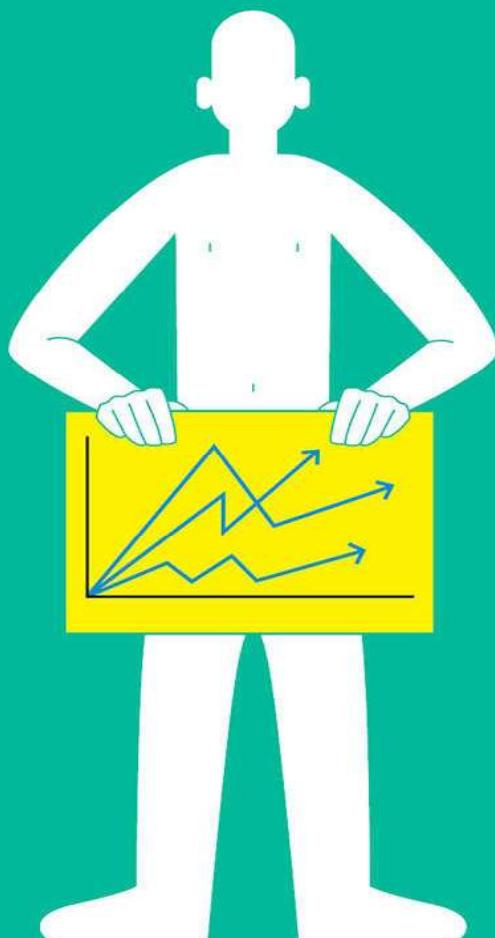


naked economics

UNDRESSING THE DISMAL SCIENCE

FULLY REVISED
AND UPDATED



"Wheelan has an
anti-Midas touch.
If he touched gold he
would turn it to life."
—from the Foreword

charles wheelan

FOREWORD BY BURTON G. MALKIEL

naked economics
Undressing the Dismal Science

fully revised and updated

CHARLES WHEELAN

Foreword by Burton G. Malkiel



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For Leah

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Foreword

by Burton G. Malkiel

It is widely believed that Scotsman Thomas Carlyle labeled economics the “dismal science” well over one hundred years ago because it seemed boring, uninteresting, unclear, and full of “on the one hand, on the other hand.” Indeed, Harry Truman is reported to have said that to avoid ambiguity, he wanted to have “one-armed economists.” In fact, Carlyle had something very different in mind. What Carlyle reminded us was that scarcity was pervasive—that we have to make choices between competing satisfactions, between jam today and jam tomorrow, and between conflicting values and goals. Above all, the dour Scot emphasized that everything has a cost and nothing can be produced without work and sacrifice.

To be sure, many people do believe that economics and economists are dismal in the popular sense, that is, extraordinarily dull. As one definition goes: “An economist is someone who is good with numbers but does not have the personality to be an accountant.” The tarnished image of economists is in large part earned by their tendency to opaque writing, their use of often inscrutable diagrams, and their excessive use of mathematics. Moreover, they often fail to admit what they don’t know.

Why is economics the butt of so many jokes, and why do students often become glassy-eyed when confronted with the study of economics as a discipline? The reasons, I think, are that economists generally do not write well and that most economics texts rely far too much on algebraic manipulation and complex diagrams. Moreover, few economists are able to transmit the

considerable excitement of economic analysis or to show its relevance to everyday life. This book by Charles Wheelan changes all that. Wheelan has an anti-Midas touch. If he touched gold he would turn it to life.

This is a truly unique book. It contains no equations, no inaccessible jargon, and no inscrutable diagrams. While equations and diagrams may well be behind many of the ideas in economics, Wheelan shows that they can be reduced to plain English. He boils economics down to its essentials. He demonstrates that the term “lucid economist” is not an oxymoron.

In these pages, we see how many of the criticisms of economists are undeserved. Economic analysis is a hard and complex subject—in many cases far more complex than analysis in the physical sciences. Physics can elegantly explain simple contained systems such as the planets revolving around the sun or electrons in orbit around an atom. But even the physical sciences have difficulty understanding phenomena in nature. Weather forecasting is a case in point. Despite complex satellite observations and intricate weather forecasting models, meteorologists often cannot improve on very naive forecasting models such as “The weather tomorrow will be exactly like it is today.” To be sure, the inertia model misses all the turning points but retains an excellent overall record. And when forecasters are asked to make longer-run projections on such subjects as global warming, their range of forecasts makes economic forecasts appear precise by comparison.

Economics is more difficult than the physical sciences because we cannot usually run controlled laboratory experiments and because people do not always behave predictably. A whole new branch of behavioral economics has attracted considerable attention by combining the insights of psychologists and economists, but we still are unable to predict individual behavior with any precision. But that we are far from understanding everything does not mean that we understand nothing. We do know that individual behavior is strongly influenced by incentives. We do know that there are many logical regularities, and we have enjoyed a steady accumulation of knowledge. We do know that every sale involves a purchase and that obvious opportunities for profit are rarely overlooked—the basic idea behind the theory that our securities markets are remarkably efficient.

