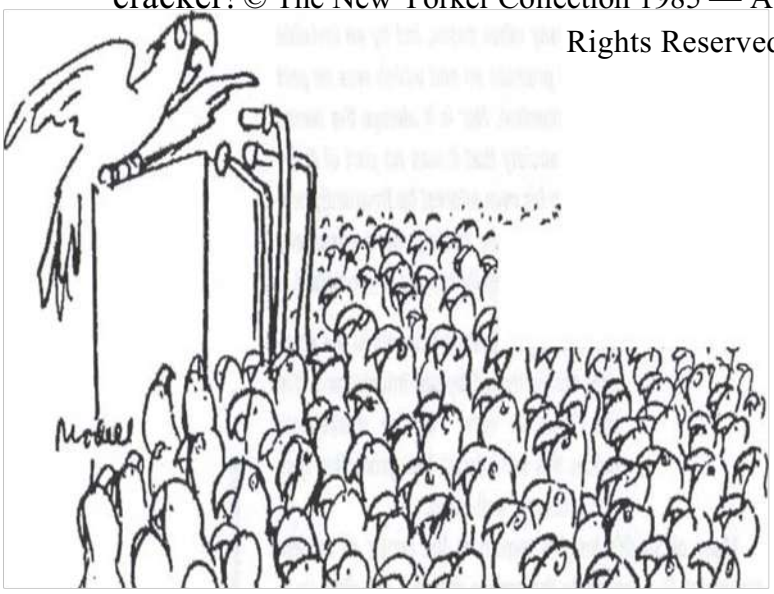
All economic questions and problems arise because human wants exceed the resources available to satisfy them. We want good health and long lives. We want spacious and comfortable homes. We want a huge range of sports and recreational equipment from running shoes to jet skis. We want the time to enjoy our favorite sports, video games, novels, music, and movies; to travel to exotic places; and just to hang out with friends.

Scarcity

Our inability to satisfy all our wants is called scarcity. The ability of each of us to satisfy our wants is limited by the time we have, the incomes we earn, and the prices we pay for the things we buy. These limits mean that everyone has unsatisfied wants. The ability of all of us as a society to satisfy our wants is limited by the productive resources that exist. These resources include the gifts of nature, our labor and ingenuity, and tools and equipment that we have made.

Everyone, poor and rich alike, faces scarcity. A child wants a $1.00 can of soda and two 50 packs of gum but has only $1.00 in his pocket. He faces scarcity. A millionaire wants to spend the weekend playing golf and spend the same weekend at the office attending a business strategy meeting. She faces scarcity. The U.S. government wants to increase defense spending and cut taxes. It faces scarcity. An entire society wants improved health care, an Internet connection in every classroom, an ambitious space exploration program, clean lakes and rivers, and so on. Society faces scarcity.

Not only do I want a cracker—we all want a cracker! © The New Yorker Collection 1985 — All Rights Reserved.



Faced with scarcity, we must make choices. We must choose among the available alternatives. The child must choose the soda or the gum. The millionaire must choose the golf game or the meeting. The government must choose defense or tax cuts. And society must choose among health care, computers, space exploration, the environment, and so on. Even parrots face scarcity!

Economics Defined

Economics is the social science that studies the choices that individuals, businesses, governments, and entire societies make as they cope with *scarcity* and the *incentives* that influence and reconcile those choices.

The subject is extremely broad and touches all aspects of our lives. To get beyond this definition of economics, you need to understand the kinds of questions that economists try to answer and the way they think and go about seeking those answers.

We begin with some key economic questions. Although the scope of economics is broad and the range of questions that economists address is equally broad, two big questions provide a useful summary of the scope of economics:

How do choices end up determining *what*, *how*, and *for whom goods* and services get produced?

When do choices made in the pursuit of self-interest also promote the *social interest*?

What, How, and For Whom?

Goods and services are the objects and actions that people value and produce to satisfy human wants. Goods are objects that satisfy wants. Running shoes and ketchup are examples. Services are actions that satisfy wants. Haircuts and rock concerts are examples. We produce a dazzling array of goods and services that range from necessities such as food, houses, and health care to leisure items such as DVD players and roller coaster rides.

What?

What determines the quantities of corn we grow, homes we build, and DVD players we produce? Sixty years ago, 25 percent of Americans worked on a farm. That number has shrunk to less than 3 percent today. Over the same period, the number of people who produce goods—in mining, construction, and manufacturing—has also shrunk, from 30 percent to 20 percent. The decrease in farming and the production of goods is matched by an increase in the production of services. How will these quantities change in the future as ongoing changes in technology make an ever-wider array of goods and services available to us?

How?

How are goods and services produced? In a vineyard in France, basket-carrying workers pick the annual grape crop by hand. In a vineyard in California, a huge machine and a few workers do the same job that a hundred grape pickers in France do. Look around you and you will see many examples of this phenomenon—the same job being done in different ways. In some supermarkets, checkout clerks key in prices. In others, they use a laser scanner. One farmer keeps track of his livestock feeding schedules and inventories by using paper-and-pencil records, while another uses a personal computer. GM hires workers to weld auto bodies in some of its plants and uses robots to do the job in others.

Why do we use machines in some cases and people in others? Do mechanization and technological change destroy more jobs than they create? Do they make us better off or worse off?

For whom are goods and services produced?

The answer to this question depends on the incomes that people earn and the prices they pay for the goods and services they buy. At given prices, a person who has a high income is able to buy more goods and services than a person who has a low income. Doctors earn much higher incomes than do nurses and medical assistants. So doctors get more of the goods and services produced than nurses and medical assistants get.

You probably know about many other persistent differences in incomes. Men, on the average, earn more than women. Whites, on the average, earn more than minorities. College graduates, on the average, earn more than high school graduates. Americans, on the average, earn more than Europeans, who in turn earn more, on the average, than Asians and Africans. But there are some significant exceptions. The people of Japan and Hong

Kong now earn an average income similar to that of Americans. And there is a lot of income inequality throughout the world.

What determines the incomes we earn? Why do doctors earn larger incomes than nurses? Why do white male college graduates earn more than minority female high school graduates? Why do Americans earn more, on the average, than Africans?

Economics explains how the choices that individuals, businesses, and governments make and the interactions of those choices end up determining *what, how, and for whom goods and services* get produced. In answering these questions, we have a deeper agenda in mind. We're not interesting in just knowing how many DVD players get produced, how they get produced, and who gets to enjoy them. We ultimately want to know the answer to the second big economic question that we'll now explore.

When Is the Pursuit of Self-Interest in the Social Interest?

Every day, you and 296 million other Americans, along with 6.1 billion people in the rest of the world, make economic choices that result in *"what," "how," and "for whom"* goods and services get produced.

Are the goods and services produced, and the quantities in which they are produced, the right ones? Do the scarce resources get used in the best possible way? Do the goods and services that we produce go to the people who benefit most from them?

Different nations use different economic systems to determine how to effectively use their limited resources to answer the three basic economic questions. The Primary goal of an economic system is to provide people with a minimum standard of living, or quality of life. The most popular and significant types of Economic Systems are listed and explained below.

1. **Traditional Economy**
2. **Market Economy (free enterprise)**
3. **Command Economy (planned)**
4. **Mixed Economy**

Traditional Economy- *Economies base on preserved values and customs. Usually rural, less-developed areas*: Mesi, Inuit, Amish. Customs govern the economic decisions that are made. Farming, hunting and gathering all jobs are done the same way as the generation before. Economic activities are centered around the family or ethnic unit. Men and women are given different economic roles and tasks. *Advantages*: people have specific roles; security in the way things are done. *Disadvantages*: Technology is not used; little innovation or improvements

Market Economy (Free Enterprise)- Also called a *Free Market Economy or Free Enterprise Economy*. Businesses and consumers decide what they will produce and purchase and in what quantities. Decisions are made according to law of supply & demand. Supply and demand of goods and services determine what is produced and the price that will be charged. *Advantage*: Competition spurs innovation, social mobility, many choices. *Disadvantage*: Rift between wealthy and poor, needs may not be met. Note: a true market economy does not exist. Closest example Singapore or Hong Kong

Command Economy-The government (or central authority) determines what, how, and for whom goods and services are produced. Strong Command (Communism) – central government makes all decisions (Venezuela, Cuba). Moderate Command (Socialism) – private enterprise exists but the state owns major resources (France and Sweden). *Advantages*: Guarantees equal standard of living for everyone, Less crime and

poverty, Needs are provided for through the government. *Disadvantages*: Minimal choices, Fewer choices of items , No incentive to produce better product or engage in entrepreneurship, Also known as a *Planned* or Managed Economy.

Mixed Economy-Combination of a market and a command economy. Government takes care of people's needs. Marketplace takes care of people's wants. Most nations have a mixed economy: United States, England, Australia. *Advantage*: Balance of needs and wants met by government and in marketplace. *Disadvantage*: Citizens have to pay taxes.

Self-Interest and the Social Interest

Choices that are the best for the individual who makes them are choices made in the pursuit of **self-interest**. Choices that are the best for society as a whole are said to be in the **social interest**. The social interest has two dimensions: *efficiency* and *equity*. We'll explore these concepts in later chapters. For now, think of efficiency as being achieved by baking the biggest possible pie. And think of equity as being achieved by sharing the pie in the fairest possible way.

You know that your own choices are the best ones for you—or at least you *think* they're the best at the time that you make them. You use your time and other resources in the way that makes most sense to you. But you don't think much about how your choices affect other people. You order a home delivery pizza because you're hungry and want to eat. You don't order it thinking that the delivery person or the cook needs an income. You make choices that are in your self-interest—choices that you think are best for you.

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 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 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 favor, and show them that it is for their own advantage to do for him what he requires of them. ... 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... 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 fully the strengths and weaknesses of the market's invisible hand.

Economist as a Scientist

While economists don't use test tubes or telescopes, they are scientists because they employ the *scientific method*—the dispassionate and objective development and testing of theories.

The scientific method: observation, theory, and more observation

Just as in other sciences, an economist observes an event, develops a theory, and collects data to test the theory. An economist observes inflation, creates a theory that excessive growth in money causes inflation, and then collects data on money growth and inflation to see if there is a relationship. Collecting data to test economic theories is difficult, however, because economists usually cannot create data from experiments. That is, economists cannot manipulate the economy just to test a theory. Therefore, economists often use data gathered from historical economic events.

The role of assumptions

Assumptions are made to make the world easier to understand. A physicist assumes an object is falling in a vacuum when measuring acceleration due to gravity. This assumption is reasonably accurate for a marble but not for a beach ball. An economist may assume that prices are fixed (can't be changed) or may assume that prices are flexible (can move up or down in response to market pressures). Since prices often cannot be changed quickly (the menu in a restaurant is expensive to change) but can be changed easily over time, it is reasonable for economists to assume that prices are fixed in the short run but flexible in the long run. The art of scientific thinking is deciding which assumptions to make.

Economic models

Biology teachers employ plastic models of the human body. They are simpler than the actual human body but that is what makes them useful. Economists use economic models that are composed of diagrams and equations. Economic models are based on assumptions and are simplifications of economic reality.

Our first model: the circular-flow diagram

The circular-flow diagram shows the flow of goods and services, factors of production, and monetary payments between households and firms. Households sell the factors of production, such as land, labor, and capital to firms, in the market for factors of production. In exchange, the households receive wages, rent, and profit. Households use these dollars to buy goods and services from firms in the market for goods and services. The firms use this revenue to pay for the factors of production, and so on. This is a simplified model of the entire economy. This version of the circular flow diagram has been simplified because it excludes international trade and the government.

Our second model: the production possibilities frontier

A production possibilities frontier is a graph that shows the combinations of output the economy can possibly produce given the available factors of production and the available production technology. It is drawn assuming the economy produces only two goods. This model demonstrates the following economic principles:

As social scientists, economists seek to discover how the economic world works. In pursuit of this goal, like all scientists, they distinguish between two types of statements:

Positive statements

Normative statements

Positive Statements

Positive statements are about what is. They say what is currently believed about the way the world operates. A positive statement might be right or wrong. But we can test a positive statement by checking it against the facts. "Our planet is warming because of the amount of coal that we're burning" is a positive statement. "A rise in the minimum wage will bring more teenage unemployment" is another positive statement. Each statement might be right or wrong, and it can be tested. A central task of economists is to test positive statements about how the economic world works and to weed out those that are wrong. Economics first got off

the ground in the late 1700s (see Eye on the Past on p. 17), so economics is a young subject compared with, for example, math and physics, and much remains to be discovered.

Normative Statements

Normative statements are statements about what *ought to be*. These statements depend on values and cannot be tested. The statement "We ought to cut back on our use of coal" is a normative statement. "The minimum wage should not be increased" is another normative statement. You may agree or disagree with either of these statements, but you can't test them. They express an opinion, but they don't assert a fact that can be checked. And they are not economics.

Unscrambling Cause and Effect

Economists are especially interested in positive statements about cause and effect. Are computers getting cheaper because people are buying them in greater quantities? Or are people buying computers in greater quantities because they are getting cheaper? Or is some third factor causing both the price of a computer to fall and the quantity of computers to increase? These are examples of positive statements that economists want to test. But doing so can be difficult.

The central idea that economists (and all scientists) use to unscramble cause and effect is ceteris paribus. Ceteris par/bus is a Latin term (often abbreviated as cet. par.) that means "other things being equal" or "if all other relevant things remain the same." Ensuring that other things are equal is crucial in many activities, including athletic events, and all successful attempts to make scientific progress use this device. By changing one factor at a time and holding all the other relevant factors constant, we isolate the factor of interest and are able to investigate its effects in the clearest possible way.

In economics, we observe the outcomes of the simultaneous operation of many factors. Consequently, it is hard to sort out the effects of each individual factor and to compare the effects with what a model predicts. To cope with this problem, economists use natural experiments, statistical investigations, and economic experiments.

Protecting Endangered Species with Private- Property Rights

Have you ever wondered why the wild tiger is endangered in much of the world, but most cats are thriving? Or why spotted owls are threatened in the Pacific Northwest, but chickens are not? Why have elephant and rhinoceros populations declined in number, but not cattle or hogs? The incentives accompanying private ownership provide the answer.

What do you think would happen to the total population of cows if people wanted less beef? Beef prices would fall, and the incentive for individuals to dedicate land and other resources to raising cattle would fall. The result would be fewer cows. It is precisely the market demand for beef that creates the incentive for suppliers to maintain herds of cattle and to protect them under a system of private ownership.

In some ways, the rhinoceros is similar to a cow. A rhino, like a large bull in a cattle herd, may charge if disturbed. At 3,000 pounds, a charging rhino can be very dangerous to humans. Also like cattle, rhinos can be valuable—a single horn from a black rhino, used for artistic carvings and medicines, can sell for up to $30,000. That makes it a favorite target of poachers—people who hunt illegally. Poachers are sometimes even assisted by local people eager to see fewer rhino present because they make life risky for humans and compete for food and water.

However, rhinos are very different from cattle in one important respect: In most of Africa where they naturally range, private ownership of the rhino is prohibited. Since 1977, many nations have outlawed rhino hunting and forbade the sale of rhino parts. But this approach has only made things worse for the rhino: between 1970 and 1994 the number of black rhinos declined by 95 percent.1 According to South African economist Michael't Sas Rolfes the traded ban "has not had a discernible effect on rhino numbers and does not seem to have stopped the trade in rhino horn. If anything, the ... listings led to a sharp increase in the black market price of rhino horn, which simply fueled further poaching and encouraged speculative stockpiling of horn."

But what if the powerful incentives created by private I ownership were instead brought to bear on the rhino? This was done during the 1980s and 1990s in the southern African nation of Zimbabwe. Landowners were allowed to fence and manage the game animals on their property. Because they could profit from protecting the big animals, some ranchers shifted their operations from cattle to wildlife protection, ecotourism, and hunting, often in cooperation with neighboring landowners to create large conservancies. Revenues from the conservancies came both from hunting many big game animals and from non-consumptive uses of wildlife, such as photo safaris. Under these rules, the black rhino population climbed dramatically. A similar success story is found in South Africa for the African white rhino.2

The rhino story echoes earlier success with using private-property rights to help save elephants. While some countries, such as Kenya, banned the ivory trade and forbade elephant hunting, others like Zimbabwe and Botswana allowed domestic trade in ivory and allowed landowners and local tribes to benefit financially from the presence of elephants through quasi- private ownership arrangements. The result? From 1979 to 1989, property rights and market conservation helped push elephant numbers from 50,000 up to 94,000 in Zimbabwe and Botswana, while Kenya's elephant population fell from 65,000 to 19,000. Between 1989 and 1995, elephant populations in Zimbabwe and Botswana rose by about 15 percent, while the rest of Africa lost about 20 percent of its elephants.

The recent story In Zimbabwe is not a happy one. Zimbabwe has been plagued by a civil war that has devastated both conservatory facilities and a large share of the animal populations. In South Africa, however, property rights to wildlife have been maintained. Owners are able to game-fence land parcels (that is, build a tall fence using twelve strands of high-tensile wire). This makes private ownership of the

wild animals possible. Under these circumstances, owners have a strong incentive to manage the wild animals as they might their cattle, paying close attention to carrying capacity, habitat, and water. The experience of Africa indicates that the establishment of ownership rights provides the key to protection of both wild life and their habitations.3

Assignment 4.

1. Economics studies choices that arise from one fact. What is that fact?
2. Provide three examples of wants in the United States today that are especially pressing but not satisfied.
3. Which of the following headlines deals with what, km, and/or whom question a.
    a. With more research, we will cure cancer.
    b. A good education is the right of every child.
    c. The government must trim its budget deficit.
4. Explain how the following headlines concern self-interest and social interest
    a. Whole Foods, a U.S. supermarket, is opening in Britain and Starbucks is everywhere in China.
    b. Cigarette packs must carry a health warning.

Assignment 5.

1. Every day, we make many choices. Why can't we avoid having to make choices?
2. 2. Look at today's newspaper and find an example of a want that is not satisfied.
3. Check the local media for headlines that ask two of the what, how, and for whom questions.
4. Which of the following headlines deals with what, how, and for whom questions?
    a. Major league baseball's turf keepers earn about $85,000, umpires earn about $350,000, and players make millions a year.
    b. Many full-service gas stations are switching to self-serve.
    c. Retail trends analysts make as much as $300,000 a year, while retail salespeople make less than $10 an hour.
5. Explain how the following headlines concern self-interest and social interest
    a. President George W. Bush powers his Texas ranch with solar electricity.
    b. Today's upper-class traveler goes on safari in southern Africa or stays at eco-resorts that cost $1,000 a night but do not have electricity.

Assignment 6.

Go to the following website: http://reffonomics.com

Click on the tab title BASIC CONCEPT

Read and take notes on the following tutorial slide shows

a. What is economics?
b. Scarcity
c. Opportunity Cost (2nd edition)
d. Resources (2nd edition)
e. Economic Systems
f. Terms in Economics

Complete and print results from the Multiple choice questions link to turn in the first day of class.

Assignment 7.

Explain the possible "economic cost" in each of the following scenarios.

1. The opportunity cost of showering and grooming and eating a complete breakfast in the morning:
2. The opportunity cost of not showering and grooming in the morning:
3. The opportunity cost of not eating breakfast:
4. The opportunity cost of sleeping in an extra hour each morning:
5. The opportunity cost of waking up an hour earlier each morning:
6. The opportunity cost of studying one subject more than another:
7. The opportunity cost of buying a new CD by your favorite artist:

The ECONOMIC Way of Thinking

The definition of economics and the kinds of questions that economists try to answer give you a flavor of the scope of economics. But they don't tell you how economists *think* about these questions and go about seeking answers to them. You're now going to see how economists approach their work.

We'll break this task into three parts. First, we'll explain the core ideas that economists constantly and repeatedly use to frame their view of the world. These ideas will soon have you thinking like an economist. Second, we'll explain the distinction between the micro and macro views of the economic world. Finally, we'll look at economics both as a social science and as a policy tool that governments, businesses, and *you* can use.

CORE ECONOMIC IDEAS

Five core ideas summarize the economic approach or economic way of thinking about the choices that must be made to cope with scarcity:

People make *rational choices* by comparing costs and benefits.

Cost is what you *must* give up to get something.

Benefit is what you gain when you get something and is measured by what you are *willing* to give up to get it.

A *rational choice* is made on the margin.

Choices respond to *incentives*.

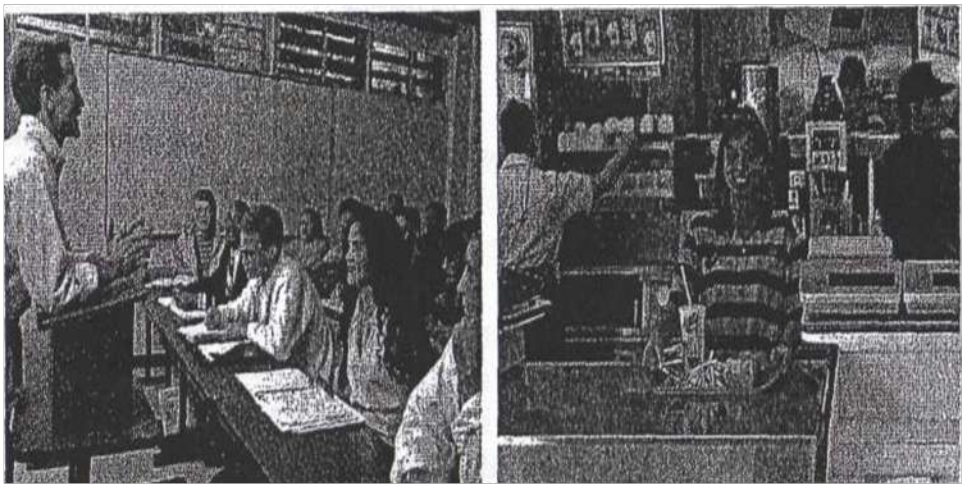
RATIONAL CHOICE

The most basic idea of economics is that in making choices, people act rationally. A **rational choice** is one that uses the available resources to best achieve the objective of the person making the choice.