And as inexact as economic science may be, it has a direct impact on our lives and it has a critical role to play in government policymaking. Economists influence all branches of government. The tasks of promoting economic growth and high employment while avoiding inflation have long been recognized as the domain of government economists. Remember Bill Clinton’s most successful campaign slogan during the 1992 election? “It’s the economy, stupid!”

campaign slogan during the 1992 election? It's the economy, stupid! Promoting competition and restraining monopolies (Justice Department), limiting pollution (Environmental Protection Agency), and providing medical care (Health and Human Services) are examples of major activities within different cabinet departments that have crucially important economic components. Indeed, it is hard to think of any political decisions, be they on social, tax and expenditure, international, agricultural, or national security issues, that do not have economic consequences. And however skeptical politicians may be about the ability of economists to solve these problems, the economists' advice is not ignored. Indeed, as John Maynard Keynes once wrote, "Practical men, who believe themselves to be quite exempt from any intellectual influence, are usually the slaves of some defunct economist. Madmen in authority, who hear voices in the air, are distilling their frenzy from some academic scribbler of a few years back."

The influence of economists is also increasingly pervasive in the business and financial communities. Peter Lynch, the former manager of Fidelity's Magellan mutual fund, once opined that if you spent fourteen minutes talking to an economist you would have wasted twelve minutes. Perhaps it is ironic that the investment performance of professional mutual fund managers is now regularly evaluated based on techniques developed by financial economists. Moreover, economists influence countless other business decisions. They project product demand for companies as diverse as General Motors and Procter & Gamble. They are employed in large numbers by consulting firms engaged in business tasks from strategic planning to inventory control. They help investment firms fashion portfolios of securities by analyzing the trade-offs between expected return and risk. They advise chief financial officers of corporations on dividend policy and on the effect of debt on the price of the firm's common stock. In our financial markets, option traders on the floors of the major options exchanges carry hand-held computers programmed with an economic model to tell them the prices at which they should trade put and call options. The fact is that economic analysis is incredibly useful for investors and producers as well as for government policymakers.

Ordinary consumers will also find that economics can illuminate many perplexing everyday issues. Why is it so hard for individuals to buy health insurance? Why do we stop at McDonald's along a highway even though many other establishments may make better hamburgers? Why do so many people apply to "prestige" colleges even though many other institutions offer just as good an education at far lower prices? Have you ever wondered what such common terms as "adverse selection," "public goods," and "the prisoner's

dilemma” have to do with everyday life? These are among the subjects treated in this delightful book.

It's often said that if you ask ten economists the same question you will get ten different answers. But I'll wager that if you asked ten economists why there is a shortage of cabs and apartments in New York City, all ten would tell you that limitations on the number of taxi medallions and rent control are what restrict the supply of these goods and services. There are certainly many areas where economists are in virtual unanimous agreement. Economists overwhelmingly agree that free international trade can improve the standard of living of the trading countries and that tariffs and import quotas reduce general welfare. Economists generally agree that rent controls reduce the volume and quality of housing. Economists were virtually unanimous in their forecast that the horrific tragedy of September 11, 2001, would lead to a contraction of economic activity. My own experience in government suggests that there is far less difference in the views of economists (be they conservative Republicans or liberal Democrats) than there is between economists and those who come from different disciplines. Economists of contrasting political views agree among themselves on most issues. A bipartisan majority of economists is quite likely to unite on the opposite side of a bipartisan coalition of politicians.

The reason, I believe, is that economists have a unique way of viewing the world and thinking about how to solve problems. Thinking like an economist involves chains of deductive reasoning in conjunction with simplified models such as supply and demand. It involves identifying trade-offs in the context of constraints. It measures the cost of one choice in terms of the foregone benefits of another. It involves the goal of efficiency—that is, getting the most out of limited resources. It takes a marginalist or incremental approach. It asks how much extra benefit can be achieved by incurring some extra cost. It recognizes that resources have many diverse uses and that substitutions can be made among different resources to achieve desired results. Finally, the economist has a predilection to believe that welfare is increased by allowing individuals to make their own choices and to argue that competitive markets are a particularly efficient mechanism for giving expression to individual choices. And while all economic problems involve normative issues (views about what should be), thinking like an economist involves an analytical approach that usually abstracts from or at least downplays “value” issues.

This gem of a book is both well balanced and extremely comprehensive. It recognizes the benefits of the free market in making our lives better and shows why centrally controlled economies ultimately fail to increase the living

standards of their citizens. At the same time it recognizes the crucial role of government in creating the legal framework that makes markets possible and in providing public goods. It also understands the role of government in correcting situations when the free market creates undesirable externalities such as environmental pollution or where private markets will fail to produce some of the goods the country's citizens desire.