Only the wants and preferences of the person making a choice are relevant to determine its rationality. For example, you might like chocolate ice cream more than vanilla ice cream, but your friend prefers vanilla. So it is rational for you to choose chocolate and for your friend to choose vanilla.

A rational choice might turn out not to have been the best choice after the event. A farmer might decide to plant wheat rather than soybeans. Then, when the crop comes to market, the price of soybeans might be much higher than the price of wheat. The farmer's choice was rational when it was made, but subsequent events made it less profitable than the alternative choice.

The idea of rational choice provides an answer to the first question: What goods and services will get produced and in what quantities? The answer is: Those that people rationally choose to buy!



For these students, the opportunity cost of being in school is worth bearing. For the *full-time fast-food worker*, the opportunity cost of remaining in school is too high.

But how do people choose rationally? Why have most people chosen to buy Microsoft's Windows operating system rather than another? Why do more people today choose to drink bottled water and sports energy drinks than did in the past? Why has the U.S. government chosen to fund the building of an interstate highway system and not an interstate high-speed railroad system? We make rational choices by comparing *costs* and *benefits*. But economists think about costs and benefits in a special and revealing way. Let's look at the economic concepts of cost and benefit.

Cost: What You Must Give Up

Whatever you choose to do, you could have done something else instead. You could have done lots of things other than what you actually did. But one of these other things is the *best* alternative given up. The best thing that you must give up to get something is the **opportunity cost** of the thing that you get. The thing that you could have chosen— the highest-valued alternative forgone—is the opportunity cost of the thing that you did choose.

We use the term *opportunity cost* to emphasize that when we make a choice in the face of scarcity, we give up an opportunity to do something else. You can quit school right now, or you can remain in school. Suppose that if you quit school, the best job you can get is at Kinko's, where you can earn $10,000 during the year. The opportunity cost of remaining in school includes the things that you could have bought with this $10,000. The opportunity cost also includes the value of the leisure time that you must forgo to study.

Opportunity cost of the thing you get is only the alternative forgone. It does not include all the expenditures that you make. For example, your expenditure on tuition is part of the opportunity cost of being in school. But your meal plan and' rent are not. Whether you're in school or working, you must eat and have somewhere to live. So the cost of your school meal plan and your rent are *not* part of the opportunity cost of being in school.

Also, past expenditures that cannot be reversed are not part of opportunity cost. Suppose you've paid your term's tuition and it is nonrefundable. If you now contemplate quitting school, the paid tuition is irrelevant. It is called a sunk cost. A **sunk cost** is a previously incurred and irreversible cost. Whether you remain in school or quit school, the tuition that you've paid is not part of the opportunity cost of remaining in school.

Benefit: Gain Measured by What You Are Willing to Give Up

The **benefit** of something is the gain or pleasure that it brings. Benefit is how a person *feels* about something. For example, you might be anxious to get *Tekken 5*, a recently released video game. It will bring you a large benefit. And you might have almost no interest in a Yo Yo Ma CD of Vivaldi's cello concertos. It will bring you a small benefit. Economists measure measures these trades off's by comparing what you give up to get it. You can buy CDs or magazines. The magazines that you are willing to give up to get a CD measure the benefit that you get from a CD.

On the Margin

Margin means "border" or "edge." So you can think of a choice on the margin as one that adjusts the borders or edges of a plan to determine the best course of action. Making a choice on the **margin** means comparing *all* the relevant alternatives systematically and incrementally.

For example, you must choose how to divide the next hour between studying and e-mailing your friends. To make this choice, you must evaluate the costs and benefits of the alternative possible allocations of your next hour. You choose on the margin by considering whether you will be better off or worse off if you spend an extra few minutes studying or an extra few minutes e-mailing.

The margin might involve a small change, as it does when you're deciding how to divide an hour between studying and e-mailing friends. Or it might involve a large change, as it does, for example, when you're deciding whether to remain in school for another year. Attending school for part of the year is no better (and might be worse) than not attending at all. So you likely will want to commit the entire year to school or to something else. But you still choose on the margin. It is just that the marginal change is now a change for one year rather than a change for a few minutes.

Marginal Cost

The opportunity cost of a one-unit increase in an activity is called marginal cost. Marginal cost is what you must give up to get one more unit of something. Think about your marginal cost of going to the movies for a third time in a week. Your marginal cost is what you must give up to see that one additional movie. It is not what you give up to see all three movies. The reason is that you've already given up something for two movies, so you don't count this cost as resulting from the decision to see the third movie.

The marginal cost of any activity increases as you do more of it. You know that going to the movies decreases your study time and lowers your grade. Suppose that seeing a second movie in a week lowers your grade by five percentage points. Seeing a third movie will lower your grade by more than five percentage points. Your marginal cost of movie going is increasing.

Marginal Benefit

The benefit of a one-unit increase in an activity is called marginal benefit. Marginal benefit is what you gain when you get one more unit of something. But the marginal benefit of something is measured by what you are willing to give up to get that one additional unit.

A fundamental feature of marginal benefit is that it diminishes. Think about your marginal benefit from movies. If you've been studying hard and haven't seen a movie this week, your marginal benefit from seeing your next movie is large. But if you've been on a movie binge this week, you now want a break and your marginal benefit is small.

Because the marginal benefit of a movie decreases as you see more movies, you are willing to give up less to see one more movie. For example, you know that going to the movies decreases your study time and lowers your grade. You pay for seeing a movie with a lower grade. You might be willing to give up ten percentage points to see your first movie in a week. But you won't be willing to take such a big hit on your grade to see a second movie in a week. Your willingness to pay to see a movie is decreasing.

Making a Rational Choice

So will you go to the movies for that third time in a week? If the marginal cost: less than the marginal benefit, your rational choice will be to see the third movie If the marginal cost exceeds the marginal benefit, your rational choice will be to spend the evening studying. We make a rational choice and use our scare resources in the way that makes us as well off as possible when we take those actions for which marginal benefit

exceeds or equals marginal cost.

Responding to Incentives

The choices we make depend on the incentives we face. An **incentive** is a reward or a penalty—a "carrot" or a "stick"—that encourages or discourages an action we respond positively to "carrots" and negatively to "sticks." The carrots that we face are marginal benefits. The sticks are marginal costs. A change in marginal benefit or a change in marginal cost brings a change in the incentives that we face and leads us to change our actions.

Most students believe that the payoff from studying just before a test is greater than the payoff from studying a month before a test. In other words, as a test date approaches, the marginal benefit of studying increases and the incentive to study becomes stronger. For this reason, we observe an increase in study time and a decrease in leisure pursuits during the last few days before a test. And the more important the test, the greater is this effect.

A change in marginal cost changes incentives. For example, suppose that last week, you found your course work easy and scored 100 percent on your practice quizzes. The marginal cost of taking an evening off to enjoy a movie was low. Your grade on this week's test will not suffer, so you have a movie feast. But this week the going has gotten tough. You are just not getting it, and your practice test scores are low. If you take off even one evening, your grade on next week's test will suffer. The marginal cost of seeing a movie is higher this week than it was last week so you decide to give the movies a miss. A central idea of economics is that by observing changes in incentives, we can predict how choices will change.

Factors of Production

The reason people cannot satisfy all their wants and needs is the scarcity of productive resources. These resources, or factors of production, are land, capital, labor, and entrepreneurship. They provide the means for a society to produce and distribute its goods and services. 2

Land- In economics, land refers to the "gifts of nature," or natural resources not created by human effort. "Land" includes deserts, fertile fields, forests, mineral deposits, cattle, whales, sunshine, and the climate necessary to grow crops.

Because only so many natural resources are available at any given time, economists tend to think of land as being fixed, or in limited supply. Not enough good farmland exists to feed all of the earth's population, nor enough sandy beaches for everyone to enjoy, nor enough minerals to meet our expanding energy needs indefinitely.

Labor- A third factor of production is labor—people with all their efforts, abilities, and skills. This category includes all people except for a unique group of individuals called entrepreneurs, which we single out because of their special role in the economy.

Unlike land, labor is a resource that may vary in size over time. Historically, factors such as population growth, immigration, turnover, war, and disease have had a dramatic impact on both the quantity and quality of labor.

Capital- Another factor of production is capital—the tools, equipment, and factories used in the production of goods and services. Such items also are called capital goods to distinguish them from financial capital, the money used to buy the tools and equipment used in production.

Capital is unique in that it is the result of production. A bulldozer, for example, is a capital good used in construction. It was built in a factory, however, which makes it the result of earlier production. Like the bulldozer, the cash register in a neighborhood store is a capital good. It, too, is the result of earlier production and is used for the record keeping associated with the sale of goods and services.

Entrepreneurs- Some workers have a special status because they are the innovators responsible for much of the change in our economy. These people are called entrepreneurs. An entrepreneur is a risk-taker in search of profits.

Entrepreneurs often are thought of as the driving force in the American economy because they exhibit a knack for starting a new business or bringing new products to market. Their initiative combines the resources of land, labor, and capital into new products.

DID YOU KNOW? Shelling Out In colonial times, money was in short supply. Because of this, people often used shelled corn to pay for goods and services, the practice has not survived the centuries, but the slang expression shell out-meaning pay to for—has stuck around.

LAND *includes the "gifts of nature," or natural resources ' not created by human effort.*

CAPITAL *includes the tools, equipment, and factories used in production. Capital is unique in that it is the result of production.*

LABOR *includes people with all their efforts and abilities, excluding those individuals with unique entrepreneurial abilities.*

ENTREPRENEURS *include those unique risk-taking individuals who have the ability to start a new business or bring a product to market.*

Assignment 8.