Did you ever wonder why mohair farmers earned a subsidy from the federal government for decades? Wheelan explains how politics and economics can lead to such results. Do you really understand why Ben Bernanke was often referred to as the second most powerful person in the United States? Wheelan demystifies the effect of monetary policy on economic activity. Did you ever consider that you never fully understood the final scene from the movie *Trading Places* when the bad guys were wiped out in the commodities futures market? Wheelan makes the theory of supply and demand completely accessible. Have you ever wondered if the people who protest against globalization have a good point and whether either the developed or developing nations would be better off with less economic integration? Wheelan will make the issues crystal-clear. When you read the newspapers about disputes concerning current economic issues, are you often perplexed and dismayed at the cacophony of competing arguments? Wheelan parses the jargon and pierces the politics to lay bare the essential issues. In so doing, he successfully transforms the dismal science into a lively weaving of economics and politics into the fabric of national discourse and policy.

Wheelan has produced a delightfully readable guide to economic literacy. By boiling economics down to its essentials, he makes the reader a more informed citizen who can better understand the major economic issues of the day. He shows that economics can be explained without graphs, charts, and equations. He demonstrates that economic analysis can be intensely interesting. The book should provide a useful supplement for the college and high school basic course on the economy. More important, it can stand on its own as an introduction to the field that will change the views of those people who have rejected the study of economics as incredibly tedious and terminally boring. I have often considered writing a basic introduction to economics myself, but competing projects always intervened. Had I done so, this is the book I would have wanted to write.

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Introduction

The scene is strikingly familiar. At a large American university, a graduate student stands at the front of a grand lecture hall drawing graphs and equations on a chalkboard. He may speak proficient English; he may not. The material is dry and mathematical. Come exam time, students may be asked to derive a demand curve or differentiate a total cost function. This is Economics 101.

Students are rarely asked, as they might be, why basic economics made the collapse of the Soviet Union inevitable (allocating resources without a price system is overwhelmingly difficult in the long run), what economic benefit smokers provide for nonsmokers (they die earlier, leaving more Social Security and pension benefits for the rest of us), or why mandating more generous maternity leave benefits may actually be detrimental to women (employers may discriminate against young women when hiring).

Some students will stick with the discipline long enough to appreciate “the big picture.” The vast majority will not. Indeed, most bright, intellectually curious college students suffer through Econ 101, are happy to pass, and then wave goodbye to the subject forever. Economics is filed away with calculus and chemistry—rigorous subjects that required a lot of memorization and have little to do with anything that will come later in life. And, of course, a lot of bright students avoid the course in the first place. This is a shame on two levels.

First, many intellectually curious people are missing a subject that is provocative, powerful, and highly relevant to almost every aspect of our lives. Economics offers insight into policy problems ranging from organ donation to affirmative action. The discipline is intuitive at times and delightfully counterintuitive at others. It is peppered with great thinkers. Some, such as

Adam Smith and Milton Friedman, have captured mainstream attention. But others, such as Gary Becker and George Akerlof, have not gotten the recognition outside of academe that they deserve. Too many people who would gladly curl up with a book on the Civil War or a biography of Samuel Johnson have been scared away from a subject that should be accessible and fascinating.

Second, many of our brightest citizens are economically illiterate. The media are full of references to the powerful Federal Reserve, which played a crucial role in the U.S. government response to the global financial crisis. But how many people can explain what exactly the Fed does? Even many of our political leaders could use a dose of Econ 101. President Donald Trump has made repeated assertions that outsourcing and globalization are “stealing” American jobs, leaving us poorer and more likely to be unemployed. International trade, like any kind of market-based competition, does create some losers. But the notion that it makes us collectively worse off is wrong. In fact, those kinds of statements are the economic equivalent of warning that the U.S. Navy is at risk of sailing over the edge of the world. In my lifetime, the guy who made the most colorful assertion along these lines was Ross Perot, a quirky third party candidate in 1992 (when Bill Clinton and George H. W. Bush were running as the mainstream candidates); Perot argued emphatically during the presidential debates that the North American Free Trade Agreement (NAFTA) would lead to a “giant sucking sound” as jobs left the United States for Mexico. The phrase was memorable; the economics were wrong. It didn’t happen.

The Perot campaign was, as he might have put it, “a dog that didn’t hunt.” But that does not mean that those world leaders who do get themselves elected have a solid grasp of basic economics. The French government in 2000 undertook a program to tackle chronic double-digit unemployment with a policy that was the economic equivalent of fool’s gold. The Socialist-led government lowered the maximum workweek from thirty-nine hours to thirty-five hours; the supposed logic was that if all people with jobs work fewer hours, then there will be work left over for the unemployed to do. The policy did have a certain intuitive appeal; then again, so does using leeches to suck toxins out of the body. Sadly, neither leeches nor a shorter workweek will cause anything but harm in the long run.

The French policy was based on the fallacy that there are a fixed number of jobs in the economy, which must therefore be rationed. It’s utter nonsense. The American economy has created millions of new Internet-related jobs over the last four decades—jobs that not only didn’t exist in 1980, but that no one could have even imagined—all without the government trying to divvy up work hours.

In 2008, the French government under Nicolas Sarkozy passed legislation

allowing companies and workers to negotiate away the thirty-five-hour workweek, in large part because the policy did nothing to fix the unemployment problem. No sane economist ever thought it would—which doesn't necessarily mean that politicians (and the people who elect them) were willing to listen to that advice.

Which is not to say that America doesn't have its own economic issues to deal with. Antiglobalization protesters first took to the streets in Seattle in 1999, smashing windows and overturning cars to protest a meeting of the World Trade Organization (WTO). Were the protesters right? Will globalization and burgeoning world trade ruin the environment, exploit workers in the developing world, and put a McDonald's on every corner? Or was *New York Times* columnist Thomas Friedman closer to the mark when he called the protesters "a Noah's ark of flat-earth advocates, protectionist trade unions and yuppies looking for their 1960's fix"?¹

During the 2016 presidential election, Donald Trump railed against trade agreements like the Trans-Pacific Partnership (TPP) and NAFTA. Were Trump's criticisms good economics, or just good politics? (Hillary Clinton had supported the TPP as Secretary of State in the Obama Administration; NAFTA was passed while her husband, Bill Clinton, was president.) After [Chapter 12](#), you can decide.

Income inequality has become one of the defining issues of our time. The personal computer, the Internet, artificial intelligence, and other kinds of technology are radically changing our economy, creating winners and losers. The underlying economics have not changed; the labor market has always rewarded skills that can be used to generate profits, whether that is throwing a baseball 101 miles per hour or running a multinational corporation. However, technology and globalization are widening the wage gap between the most skilled workers (who are typically made more productive by new technology) and the least skilled workers (who are most at risk of being replaced by machines). [Chapter 6](#) explores a question at the heart of economics (and many political battles): Why do some people earn hundreds of millions of dollars while others do not earn enough to raise themselves out of poverty?

I offer only one promise in this book: There will be no graphs, no charts, and no equations. These tools have their place in economics. Indeed, mathematics can offer a simple, even elegant way of representing the world—not unlike telling someone that it is seventy-two degrees outside rather than having to describe how warm or cool it feels. But at bottom, the most important ideas in

economics are intuitive. They derive their power from bringing logic and rigor to bear on everyday problems. Consider a thought exercise proposed by Glenn Loury, a theoretical economist at Boston University: Suppose that ten job applicants are vying for a single position. Nine of the job candidates are white and one is black. The hiring company has an affirmative action policy stipulating that when minority and nonminority candidates are of equal merit, the minority candidate will be hired.

Further suppose that there are two top candidates; one is white, the other is black. True to policy, the firm hires the black candidate. Loury (who is black) makes this subtle but simple point: Only one of the white candidates has suffered from affirmative action; the other eight wouldn't have gotten the job anyway. *Yet all nine white candidates go away angry, feeling that they have been discriminated against.* Loury is not necessarily a foe of affirmative action. He merely adds nuance to a discussion that usually has none. Affirmative action can harm the very race relations that it seeks to heal.

Or consider the periodic campaign to mandate that insurance companies cover the cost of two nights in the hospital for women who have delivered babies, rather than just one. President Bill Clinton found this issue sufficiently important that he vowed in his 1998 State of the Union address to end "drive-by deliveries." But there is a cost to such a plan that should be made explicit. An extra night in the hospital is not medically necessary in most cases, but it is expensive, which is why new parents don't pay for it themselves and insurance companies don't want to pay for it either. If insurance companies are forced to offer this benefit (or any other new benefit mandated by law), then they will recover their extra costs by raising premiums. And when premiums go up, some people on the margin will no longer be able to afford any health insurance at all. So the real policy question is: Are we willing to pass a law that will make many women more comfortable if it means that a much smaller number of men and women will lose coverage for basic care?

The tradeoff underlying that seemingly narrow question has enormous resonance as America debates health care reform. The more generous a health care system is in the benefits it guarantees, the more it is going to cost. That's true regardless of whether the government is operating the system or not. In fact, the most important question related to health care reform often gets far too little attention: Given the proliferation of fabulously expensive medical technology, some of which produces great results and some of which doesn't, how do we design a system that says "yes" to procedures that justify their cost and "no" to those that don't?