1. Why is there no such thing as a "free" lunch?
2. What are the four factors of production?
3. T*he productive resources in a modem economy include* LAND, CAPITAL, LABOR, *and ENTREPRENEURIAL ABILITY. All four factors of production are necessary for production to take place.* What four factors of production are necessary to bring jewelry to consumers?
4. Explain the core ideas that define the economic way of thinking.
5. Every week, Kate plays tennis for two hours, and her grade on each math test is 70 percent. Last week, after playing for two hours, Kate considered playing for another hour. She decided to play for another hour and cut her study time by one hour. But last week, her math grade fell to 60 percent.
    a. What was Kate's opportunity cost of the third hour of tennis?
    b. Given that Kate played the third hour, what can you conclude about her marginal benefit and marginal cost of the second hour of tennis?
    c. Was Kate's decision to play the third hour of tennis rational?
    d. Did Kate make her decision on the margin?
6. Bill Gates gives away millions of dollars a year to universities, cancer research, a children's hospital, and the Seattle Symphony. Are his donations rational? In making these donations, might Bill Gates have responded to any incentive? Does he make his decision about his donations on the margin?
7. Check the local media and find three examples of:
    a. Macroeconomic issues and microeconomic issues
    b. Positive statements
    c. Normative statements
    d. Economics as a policy tool
8. Tony is an engineering student, who is considering taking an extra course in history. What things might

be part of his costs and benefits of the history course? Think of an incentive that might encourage him to take the course.

You Don't Have to Spend a Buck to Have a Cost

Last Friday night you decided to stay home and watch television instead of going to the movies with your friends. Did this decision involve any cost? Yes, because even though you didn't spend a buck, there was an *opportunity cost*, which represents the best alternative that you did not choose, such as working or participating in another activity.

Whenever consumers, producers and governments make choices, they base their decisions on the costs involved. In economics, costs include not only the out-of-pocket expenses you'd typically consider called *explicit* costs, but also *implicit* costs, which measure the value of resources that could have been used elsewhere.

For instance, if you decide to go to the movies, your explicit costs may include the ticket, popcorn and soda. Additionally, you would include the implicit costs, such as the pay you would have earned had you worked during the tune required to go to the movies. Economists refer to these combined costs as opportunity costs.

When you base decisions on explicit costs only, you can measure the number of dollars coming into your wallet versus the number flowing out. But rational people consider more than invoices and receipts when they compare marginal benefits with marginal costs. Extra benefits and extra costs include implicit costs; so making decisions by merely considering the flow of funds into and out of your wallet will lead to decisions that fail to maximize your satisfaction.

Assignment 9.

1. *For each of the following situations, list at least two explicit costs and two implicit costs. Place them in the correct column.*

(A) You decide to go to college. (B) You take a job after school. (C) You study for and take an AP Economics Examination. (D) A stay-at-home dad returns to work.

Million-Dollar Murray

by Malcolm Gladwell Articles from the New Yorker February 13, 2006

Why problems like homelessness may be easier to solve than to manage.

1. Murray Barr was a bear of a man, an ex-marine, six feet tall and heavyset, and when he fell down—which he did nearly every day—it could take two or three grown men to pick him up. He had straight black hair and olive skin. On the street, they called him Smokey. He was missing most of his teeth. He had a wonderful smile. People loved Murray.

His chosen drink was vodka. Beer he called "horse piss." On the streets of downtown Reno, where he lived, he could buy a two-hundred-and-fifty-milliliter bottle of cheap vodka for a dollar-fifty. If he was flush, he could go for the seven-hundred-and-fifty-milliliter bottle, and if he was broke he could always do what many of the other homeless people of Reno did, which is to walk through the casinos and finish off the half-empty glasses of liquor left at the gaming tables.

"If he was on a runner, we could pick him up several times a day," Patrick O'Bryan, who is a bicycle cop in downtown Reno, said. "And he's gone on some amazing runners. He would get picked up, get detoxed, then get back out a couple of hours later and start up again. A lot of the guys on the streets who've been drinking, they get so angry. They are so incredibly abrasive, so violent, so abusive. Murray was such a character and had such a great sense of humor that we somehow got past that. Even when he was abusive, we'd say, 'Murray, you know you love us,' and he'd say, 'I know—and go back to swearing at us."

"I've been a police officer for fifteen years," O'Bryan's partner, Steve Johns, said. "I picked up Murray my whole career. Literally."

Johns and O'Bryan pleaded with Murray to quit drinking. A few years ago, he was assigned to a treatment program in which he was under the equivalent of house arrest, and he thrived. He got a job and worked hard. But then the program ended. "Once he graduated out, he had no one to report to, and he needed that," O'Bryan said. "I don't know whether it was his military background. I suspect that it was. He was a good cook. One time, he accumulated savings of over six thousand dollars. Showed up for work religiously. Did everything he was supposed to do. They said, 'Congratulations,' and put him back on the street. He spent that six thousand in a week or so."

Often, he was too intoxicated for the drunk tank at the jail, and he'd get sent to the emergency room at either Saint Mary's or Washoe Medical Center. Marla Johns, who was a social worker in the emergency room at Saint Mary's, saw him several times a week. "The ambulance would bring him in. We would sober him up, so he would be sober enough to go to jail. And we would call the police to pick him up. In fact, that's how I met my husband." Marla Johns is married to Steve Johns.

"He was like the one constant in an environment that was ever changing," she went on. "In he would come. He would grin that half-toothless grin. He called me 'my angel.' I would walk in the room, and he would smile and say, 'Oh, my angel, I'm so happy to see you.' We would joke back and forth, and I would beg him to quit drinking and he would laugh it off. And when time went by and he didn't come in I would get worried and call the coroner's office. When he was sober, we would find out, oh, he's working someplace, and my husband and I would go and have dinner where he was working. When my husband and I were dating, and we were going to get married, he said, 'Can I come to the wedding?' And I almost felt like he should. My joke was 'If you are sober you can come, because I can't afford your bar bill.' When we started a family, he would lay a hand on my pregnant belly and bless the child. He really was this kind of light."

In the fall of 2003, the Reno Police Department started an initiative designed to limit panhandling in the downtown core. There were articles in the newspapers, and the police department came under harsh criticism on local talk radio. The crackdown on panhandling amounted to harassment, the critics said. The homeless weren't an imposition on the city; they were just trying to get by. "One morning, I'm listening to one of the talk shows, and they're just trashing the police department and going on about how unfair it is," O'Bryan said. "And I thought, Wow, I've never seen any of these critics in one of the alleyways in the middle of the winter looking for bodies." O'Bryan was angry. In downtown Reno, food for the homeless was plentiful: there was a Gospel kitchen and Catholic Services, and even the local McDonald's fed the hungry. The panhandling was for liquor, and the liquor was anything but harmless. He and Johns spent at least half their time dealing with people like Murray; they were as much caseworkers as police officers. And they knew they weren't the only ones involved. When someone passed out on the street, there was a "One down" call to the paramedics. There were four people in an ambulance, and the patient sometimes stayed at the hospital for days, because living on the streets in a state of almost constant intoxication was a reliable way of getting sick. None of that, surely, could be cheap.

O'Bryan and Johns called someone they knew at an ambulance service and then contacted the local hospitals. "We came up with three names that were some of our chronic inebriates in the downtown area, that got arrested the most often," O'Bryan said. "We tracked those three individuals through just one of our two hospitals. One of the guys had been in jail previously, so he'd only been on the streets for six months. In those six months, he had accumulated a bill of a hundred thousand dollars—and that's at the smaller of the two hospitals near downtown Reno. It's pretty reasonable to assume that the other hospital had an even larger bill. Another individual came from Portland and had been in Reno for three months. In those three months, he had accumulated a bill for sixty-five thousand dollars. The third individual actually had some periods of being sober, and had accumulated a bill of fifty thousand."

The first of those people was Murray Barr, and Johns and O'Bryan realized that if you totted up all his hospital bills for the ten years that he had been on the streets—as well as substance-abuse-treatment costs, doctors' fees, and other expenses—Murray Barr probably ran up a medical bill as large as anyone in the state of Nevada.

"It cost us one million dollars not to do something about Murray," O'Bryan said.

2. Fifteen years ago, after the Rodney King beating, the Los Angeles Police Department was in crisis. It was accused of racial insensitivity and ill discipline and violence, and the assumption was that those problems had spread broadly throughout the rank and file. In the language of statisticians, it was thought that L.A.P.D.'s troubles had a "normal" distribution—that if you graphed them the result would look like a bell curve, with a small number of officers at one end of the curve, a small number at the other end, and the bulk of the problem situated in the middle. The bell-curve assumption has become so much a part of our mental architecture that we tend to use it to organize experience automatically.

But when the L.A.P.D. was investigated by a special commission headed by Warren Christopher, a very different picture emerged. Between 1986 and 1990, allegations of excessive force or improper tactics were made against eighteen hundred of the eighty-five hundred officers in the L.A.P.D. The broad middle had scarcely been accused of anything. Furthermore, more than fourteen hundred officers had only one or two allegations made against them—and bear in mind that these were not proven charges, that they happened in a four-year period, and that allegations of excessive force are an inevitable feature of urban police work. (The N.Y.P.D. receives about three thousand such complaints a year.) A hundred and eighty-three officers, however, had four or more complaints against them, forty-four officers had six or more complaints, sixteen had eight or more, and one had sixteen complaints. If you were to graph the troubles of the L.A.P.D., it wouldn't look like a bell curve. It would look more like a hockey stick. It would follow what statisticians call a "power law" distribution—where all the activity is not in the middle but at one extreme.

The Christopher Commission's report repeatedly comes back to what it describes as the extreme concentration of problematic officers. One officer had been the subject of thirteen allegations of excessive use of force, five other complaints, twenty-eight "use of force reports" (that is, documented, internal accounts of inappropriate behavior), and one shooting. Another had six excessive-force complaints, nineteen other complaints, ten use-of-force reports, and three shootings. A third had twenty-seven use-of-force reports, and a fourth had thirty-five. Another had a file full of complaints for doing things like "striking an arrestee on the back of the neck with the butt of a shotgun for no apparent reason while the arrestee was kneeling and handcuffed," beating up a thirteen-year-old juvenile, and throwing an arrestee from his chair and kicking him in the back and side of the head while he was handcuffed and lying on his stomach.

The report gives the strong impression that if you fired those forty-four cops the L.A.P.D. would suddenly become a pretty well-functioning police department. But the report also suggests that the problem is tougher than it seems, because those forty-four bad cops were so bad that the institutional mechanisms in place to get rid of bad apples clearly weren't working. If you made the mistake of assuming that the department's troubles fell into a normal distribution, you'd propose solutions that would raise the performance of the middle—like better training or better hiring—when the middle didn't need help. For those hard-core few who did need help, meanwhile, the medicine that helped the middle wouldn't be nearly strong enough.

In the nineteen-eighties, when homelessness first surfaced as a national issue, the assumption was that the problem fit a normal distribution: that the vast majority of the homeless were in the same state of semi-permanent distress. It was an assumption that bred despair: if there were so many homeless, with so many problems, what could be done to help them? Then, fifteen years ago, a young Boston College graduate student named Dennis Culhane lived in a shelter in Philadelphia for seven weeks as part of the research for his dissertation. A few months later he went back, and was surprised to discover that he couldn't find any of the people he had recently spent so much time with. "It made me realize that most of these people were getting on with their own lives," he said.