Is economics one big advertisement for the Republican Party? Not exactly. Even Milton Friedman, a Nobel laureate in economics and the most articulate spokesman for free markets, would concede that unfettered markets can lead to deeply flawed outcomes. Consider the American lust for the automobile. The problem is not that we like cars; the problem is that we don't have to pay the full cost of driving them. Yes, we buy the car and then pay for maintenance, insurance, and gasoline. But we don't have to pay for some of the other significant costs of our driving: the emissions we leave behind, the congestion we cause, the wear and tear on public roads, the danger we pose to drivers in smaller cars. The effect is a bit like a night on the town with Dad's credit card: We do a lot of things that we wouldn't do if we had to pay the whole bill. We drive huge cars, we avoid public transportation, we move to far-flung suburbs and then commute long distances.

Individuals don't get the bill for this behavior, but society does—in the form of air pollution, global warming, traffic congestion, and urban sprawl. The best way to deal with this growing problem is not the stuff that laissez-faire conservatives usually talk about. It is higher taxes on gasoline and cars. Only with those kinds of measures, as we shall explore in [Chapter 3](#), will the cost of climbing behind the wheel of a car (or a hulking SUV) reflect the real social cost of that activity. Similarly, larger subsidies for public transportation would properly reward those commuters who spare the rest of us by not getting into their cars.

Meanwhile, economists have done some of the most substantive work on social issues like discrimination. Have the world's symphony orchestras historically discriminated against women? Harvard economist Claudia Goldin and Princeton economist Cecilia Rouse came up with a novel way of finding out. In the 1950s, American orchestras began to use "blind" auditions, meaning that the aspiring orchestra member would perform behind screens. Judges did not know the identity or gender of the musician trying out. Did women do better under this blind system than they did when judges knew their gender? Yes, decidedly so. Once the auditions became anonymous, women were roughly 50 percent more likely to make it past the first round and several times more likely to make the final cut.²

Economics presents us with a powerful, and not necessarily complex, set of analytical tools that can be used to look back and explain why events unfolded the way they did; to look around and make sense of the world; and to look forward so that we can anticipate the effects of major policy changes. Economics

is like gravity: Ignore it and you will be in for some rude surprises.

The demise of the investment bank Lehman Brothers, which declared bankruptcy on September 15, 2008, ushered in “the financial crisis,” which deserves its frequent description as the worst economic downturn since the Great Depression. How did it happen? How did so many consumers, who are supposed to have a rational understanding of their own well-being, end up crushed by a housing “bubble”? Who were the knuckleheads who loaned them all that money? Why did Wall Street create things like “CDOs” and credit-default swaps, and why did they prove so devastating to the financial system?

[Chapter 2](#) makes the case that most of the reckless behavior that led to the financial crisis was predictable given the incentives built into the system. Why did mortgage brokers originate so many reckless loans? *Because it wasn’t their money!* They were paid on commission by the banks that made the loans. More mortgages meant more commissions, and bigger mortgages meant bigger commissions.

So why were the banks willing to put so much of their own capital at risk (particularly given the incentives of the mortgage brokers who were bringing them customers)? Because banks typically “sell” most of their mortgage loans, meaning that they get a lump sum of cash now from some third-party investor who gets the stream of future mortgage payments in return. (You may now recognize this situation as an adult version of “hot potato”; it doesn’t matter how bad a loan is as long as you can pass it on to someone else before the borrower defaults.)

Okay, then who would buy these loans? That’s what [Chapter 2](#) explains. I’ll give you one clue now: Wall Street gets involved and it doesn’t end well.

Having written all that, I must admit that there is some soul searching going on in the economics profession. As obvious as the financial crisis seems after the fact, few economists saw it coming (with some notable exceptions). Virtually none anticipated how severe it might be. In the fall of 2005, several prominent economists wrote in a prestigious journal, “As of the end of 2004, our analysis reveals little evidence of a housing bubble.”³

Wrong. Actually the article was worse than wrong, because it was written explicitly to refute the signs of a bubble that had become obvious to many laypeople—which is kind of like the fire department showing up at a house with smoke wafting from the roof and declaring, “No, that’s not a fire,” only to have flames start leaping from the attic twenty minutes later. There was a bubble. And it can be explained best by incorporating psychology into economics, namely the mistaken tendency of individuals to believe that whatever is happening now is

~~instinctive tendency of individuals to believe that whatever is happening now is what's most likely to happen in the future.~~

Economics is evolving, like every discipline. One of the most interesting and productive areas of inquiry is the field of behavioral economics, which explores how individuals make decisions—sometimes in ways that aren't as rational as economists have traditionally theorized. We humans underestimate some risks (obesity) and overestimate others (flying); we let emotion cloud our judgment; we overreact to both good news and bad news (rising home prices and then falling home prices).