Culhane then put together a database—the first of its kind—to track who was coming in and out of the shelter system. What he discovered profoundly changed the way homelessness is understood. Homelessness doesn't have a normal distribution, it turned out. It has a power-law distribution. "We found that eighty per cent of the homeless were in and out really quickly," he said. "In Philadelphia, the most common length of time that someone is homeless is one day. And the second most common length is two days. And they never come back. Anyone who ever has to stay in a shelter involuntarily knows that all you think about is how to make sure you never come back."

The next ten per cent were what Culhane calls episodic users. They would come for three weeks at a time, and return periodically, particularly in the winter. They were quite young, and they were often heavy drug users. It was the last ten per cent—the group at the farthest edge of the curve—that interested Culhane the most. They were the chronically homeless, who lived in the shelters, sometimes for years at a time. They were older. Many were mentally ill or physically disabled, and when we think about homelessness as a social problem—the people sleeping on the sidewalk, aggressively panhandling, lying drunk in doorways, huddled on subway grates and under bridges—it's this group that we have in mind. In the early nineteen-nineties, Culhane's database suggested that New York City had a quarter of a million people who were homeless at some point in the previous half decade —which was a surprisingly high number. But only about twenty-five hundred were chronically homeless.

It turns out, furthermore, that this group costs the health-care and social-services systems far more than anyone had ever anticipated. Culhane estimates that in New York at least sixty-two million dollars was being spent annually to shelter just those twenty-five hundred hard-core homeless. "It costs twenty- four thousand dollars a year for one of these shelter beds," Culhane said. "We're talking about a cot eighteen inches away from the next cot." Boston Health Care for the Homeless Program, a leading service group for the homeless in Boston, recently tracked the medical expenses of a hundred and nineteen chronically homeless people. In the

course of five years, thirty-three people died and seven more were sent to nursing homes, and the group still accounted for 18,834 emergency-room visits—at a minimum cost of a thousand dollars a visit. The University of California, San Diego Medical Center followed fifteen chronically homeless inebriates and found that over eighteen months those fifteen people were treated at the hospital's emergency room four hundred and seventeen times, and ran up bills that averaged a hundred thousand dollars each. One person—San Diego's counterpart to Murray Barr—came to the emergency room eighty-seven times.

"If it's a medical admission, it's likely to be the guys with the really complex pneumonia," James Dunford, the city of San Diego's emergency medical director and the author of the observational study, said. "They are drunk and they aspirate and get vomit in their lungs and develop a lung abscess, and they get hypothermia on top of that, because they're out in the rain. They end up in the intensive-care unit with these very complicated medical infections. These are the guys who typically get hit by cars and buses and trucks. They often have a neurosurgical catastrophe as well. So they are very prone to just falling down and cracking their head and getting a subdural hematoma, which, if not drained, could kill them, and it's the guy who falls down and hits his head who ends up costing you at least fifty thousand dollars. Meanwhile, they are going through alcoholic withdrawal and have devastating liver disease that only adds to their inability to fight infections. There is no end to the issues. We do this huge drill. We run up big lab fees, and the nurses want to quit, because they see the same guys come in over and over, and all we're doing is making them capable of walking down the block."

The homelessness problem is like the L.A.P.D.'s bad-cop problem. It's a matter of a few hard cases, and that's good news, because when a problem is that concentrated you can wrap your arms around it and think about solving it. The bad news is that those few hard cases are hard. They are falling-down drunks with liver disease and complex infections and mental illness. They need time and attention and lots of money. But enormous sums of money are already being spent on the chronically homeless, and Culhane saw that the kind of money it would take to solve the homeless problem could well be less than the kind of money it took to ignore it. Murray Barr used more health-care dollars, after all, than almost anyone in the state of Nevada. It would probably have been cheaper to give him a full-time nurse and his own apartment.

The leading exponent for the power-law theory of homelessness is Philip Mangano, who, since he was appointed by President Bush in 2002, has been the executive director of the U.S. Interagency Council on Homelessness, a group that oversees the programs of twenty federal agencies. Mangano is a slender man, with a mane of white hair and a magnetic presence, who got his start as an advocate for the homeless in Massachusetts. In the past two years, he has crisscrossed the United States, educating local mayors and city councils about the real shape of the homelessness curve. Simply running soup kitchens and shelters, he argues, allows the chronically homeless to remain chronically homeless. You build a shelter and a soup kitchen if you think that homelessness is a problem with a broad and unmanageable middle. But if it's a problem at the fringe it can be solved. So far, Mangano has convinced more than two hundred cities to radically reevaluate their policy for dealing with the homeless.

"I was in St. Louis recently," Mangano said, back in June, when he dropped by New York on his way to Boise, Idaho. "I spoke with people doing services there. They had a very difficult group of people they couldn't reach no matter what they offered. So I said, Take some of your money and rent some apartments and go out to those people, and literally go out there with the key and say to them, 'This is the key to an apartment. If you come with me right now I am going to give it to you, and you are going to have that apartment.' And so they did. And one by one those people were coming in. Our intent is to take homeless policy from the old idea of funding programs that serve homeless people endlessly and invest in results that actually end homelessness."

Mangano is a history buff, a man who sometimes falls asleep listening to old Malcolm X speeches, and who peppers his remarks with references to the civil-rights movement and the Berlin Wall and, most of all, the fight against slavery. "I am an abolitionist," he says. "My office in Boston was opposite the monument to the

54th Regiment on the Boston Common, up the street from the Park Street Church, where William Lloyd Garrison called for immediate abolition, and around the corner from where Frederick Douglass gave that famous speech at the Tremont Temple. It is very much ingrained in me that you do not manage a social wrong. You should be ending it."

3. The old Y.M.C.A. in downtown Denver is on Sixteenth Street, just east of the central business district. The main building is a handsome six-story stone structure that was erected in 1906, and next door is an annex that was added in the nineteen-fifties. On the ground floor there is a gym and exercise rooms.

On the upper floors there are several hundred apartments—brightly painted one-bedrooms, efficiencies, and S.R.O.-style rooms with microwaves and refrigerators and central air-conditioning—and for the past several years those apartments have been owned and managed by the Colorado Coalition for the Homeless.

Even by big-city standards, Denver has a serious homelessness problem. The winters are relatively mild, and the summers aren't nearly as hot as those of neighboring New Mexico or Utah, which has made the city a magnet for the indigent. By the city's estimates, it has roughly a thousand chronically homeless people, of whom three hundred spend their time downtown, along the central Sixteenth Street shopping corridor or in nearby Civic Center Park. Many of the merchants downtown worry that the presence of the homeless is scaring away customers. A few blocks north, near the hospital, a modest, low-slung detox center handles twenty-eight thousand admissions a year, many of them homeless people who have passed out on the streets, either from liquor or—as is increasingly the case—from mouthwash. "Dr. ——Dr. Tich, they call it—is the brand of mouthwash they use," says Roxane White, the manager of the city's social services. "You can imagine what that does to your gut."

Eighteen months ago, the city signed up with Mangano. With a mixture of federal and local funds, the C.C.H. inaugurated a new program that has so far enrolled a hundred and six people. It is aimed at the Murray Barrs of Denver, the people costing the system the most. C.C.H. went after the people who had been on the streets the longest, who had a criminal record, who had a problem with substance abuse or mental illness. "We have one individual in her early sixties, but looking at her you'd think she's eighty," Rachel Post, the director of substance treatment at the C.C.H., said. (Post changed some details about her clients in order to protect their identity.) "She's a chronic alcoholic. A typical day for her is she gets up and tries to find whatever's going to drink that day. She falls down a lot. There's another person who came in during the first week. He was on methadone maintenance. He'd had psychiatric treatment. He was incarcerated for eleven years, and lived on the streets for three years after that, and, if that's not enough, he had a hole in his heart."

The recruitment strategy was as simple as the one that Mangano had laid out in St. Louis: Would you like a free apartment? The enrollees got either an efficiency at the Y.M.C.A. or an apartment rented for them in a building somewhere else in the city, provided they agreed to work within the rules of the program. In the basement of the Y, where the racquetball courts used to be, the coalition built a command center, staffed with ten caseworkers. Five days a week, between eight-thirty and ten in the morning, the caseworkers meet and painstakingly review the status of everyone in the program. On the wall around the conference table are several large white boards, with lists of doctor's appointments and court dates and medication schedules. "We need a staffing ratio of one to ten to make it work," Post said. "You go out there and you find people and assess how’re doing in their residence. Sometimes we're in contact with someone every day. Ideally, we want to be in contact every couple of days. We've got about fifteen people we're really worried about now."

The cost of services comes to about ten thousand dollars per homeless client per year. An efficiency apartment in Denver averages $376 a month, or just over forty-five hundred a year, which means that you can house and care for a chronically homeless person for at most fifteen thousand dollars, or about a third of what he or she would cost on the street. The idea is that once the people in the program get stabilized they will find jobs, and start to pick up more and more of their own rent, which would bring someone's annual cost to the program closer to six thousand dollars. As of today, seventy-five supportive housing slots have already been added,

and the city's homeless plan calls for eight hundred more over the next ten years.

The reality, of course, is hardly that neat and tidy. The idea that the very sickest and most troubled of the homeless can be stabilized and eventually employed is only a hope. Some of them plainly won't be able to get there: these are, after all, hard cases. "We've got one man, he's in his twenties," Post said. "Already, he has cirrhosis of the liver. One time he blew a blood alcohol of .49, which is enough to kill most people. The first place we had he brought over all his friends, and they partied and trashed the place and broke a window. Then we gave him another apartment, and he did the same thing."

Post said that the man had been sober for several months. But he could relapse at some point and perhaps trash another apartment, and they'd have to figure out what to do with him next. Post had just been on a conference call with some people in New York City who run a similar program, and they talked about whether giving clients so many chances simply encourages them to behave irresponsibly. For some people, it probably does. But what was the alternative? If this young man was put back on the streets, he would cost the system even more money. The current philosophy of welfare holds that government assistance should be temporary and conditional, to avoid creating dependency. But someone who blows .49 on a Breathalyzer and has cirrhosis of the liver at the age of twenty-seven doesn't respond to incentives and sanctions in the usual way. "The most complicated people to work with are those who have been homeless for so long that going back to the streets just isn't scary to them," Post said. "The summer comes along and they say, 'I don't need to follow your rules.' “Power-law homelessness policy has to do the opposite of normal-distribution social policy. It should create dependency: you want people who have been outside the system to come inside and rebuild their lives under the supervision of those ten caseworkers in the basement of the Y.M.C.A.