Most of this was obvious to Shakespeare, but it's relatively new to mainstream economics. As *New York Times* columnist David Brooks noted, “Economic behavior can be accurately predicted through elegant models. This view explains a lot, but not the current financial crisis—how so many people could be so stupid, incompetent and self-destructive all at once. The crisis has delivered a blow to classical economics and taken a body of psychological work that was at the edge of public policy thought and brought it to front and center.”⁴ Richard Thaler was awarded the 2017 Nobel Prize in Economics for his work elucidating common quirks in human decision-making that are inconsistent with traditional economic theory. We can make better policy, he pointed out, when we recognize how and why humans typically make flawed decisions.

Of course, most of the old ideas are still pretty darn important. Ben Bernanke, who was Federal Reserve Chairman during the financial crisis, was a scholar of the Great Depression at Princeton before he was appointed Fed chair. Chapter 10 will make the case that Bernanke’s creative and aggressive interventions at the Federal Reserve, many of which were inspired by what went wrong in the 1930s, prevented a bad situation from getting much, much worse.

This book walks through some of the most powerful concepts in economics while simplifying the building blocks or skipping them entirely. Each chapter covers subjects that could be made into an entire book. Indeed, there are minor points in every chapter that have launched and sustained entire academic careers. I have glossed over or skipped much of the technical structure that forms the backbone of the discipline. And that is exactly the point: One need not know where to place a load-bearing wall in order to appreciate the genius of Frank Lloyd Wright. This book is not economics for dummies; it is economics for smart people who never studied economics (or have only a vague recollection of doing so). Most of the great ideas in economics are intuitive when the dressings of complexity are peeled away. *That is naked economics.*

Economics should not be accessible only to the experts. The ideas are too important and too interesting. Indeed, naked economics can even be fun.

naked economics

CHAPTER 1

The Power of Markets: *Who feeds Paris?*

In 1989, as the Berlin Wall was toppling, Douglas Ivester, head of Coca-Cola Europe (and later CEO), made a snap decision. He sent his sales force to Berlin and told them to start passing out Coke. Free. In some cases, the Coca-Cola representatives were literally passing bottles of soda through holes in the Wall. He recalls walking around Alexanderplatz in East Berlin at the time of the upheaval, trying to gauge whether there was any recognition of the Coke brand. “Everywhere we went, we asked people what they were drinking, and whether they liked Coca-Cola. But we didn’t even have to say the name! We just shaped our hands like the bottle, and people understood. We decided we would move as much Coca-Cola as we could, as fast as we could—even before we knew how we would get paid.”¹

Coca-Cola quickly set up business in East Germany, giving free coolers to merchants who began to stock the “real thing.” It was a money-losing proposition in the short run; the East German currency was still worthless—scraps of paper to the rest of the world. But it was a brilliant business decision made faster than any government body could ever hope to act. By 1995, per capita consumption of Coca-Cola in the former East Germany had risen to the level in West Germany, which was already a strong market.

In a sense, it was Adam Smith’s invisible hand passing Coca-Cola through the Berlin Wall. Coke representatives weren’t undertaking any great humanitarian gesture as they passed beverages to the newly liberated East Germans. Nor were they making a bold statement about the future of communism. They were looking after business—expanding their global market,

boosting profits, and making shareholders happy. And that is the punch line of capitalism: The market aligns incentives in such a way that individuals working for their own best interest—passing out Coca-Cola, spending years in graduate school, planting a field of soybeans, designing a radio that will work in the shower—leads to a thriving and ever-improving standard of living for most (though not all) members of society.

Economists sometimes ask, “Who feeds Paris?”—a rhetorical way of drawing attention to the mind-numbing array of things happening every moment of every day to make a modern economy work. Somehow the right amount of fresh tuna makes its way from a fishing fleet in the South Pacific to a restaurant on the Rue de Rivoli. A neighborhood fruit vendor has exactly what his customers want every morning—from coffee to fresh papayas—even though those products may come from ten or fifteen different countries. In short, a complex economy involves billions of transactions every day, the vast majority of which happen without any direct government involvement. And it is not just that things get done; our lives grow steadily better in the process. It is remarkable enough that we can now shop for a television twenty-four hours a day from the comfort of our own homes; it is equally amazing that in 1971 a twenty-five-inch color television set cost an average worker 174 hours of wages. Today, a twenty-five-inch color television set—one that is more dependable, gets more channels, and has better reception—costs the average worker less than ten hours of pay.