That is what is so perplexing about power-law homeless policy. From an economic perspective the approach makes perfect sense. But from a moral perspective it doesn't seem fair. Thousands of people in the Denver area no doubt live day to day, work two or three jobs, and are eminently deserving of a helping hand—and no one offers them the key to a new apartment. Yet that's just what the guy screaming obscenities and swigging Dr. Tich gets. When the welfare mom's time on public assistance runs out, we cut her off. Yet when the homeless man trashes his apartment we give him another. Social benefits are supposed to have some kind of moral justification. We give them to widows and disabled veterans and poor mothers with small children. Giving the homeless guy passed out on the sidewalk an apartment has a different rationale. It's simply about efficiency.

We also believe that the distribution of social benefits should not be arbitrary. We don't give only to some poor mothers, or to a random handful of disabled veterans. We give to everyone who meets a formal criterion, and the moral credibility of government assistance derives, in part, from this universality. But the Denver homelessness program doesn't help every chronically homeless person in Denver. There is a waiting list of six hundred for the supportive-housing program; it will be years before all those people get apartments, and some may never get one. There isn't enough money to go around, and to try to help everyone a little bit—to observe the principle of universality—isn't as cost-effective as helping a few people a lot. Being fair, in this case, means providing shelters and soup kitchens, and shelters and soup kitchens don't solve the problem of homelessness. Our usual moral intuitions are little use, then, when it comes to a few hard cases. Power-law problems leave us with an unpleasant choice. We can be true to our principles or we can fix the problem. We cannot do both.

4. A few miles northwest of the old Y.M.C.A. in downtown Denver, on the Speer Boulevard off-ramp from I-25, there is a big electronic sign by the side of the road, connected to a device that remotely measures the emissions of the vehicles driving past. When a car with properly functioning pollution-control equipment passes, the sign flashes "Good." When a car passes that is well over the acceptable limits, the sign flashes "Poor." If you stand at the Speer Boulevard exit and watch the sign for any length of time, you'll find that virtually every car scores "Good." An Audi A4 —"Good." A Buick Century— "Good." A Toyota Corolla—"Good." A Ford Taurus—"Good." A Saab 9-5—"Good," and on and on, until after twenty minutes or so,

some beat-up old Ford Escort or tricked-out Porsche drives by and the sign flashes "Poor." The picture of the smog problem you get from watching the Speer Boulevard sign and the picture of the homelessness problem you get from listening in on the morning staff meetings at the Y.M.C.A. are pretty much the same. Auto emissions follow a power-law distribution, and the air-pollution example offers another look at why we struggle so much with problems centered on a few hard cases.

Most cars, especially new ones, are extraordinarily clean. A 2004 Subaru in good working order has an exhaust stream that's just .06 per cent carbon monoxide, which is negligible. But on almost any highway, for whatever reason—age, ill repair, deliberate tampering by the owner—a small number of cars can have carbon-monoxide levels in excess of ten per cent, which is almost two hundred times higher. In Denver, five per cent of the vehicles on the road produce fifty-five per cent of the automobile pollution.

"Let's say a car is fifteen years old," Donald Stedman says. Stedman is a chemist and automobile-emissions specialist at the University of Denver. His laboratory put up the sign on Speer Avenue. "Obviously, the older a car is the more likely it is to become broken. It's the same as human beings. And by broken we mean any number of mechanical malfunctions—the computer's not working anymore, fuel injection is stuck open, the catalyst's not unusual that these failure modes result in high emissions. We have at least one car in our database which was emitting seventy grams of hydrocarbon per mile, which means that you could almost drive a Honda Civic on the exhaust fumes from that car. It's not just old cars. It's new cars with high mileage, like taxis. One of the most successful and least publicized control measures was done by a district attorney in L.A. back in the nineties. He went to LAX and discovered that all of the Bell Cabs were gross emitters. One of those cabs emitted more than its own weight of pollution every year."

In Stedman's view, the current system of smog checks makes little sense. A million motorists in Denver have to go to an emissions center every year—take time from work, wait in line, pay fifteen or twenty-five dollars—for a test that more than ninety per cent of them don't need. "Not everybody gets tested for breast cancer," Stedman says. "Not everybody takes an AIDS test." On-site smog checks, furthermore, do a pretty bad job of finding and fixing the few outliers. Car enthusiasts—with high-powered, high-polluting sports cars—have been known to drop a clean engine into their car on the day they get it tested. Others register their car in a faraway town without emissions testing or arrive at the test site "hot"—having just come off hard driving on the freeway—which is a good way to make a dirty engine appear to be clean. Still others randomly pass the test when they shouldn't, because dirty engines are highly variable and sometimes burn cleanly for short durations. There is little evidence, Stedman says, that the city's regime of inspections makes any difference in air quality.

He proposes mobile testing instead. Twenty years ago, he invented a device the size of a suitcase that uses infrared light to instantly measure and then analyze the emissions of cars as they drive by on the highway. The Speer Avenue sign is attached to one of Stedman's devices. He says that cities should put half a dozen or so of his devices in vans, park them on freeway off-ramps around the city, and have a police car poised to pull over anyone who fails the test. A half-dozen vans could test thirty thousand cars a day. For the same twenty-five million dollars that Denver's motorists now spend on on-site testing, Stedman estimates, the city could identify and fix twenty-five thousand truly dirty vehicles every year, and within a few years cut automobile emissions in the Denver metropolitan area by somewhere between thirty-five and forty per cent. The city could stop managing its smog problem and start ending it.

Why don't we all adopt the Stedman method? There's no moral impediment here. We're used to the police pulling people over for having a blown headlight or a broken side mirror, and it wouldn't be difficult to have them add pollution-control devices to their list. Yet it does run counter to an instinctive social preference for thinking of pollution as a problem to which we all contribute equally. We have developed institutions that move reassuringly quickly and forcefully on collective problems. Congress passes a law. The Environmental Protection Agency promulgates a regulation. The auto industry makes its cars a little cleaner, and—presto—the air gets better. But Stedman doesn't much care about what happens in Washington and Detroit. The

challenge of controlling air pollution isn't so much about the laws as it is about compliance with them. It's a policing problem, rather than a policy problem, and there is something ultimately unsatisfying about his proposed solution. He wants to end air pollution in Denver with a half-dozen vans outfitted with a contraption about the size of a suitcase. Can such a big problem have such a small-bore solution?

That's what made the findings of the Christopher Commission so unsatisfying. We put together blue-ribbon panels when we're faced with problems that seem too large for the normal mechanisms of bureaucratic repair. We want sweeping reforms. But what was the commission's most memorable observation? It was the story of an officer with a known history of doing things like beating up handcuffed suspects who nonetheless received a performance review from his superior stating that he "usually conducts himself in a manner that inspires respect for the law and instills public confidence." This is what you say about an officer when you haven't actually read his file, and the implication of the Christopher Commission's report was that the L.A.P.D. might help solve its problem simply by getting its police captains to read the files of their officers. The L.A.P.D.'s problem was a matter not of policy but of compliance. The department needed to adhere to the rules it already had in place, and that's not what a public hungry for institutional transformation wants to hear. Solving problems that have power-law distributions doesn't just violate our moral intuitions; it violates our political intuitions as well. It's hard not to conclude, in the end, that the reason we treated the homeless as one hopeless undifferentiated group for so long is not simply that we didn't know better. It's that we didn't want to know better. It was easier the old way.

Power-law solutions have little appeal to the right, because they involve special treatment for people who do not deserve special treatment; and they have little appeal to the left, because their emphasis on efficiency over fairness suggests the cold number-crunching of Chicago-school cost-benefit analysis. Even the promise of millions of dollars in savings or cleaner air or better police departments cannot entirely compensate for such discomfort. In Denver, John Hickenlooper, the city's enormously popular mayor, has worked on the homelessness issue tirelessly during the past couple of years. He spent more time on the subject in his annual State of the City address this past summer than on any other topic. He gave the speech, with deliberate symbolism, in the city's downtown Civic Center Park, where homeless people gather every day with their shopping carts and garbage bags. He has gone on local talk radio on many occasions to discuss what the city is doing about the issue. He has commissioned studies to show what a drain on the city's resources the homeless population has become. But, he says, "there are still people who stop me going into the supermarket and say, 'I can't believe you're going to help those homeless people, those bums.'"

5. Early one morning a year ago, Marla Johns got a call from her husband, Steve. He was at work. "He called and woke me up," Johns remembers. "He was choked up and crying on the phone. And I thought that something had happened with another police officer. I said, 'Oh, my gosh, what happened?' He said, 'Murray died last night.' “He died of intestinal bleeding. At the police department that morning, some of the officers gave Murray a moment of silence.

"There are not many days that go by that I don't have a thought of him," she went on. "Christmas comes—and I used to buy him a Christmas present. Make sure he had warm gloves and a blanket and a coat. There was this mutual respect. There was a time when another intoxicated patient jumped off the gurney and was coming at me, and Murray jumped off his gurney and shook his fist and said, 'Don't you touch my angel.' You know, when he was monitored by the system he did fabulously. He would be on house arrest and he would get a job and he would save money and go to work every day, and he wouldn't drink. He would do all the things he was supposed to do. There are some people who can be very successful members of society if someone monitors them. Murray needed someone to be in charge of him."

But, of course, Reno didn't have a place where Murray could be given the structure he needed. Someone must have decided that it cost too much. "I told my husband that I would claim his body if no one else did," she said. "I would not have him in an unmarked grave."

Assignment 10.

1. What was the effect of “million dollar” Murray on society at large?
2. What was the solution?
3. Explain why was this solution implemented?
4. Do you feel this solution was rational from an economic cost-benefit perspective? Explain.
5. How do you feel morally or personally about this solution? Explain.

Practice Problems

People respond to incentives. Governments can alter incentives and, hence, behavior with public policy. However, sometimes public policy generates unintended consequences by producing results that were not anticipated. Try to find an unintended consequence of each of the following public policies.

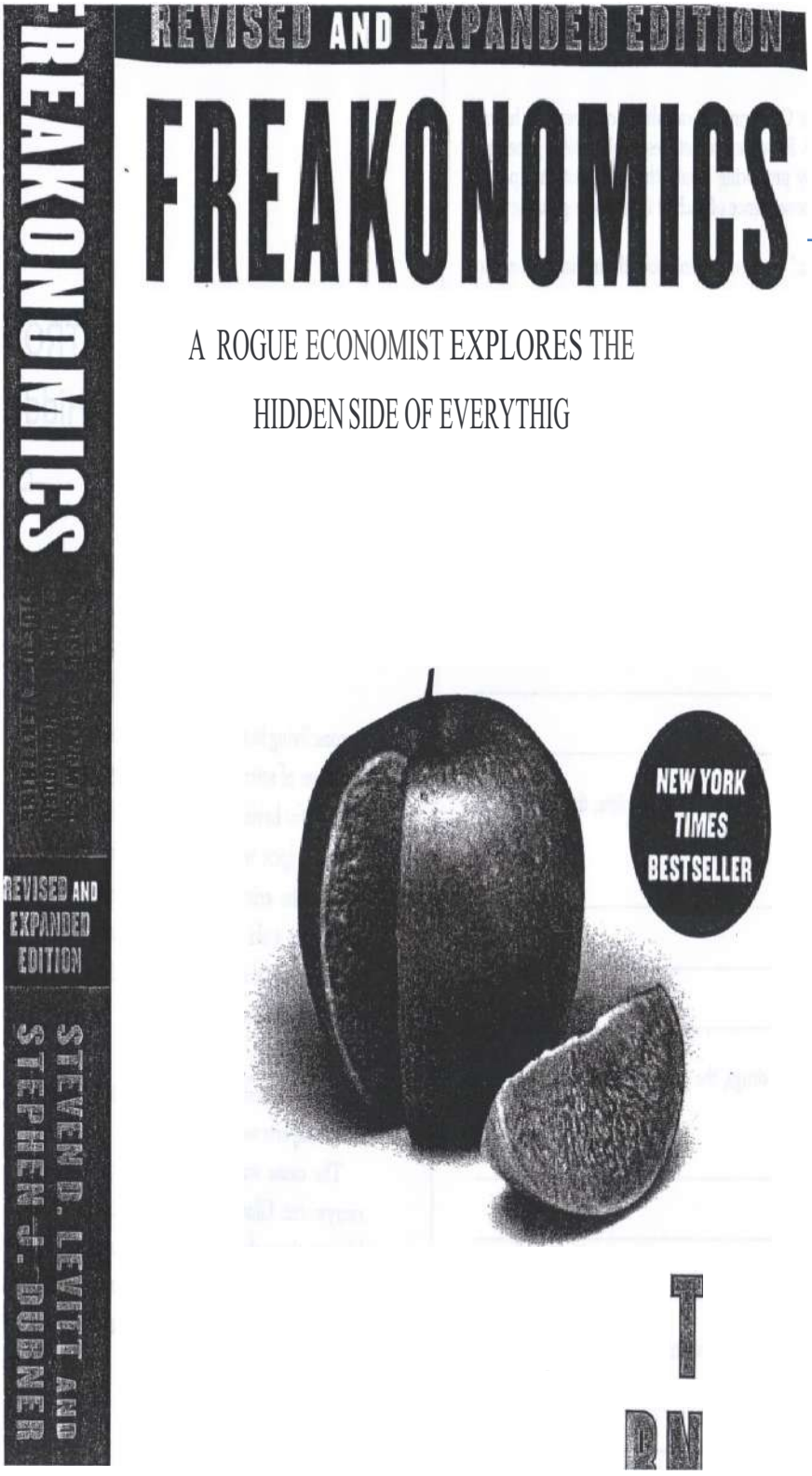
a. To help the "working poor." the government raises the minimum wage to $25 per hour.

b. To help the homeless, the government places rent controls on apartments restricting rent to $10 per month.

c. To reduce the deficit and limit consumption of gasoline, the government raises the tax on gasoline by $2.00 per gallon.

d. To reduce the consumption of drugs, the government makes drugs illegal.

e. To raise the population of wolves, the government prohibits the killing of wolves.



INTRODUCTION: The Hidden Side of Everything

Anyone living in the United States in the early 1990s and paying even a whisper of attention to the nightly news or a daily paper could be forgiven for having been scared out of his skin.

The culprit was crime, it had been rising relentlessly a graph plotting the crime rate in any American city over recent decades looked like a ski slope in profile-and it seemed now to herald the end of the world as we knew it. Death by gunfire, intentional and otherwise, had become commonplace. So too had carjacking and crack dealing, robbery and rape. Violent crime was a gruesome, constant companion. And things were saying so.

The cause was the so-called superpredator. For a time, he was everywhere. Glowering from the cover of newsweeklies. Swaggering his way through foot-thick government reports. He was a scrawny, big-city teenager with a cheap gun in his hand and nothing in his heart but ruthlessness. There were thousands out there just like him, we were told, a generation of killers about to hurl the country into deepest chaos.

In 1995 the criminologist James Alan fox wrote a report for the U.S. Attorney General that grimly detailed the coming spike in murders by teenagers. Fox proposed optimistic and pessimistic scenarios. In the optimistic scenario, he believed, the rate of teen homicides would rise another 15 percent over the next decade; in the pessimistic scenario, it would more than double. "The next crime wave will get so bad," he said, "that it will make 1995 look like the good old days."

Other criminologists, political scientists, and similarly learned forecasters laid out the same horrible future, as did President Clinton. "We know we've got about six years to turn this juvenile crime thing around," Clinton said, "or our country is going to be living with chaos. And my successors will not be giving speeches about the wonderful opportunities of the global economy; they'll be trying to keep body and soul together for people

on the streets of these cities." the smart money was plainly on the criminals.

And then, instead of going up and up and up, crime began to fall. And fall and fall and fall some more. The crime drop was startling in several respects. It was ubiquitous, with every category of crime falling in every part of the country. It was persistent, with incremental decreases year after year. And it was entirely unanticipated—especially by the very experts who had been predicting the opposite.

The magnitude of the reversal was astounding. The teenage murder rate, instead of rising 100 percent or even 15 percent as James Alan Fox had warned, fell more than 50 percent within five years. By 2000 the overall murder rate in the United States had dropped to its lowest level in thirty-five years. So had the rate of just about every other sort of crime, from assault to car theft.

even though the experts had failed to anticipate the crime drop— which was in fact well under way even as they made their horrifying predictions—they now hurried to explain it. Most of their theories sounded perfectly logical. It was the roaring 1990s economy, they said, that helped turn back crime. It was the proliferation of gun control laws, they said. It was the sort of innovative policing strategies put into place in New York City, where murders would fall from 2,262 in 1990 to 540 in 2005.

These theories were not only logical; they were also encouraging, for they attributed the crime drop to specific and recent human initiatives. If it was gun control and clever police strategies and better-paying jobs that quelled crime—well then, the power to stop criminals had been within our reach all along. As it would be the next time, god forbid, that crime got so bad.

These theories made their way, seemingly without friction, from the experts' mouths to journalists' ears to the public's mind. In short course, they became conventional wisdom. There was only one problem: they weren't true.

There was another factor, meanwhile, that had greatly contributed to the massive crime drop of the 1990s. It had taken shape more than twenty years earlier and concerned a young woman in Dallas named Norma McCorvey.

Like the proverbial butterfly that flaps its wings on one continent and eventually causes a hurricane on another, Norma McCorvey dramatically altered the course of events without intending to. All she had wanted was an abortion. She was a poor, uneducated, unskilled, alcoholic, drug-using twenty-one-year-old woman who had already given up two children for adoption and now, in 1970, found herself pregnant again. But in Texas, as in all but a few states at that time, abortion was illegal. McCorvey s cause came to be adopted by people far more powerful than she. they made her the lead plaintiff in a class-action lawsuit seeking to legalize abortion. The defendant was henry wade, the Dallas county district attorney. The case ultimately made it to the U.S. Supreme Court, by which time McCorvey's name had been disguised as Jane Roe. On January 22, 1973, the court ruled in favor of Ms. Roe, allowing legalized abortion throughout the United States. By this time, of course, it was far too late for Ms. McCorvey/Roe to have her abortion. She had given birth and put the child up for adoption. (Years later she would renounce her allegiance to legalized abortion and become a pro-life activist.)

So how did Roe v. Wade help trigger, a generation later, the greatest crime drop in recorded history? As far as crime is concerned, it turns out that not all children are born equal. Not even close. Decades of studies have shown that a child born into an adverse family environment is far more likely than other children to become a criminal. And the millions of women most likely to have an abortion in the wake of roe v. wade—poor, unmarried, and teenage mothers for whom illegal abortions had been too expensive or too hard to get—were often models of adversity. They were the very women whose children, if born, would have been much more likely than average to become criminals. But because of roe v. wade, these children weren't being born. This powerful cause would have a drastic, distant effect: years later, just as these unborn children would have entered their criminal primes, the rate of crime began to plummet.

It wasn't gun control or a strong economy or new police strategies that finally blunted the American crime wave. It was, among other factors, the reality that the pool of potential criminals had dramatically shrunk.

Now, as the crime-drop experts (the former crime doomsayers) spun their theories to the media, how many times did they cite legalized abortion as a cause? Zero.

It is the quintessential blend of commerce and camaraderie: you hire a real-estate agent to sell your home. She sizes up its charms, snaps some pictures, sets the price, writes a seductive ad, shows the house aggressively, negotiates the offers, and sees the deal through to its end. Sure, it's a lot of work, but she's getting a nice cut. On the sale of a $300,000 house, a typical 6 percent agent fee yields $18,000. Eighteen thousand dollars, you say to yourself: that's a lot of money. But you also tell yourself that you never could have sold the house for $300,000 on your own. The agent knew how to—what's that phrase she used?—"maximize the house's value." she got you top dollar, right? Right?

A real-estate agent is a different breed of expert than a criminologist, but she is every bit the expert. That is, she knows her field far better than the layman on whose behalf she is acting. She is better informed about the house's value, the state of the housing market, even the buyer s frame of mind. You depend on her for this information. That, in fact, is why you hired an expert.

As the world has grown more specialized, countless such experts have made themselves similarly indispensable. Doctors, lawyers, contractors, stockbrokers, auto mechanics, mortgage brokers, financial planners: they all enjoy a gigantic informational advantage. And they use that advantage to help you, the person who hired them, get exactly what you want for the best price. Right?

It would be lovely to think so. But experts are human, and humans respond to incentives. How any given expert treats you, therefore, will depend on how that expert's incentives are set up. Sometimes his incentives may work in your favor. for instance: a study of California auto mechanics found they often passed up a small repair bill by letting failing cars pass emissions inspections—the reason being that lenient mechanics are rewarded with repeat business. But in a different case, an expert's incentives may work against you. In a medical study, it turned out that obstetricians in areas with declining birth rates are much more likely to perform cesarean- section deliveries than obstetricians in growing areas—suggesting that, when business is tough, doctors try to ring up more expensive procedures.

It is one thing to muse about experts' abusing their position and another to prove it. The best way to do so would be to measure how an expert treats you versus how he performs the same service for himself. Unfortunately a surgeon doesn't operate on himself. Nor is his medical file a matter of public record; neither is an auto mechanic's repair log for his own car.

Real-estate sales, however, are a matter of public record. And real-estate agents often do sell their own homes. A recent set of data covering the sale of nearly 100,000 houses in suburban Chicago shows that more than 3,000 of those houses were owned by the agents themselves.