If you think that a better, cheaper television set is not the best measure of social progress (a reasonable point, I concede), then perhaps you will be moved by the fact that, during the twentieth century, American life expectancy climbed from forty-seven years to seventy-seven, infant mortality plunged by 93 percent, and we wiped out or gained control over diseases such as polio, tuberculosis, typhoid, and whooping cough.²

Our market economy deserves a lot of the credit for that progress. There is an old Cold War story about a Soviet official who visits an American pharmacy. The brightly lit aisles are lined with thousands of remedies for every problem from bad breath to toe fungus. “Very impressive,” he says. “But how can you make sure that every store stocks all of these items?” The anecdote is interesting because it betrays a total lack of understanding of how a market economy works. In America, there is no central authority that tells stores what items to stock, as there was in the Soviet Union. Stores sell the products that people want to buy, and, in turn, companies produce items that stores want to stock. The Soviet economy failed in large part because government bureaucrats directed

everything, from the number of bars of soap produced by a factory in Irkutsk to the number of university students studying electrical engineering in Moscow. In the end, the task proved overwhelming.

Of course, those of us accustomed to market economies have an equally poor understanding of communist central planning. I was once part of an Illinois delegation visiting Cuba. Because the visit was licensed by the U.S. government, each member of the delegation was allowed to bring back \$100 worth of Cuban merchandise, including cigars. Having been raised in the era of discount stores, we all set out looking for the best price on Cohibas so that we could get the most bang for our \$100 allowance. After several fruitless hours, we discovered the whole point of communism: The price of cigars was the same everywhere. There was no competition between stores because there was no profit as we know it. Every store was selling cigars—and everything else for that matter—at whatever price Fidel Castro told them to. And every shopkeeper selling cigars was paid the government wage for selling cigars, which was unrelated to how many cigars he or she sold.

Gary Becker, a University of Chicago economist who won the Nobel Prize in 1992, has noted (borrowing from George Bernard Shaw) that “economy is the art of making the most of life.” Economics is the study of how we do that. There is a finite supply of everything worth having: oil, coconut milk, perfect bodies, clean water, people who can fix jammed photocopy machines, etc. How do we allocate these things? Why is it that Bill Gates owns a private jet and you don’t? He is rich, you might answer. But why is he rich? Why does he have a larger claim on the world’s finite resources than everyone else? At the same time, how is it possible in a country as rich as the United States—a place where Clayton Kershaw is paid \$33 million a year to play baseball—that one in five children is poor or that some adults are forced to rummage through garbage cans for food? Near my home in Chicago, the Three Dog Bakery sells cakes and pastries *only for dogs*. Wealthy professionals pay \$16 for birthday cakes for their pets. Meanwhile, the Chicago Coalition for the Homeless estimates that fifteen thousand people are homeless on any given night in that same city.

These kinds of disparities grow even more pronounced as we look beyond the borders of the United States. Half of the people in Chad have no access to clean drinking water, let alone pastries for their pets. The World Bank estimates that more than 750 million people live on less than \$1.90 a day. How does it all work—or, in some cases, not work?

Economics starts with one very important assumption: Individuals act to make

themselves as well off as possible. To use the jargon of the profession, individuals seek to maximize their own utility, which is a similar concept to happiness, only broader. I derive utility from getting a typhoid immunization and paying taxes. Neither of these things makes me particularly happy, but they do keep me from dying of typhoid or going to jail. That, in the long run, makes me better off. Economists don't particularly care what gives us utility; they simply accept that each of us has his or her own "preferences." I like coffee, old houses, classic films, dogs, bicycling, and many other things. Everyone else in the world has preferences, which may or may not have anything in common with mine.

Indeed, this seemingly simple observation that different individuals have different preferences is sometimes lost on otherwise sophisticated policymakers. For example, rich people have different preferences than poor people do. Similarly, our individual preferences may change over the course of our life cycle as we (we hope) grow wealthier. The phrase "luxury good" actually has a technical meaning to economists; it is a good that we buy in increasing quantities as we grow richer—things like sports cars and French wines. Less obviously, concern for the environment is a luxury good. Wealthy Americans are willing to spend more money to protect the environment *as a fraction of their incomes* than are less wealthy Americans. The same relationship holds true across countries; wealthy nations devote a greater share of their resources to protecting the environment than do poor countries. The reason is simple enough: We care about the fate of the Bengal tiger *because we can*. We have homes and jobs and clean water and birthday cakes for our dogs.

Here is a nettlesome policy question: Is it fair for those of us who live comfortably to impose our preferences on individuals in the developing world? Economists argue that it is not, though we do it all the time. When I read a story in the Sunday *New York Times* about South American villagers cutting down virgin rain forest and destroying rare ecosystems, I nearly knock over my Starbucks latte in surprise and disgust. But I am not they. My children are not starving or at risk of dying from malaria. If they were, and if chopping down a valuable wildlife habitat enabled me to afford to feed my family and buy a mosquito net, then I would sharpen my ax and start chopping. I wouldn't care how many butterflies or spotted weasels I killed. This is not to suggest that the environment in the developing world does not matter. It does. In fact, there are many examples of environmental degradation that will make poor countries even poorer in the long run. Cutting down those forests is bad for the rest of us, too, since deforestation is a major contributor to rising CO₂ emissions. (Economists often argue that rich countries ought to pay poor countries to protect natural

resources that have global value.)