Before plunging into the data, it helps to ask a question: what is the real-estate agent's incentive when she is selling her own home? Simple: to make the best deal possible. Presumably this is also your incentive when you are selling your home. And so your incentive and the real-estate agent's incentive would seem to be nicely aligned. Her commission, after all, is based on the sale price.

But as incentives go, commissions are tricky. First of all, a 6 percent real-estate commission is typically split between the seller's agent and the buyer's. Each agent then kicks back roughly half of her take to the agency. Which means that only 1.5 percent of the purchase price goes directly into your agent's pocket.

So on the sale of your $300,000 house, her personal take of the $18,000 commission is $4,500. Still not bad, you say. But what if the house was actually worth more than $300,000? What if, with a little more effort and

patience and a few more newspaper ads, she could have sold it for $310,000? After the commission, that puts an additional $9,400 in your pocket. But the agent's additional share—-her personal 1.5 percent of the extra $10,000—is a mere $150. If you earn $9,400 while she earns only $150, maybe your incentives aren't aligned after all. (Especially when she's the one paying for the ads and doing all the work.) Is the agent willing to put out all that extra time, money, and energy for just $150?

There's one way to find out: measure the difference between the sales data for houses that belong to real-estate agents themselves and the houses they sold on behalf of clients. using the data from the sales of those 100,000 Chicago homes, and controlling for any number of variables—location, age and quality of the house, aesthetics, whether or not the property was an investment, and so on—it turns out that a real-estate agent keeps her own home on the market an average often days longer and sells it for an extra 3-plus percent, or $10,000 on a $300,000 house. When she sells her own house, an agent holds out for the best offer; when she sells yours, she encourages you to take the first decent offer that comes along. Like a stockbroker churning commissions, she wants to make deals and make them fast. Why not? Her share of a better offer—$150—is too puny an incentive to encourage her to do otherwise.

Of all the truisms about politics, one is held to be truer than the rest: money buys elections. Arnold Schwarzenegger, Michael Bloomberg, Jon Corzine—these are but a few recent, dramatic examples of the truism at work. (disregard for a moment the contrary examples of Steve Forbes, Michael Huffington, and especially Thomas glissando, who over the course of three gubernatorial elections in New York spent $93 million of his own money and won 4 percent, 8 percent, and 14 percent, respectively, of the vote.) Most people would agree that money has an undue influence on elections and that far too much money is spent on political campaigns.

Indeed, election data show it is true that the candidate who spends more money in a campaign usually wins. But is money the cause of the victory?

It might seem logical to think so, much as it might have seemed logical that a booming 1990s economy helped reduce crime. But just because two things are correlated does not mean that one causes the other. A correlation simply means that a relationship exists between two factors—let's call them x and y— but it tells you nothing about the direction of that relationship. It's possible that causes y; it's also possible that f causes x; and it may be that x and fare both being caused by some other factor, z.

Think about this correlation: cities with a lot of murders also tend to have a lot of police officers. Consider now the police/murder correlation in a pair of real cities. Denver and Washington, D.C., have about the same population—but Washington has nearly three times as many police as Denver, and it also has eight times the number of murders. Unless you have more information, however, it's hard to say what's causing what. Someone who didn't know better might contemplate these figures and conclude that it is all those extra police in Washington who are causing the extra murders. Such wayward thinking, which has a long history, generally provokes a wayward response. Consider the folktale of the czar who learned that the most disease-ridden province in his empire was also the province with the most doctors. His solution? He promptly ordered all the doctors shot dead.

Now, returning to the issue of campaign spending: in order to figure out the relationship between money and elections, it helps to consider the incentives at play in campaign finance. Let's say you are the kind of person who might contribute $ 1,000 to a candidate. Chances are you'll give the money in one of two situations: a close race, in which you think the money will influence the outcome; or a campaign in which one candidate is a sure winner and you would like to bask in reflected glory or receive some future in-kind consideration. The one candidate you won't contribute to is a sure loser. (just ask any presidential hopeful who bombs in Iowa and New Hampshire.) So front-runners and incumbents raise a lot more money than long shots. And what about spending that money? incumbents and front-runners obviously have more cash, but they only spend a lot of it when they stand a legitimate chance of losing; otherwise, why dip into a war chest that might be more

useful later on, when a more formidable opponent appears?

Now picture two candidates, one intrinsically appealing and the other not so. The appealing candidate raises much more money and wins easily. But was it the money that won him the votes, or was it his appeal that won the votes instead of the money? That’s a crucial question but a very hard one to answer. Voter appeal, after all, isn't easy to quantify. How can it be measured?

It can't, really—except in one special case. The key is to measure a candidate against . . . himself. That is, candidate a today is likely to be similar to candidate a two or four years hence. The same could be said for candidate b. if only candidate a ran against candidate b in two consecutive elections but in each case spent different amounts of money. Then, with the candidates' appeal more or less constant, we could measure the money's impact.

As it turns out, the same two candidates run against each other in consecutive elections all the time—indeed, in nearly a thousand U.S. congressional races since 1972. What do the numbers have to say about such cases?

Here’s the surprise: the amount of money spent by die candidates hardly matters at all. A winning candidate can cut his spending in half and lose only 1 percent of the vote. Meanwhile, a losing candidate who doubles his spending can expect to shift the vote in his favor by only that same 1 percent. What really matters for a political candidate is not how much you spend; what matters is who you are. (the same could be said—and will be said, in chapter 5—about parents.) Some politicians are inherently attractive to voters and others simply aren't, and no amount of money can do much about it. (Messrs. Forbes, Huffington, and Golisano already know this, of course.) And what about the other half of the election truism—that the amount of money spent on campaign finance is obscenely huge? in a typical election period that includes campaigns for the presidency, the senate, and the house of representatives, about $1 billion is spent per year—which sounds like a lot of money, unless you care to measure it against something seemingly less important than democratic elections.

It is the same amount, for instance, that Americans spend every year on chewing gum. This isn't a book about the cost of chewing gum versus campaign spending per se, or about disingenuous real-estate agents, or the impact of legalized abortion on crime. It will certainly address these scenarios and dozens more, from the art of parenting to the mechanics of cheating, from the inner workings of a crack-selling gang to racial discrimination on the weakest link. What this book is about is stripping a layer or two from the surface of modern life and seeing what is happening underneath. We will ask a lot of questions, some frivolous and some about life- and-death issues. The answers may often seem odd but, after the fact, also rather obvious. We will seek out these answers in the data—whether those data come in the form of schoolchildren's test scores or New York City’s crime statistics or a crack dealer's financial records. Often we will take advantage of patterns in the data that were incidentally left behind, like an airplane s sharp contrail in a high sky. It is well and good to opine or theorize about a subject, as humankind is wont to do, but when moral posturing is replaced by an honest assessment of the data, the result is often a new, surprising insight.

Morality, it could be argued, represents the way that people would like the world to work—whereas economics represents how it actually does work. Economics is above all a science of measurement. It comprises an extraordinarily powerful and flexible set of tools that can reliably assess a thicket of information to determine the effect of any one factor, or even the whole effect. That’s what "the economy" is, after all: a thicket of information about jobs and real estate and banking and investment. But the tools of economics can be just as easily applied to subjects that are more—well, more interesting.

This book, then, has been written from a very specific worldview, based on a few fundamental ideas: incentives are the cornerstone of modern life. And understanding them—or, often, ferreting them out—is the key to solving just about any riddle, from violent crime to sports cheating to online dating.

The conventional wisdom is often wrong. Crime didn't keep soaring in the 1990s; money alone doesn't win

elections, and—surprise— drinking eight glasses of water a day has never actually been shown to do a thing for your health. Conventional wisdom is often shoddily formed and devilishly difficult to see through, but it can be done. Dramatic effects often have distant, even subtle, causes. The answer to a given riddle is not always right in front of you. Norma McCorvey had a far greater impact on crime than did the combined forces of gun control, a strong economy, and innovative police strategies. So did, as we shall see, a man named Oscar Danilo Blandon, aka the Johnny Appleseed of crack.

"Experts"—from criminologists to real-estate agents—use their informational advantage to serve their own agenda. However, they can be beat at their own game. And in the face of the internet, their informational advantage is shrinking every day—as evidenced by, among other things, the falling price of coffins and life-insurance premiums.

Knowing what to measure and how to measure it makes a complicated world much less so. If you learn to look at data in the right way, you can explain riddles that otherwise might have seemed impossible. Because there is nothing like the sheer power of numbers to scrub away layers of confusion and contradiction.

So the aim of this book is to explore the hidden side of... everything. This may occasionally be a frustrating exercise. It may sometimes feel as if we are peering at the world through a straw or even staring into a funhouse mirror; but the idea is to look at many different scenarios and examine them in a way they have rarely been examined. In some regards, this is a strange concept for a book. Most books put forth a single theme, crisply expressed in a sentence or two, and then tell the entire story of that theme: the history of salt; the fragility of democracy; the use and misuse of punctuation. This book has no such unifying theme. We did consider, for about six minutes, writing a book that would revolve around a single theme—the theory and practice of applied microeconomics, anyone?—but opted instead for a sort of treasure-hunt approach. Yes, this approach employs the best analytical tools that economics can offer, but it also allows us to follow whatever freakish curiosities may occur to us. Thus our invented field of study: Freakonomics. The sort of stories told in this book are not often covered in econ 101, but that may change. Since the science of economics is primarily a set of tools, as opposed to a subject matter, then no subject, however offbeat, need be beyond its reach.

It is worth remembering that Adam Smith, the founder of classical economics, was first and foremost a philosopher. He strove to be a moralist and, in doing so, became an economist. When he published the theory of moral sentiments in 1759, modern capitalism was just getting under way. Smith was entranced by the sweeping changes wrought by this new force, but it wasn't just the numbers that interested him. It was the human effect, the fact that economic forces were vastly changing the way a person thought and behaved in a given situation. What might lead one person to cheat or steal while another didn't? How would one person's seemingly innocuous choice, good or bad, affect a great number of people down the line? In smith's era, cause and effect had begun to wildly accelerate; incentives were magnified tenfold. The gravity and shock of these changes were as overwhelming to the citizens of his time as the gravity and shock of modern life may seem to us today.

Smith’s true subject was the friction between individual desire and societal norms. The economic historian Robert Heilbroner, writing in the worldly philosophers, wondered how smith was able to separate the doings of man, a creature of self-interest, from the greater moral plane in which man operated. "Smith held that the answer lay in our ability to put ourselves in the position of a third person, an impartial observer," Heilbroner wrote, "and in this way to form a notion of the objective . . . merits of a case."

Consider yourself, then, in the company of a third person—or, if you will, a pair of third people—eager to explore the objective merits of interesting cases. These explorations generally begin with the asking of a simple unasked question. Such as: what do schoolteachers and sumo wrestlers have in common?