Obviously if the developed world were more generous, then Brazilian villagers might not have to decide between destroying the rain forest and buying mosquito nets. For now, the point is more basic: It is simply bad economics to impose our preferences on individuals whose lives are much, much different. This will be an important point later in the book when we turn to globalization and world trade.

Let me make one other important point regarding our individual preferences: Maximizing utility is not synonymous with acting selfishly. In 1999, the *New York Times* published the obituary of Oseola McCarty, a woman who died at the age of ninety-one after spending her life working as a laundress in Hattiesburg, Mississippi. She had lived alone in a small, sparsely furnished house with a black-and-white television that received only one channel. What made Ms. McCarty exceptional is that she was by no means poor. In fact, four years before her death she gave away \$150,000 to the University of Southern Mississippi—a school that she had never attended—to endow a scholarship for poor students.

Does Oseola McCarty's behavior turn the field of economics on its head? Are Nobel Prizes being recalled to Stockholm? No. She simply derived more utility from saving her money and eventually giving it away than she would have from spending it on a big-screen TV or a fancy apartment.

Okay, but that was just money. How about Wesley Autrey, a fifty-year-old construction worker in New York City. He was waiting for the subway in Upper Manhattan with his two young daughters in January 2007 when a stranger nearby began having convulsions and then fell on the train tracks. If this wasn't bad enough, the Number 1 train was already visible as it approached the station.

Mr. Autrey jumped on the tracks and shielded the man as five train cars rolled over both of them, close enough that the train left a smudge of grease on Mr. Autrey's hat. When the train came to a stop, he yelled from underneath, "We're O.K. down here, but I've got two daughters up there. Let them know their father's O.K."³ This was all to help a complete stranger.

Brain science—our ability to peer into people's brains as they make decisions—offers new insights into altruism. Why might individuals do things that offer no obvious benefits, and might even put them in harm's way (like jumping onto the train tracks)? *The Economist* explains: "The answer, according to neuroscience, is that it feels good." Acting kindly toward others, including strangers, activates the brain's reward center, just like sex, money, chocolate, and drugs.⁴

The longer answer comes from evolutionary biology. Altruism helps humans cooperate with one another, and cooperation helps the species survive. Therefore, altruistic acts are not as irrational as they may appear in isolation. The brain has evolved to reward activities that promote group success. “Our altruism may be more hard-wired than previously thought,” declared a scientist at UCLA’s Semel Institute of Neuroscience and Human Behavior in 2016.⁵

We all routinely make altruistic decisions, albeit usually on a smaller scale. We may pay a few cents extra for dolphin-safe tuna, or send money to a favorite charity, or volunteer to serve in the armed forces. All of these things can give us utility; none would be considered selfish. Americans give more than \$200 billion to assorted charities every year. We hold doors open for strangers. We practice remarkable acts of bravery and generosity. None of this is incompatible with the basic assumption that individuals seek to make themselves as well off as possible, however they happen to define that. Nor does this assumption imply that we always make perfect—or even good—decisions. We don’t. But each of us does try to make the best possible decision given whatever information is available at the time.

So, after only a few pages, we have an answer to a profound, age-old philosophical question: Why did the chicken cross the road? Because it maximized his utility.

Bear in mind that maximizing utility is no simple proposition. Life is complex and uncertain. There are an infinite number of things that we could be doing at any time. Indeed, every decision that we make involves some kind of trade-off. We may trade off utility now against utility in the future. For example, you may derive some satisfaction from whacking your boss on the head with a canoe paddle at the annual company picnic. But that momentary burst of utility would presumably be more than offset by the disutility of spending many years in a federal prison. (But those are just my preferences.) More seriously, many of our important decisions involve balancing the value of consumption now against consumption in the future. We may spend years in graduate school eating ramen noodles because it dramatically boosts our standard of living later in life. Or, conversely, we may use a credit card to purchase a big-screen television today even though the interest on that credit card debt will lessen the amount that we can consume in the future.

Similarly, we balance work and leisure. Grinding away ninety hours a week as an investment banker will generate a lot of income, but it will also leave less time to enjoy the goods that can be purchased with that income. My younger brother began his career as a management consultant with a salary that had at

least one more digit than mine has now. On the other hand, he worked long and sometimes inflexible hours. One fall we both excitedly signed up for an evening film class taught by Roger Ebert. My brother proceeded to miss *every single class for thirteen weeks*.

However large our paychecks, we can spend them on a staggering array of goods and services. When you bought this book, you implicitly decided not to spend that money somewhere else. (Even if you shoplifted the book, you could have stuffed a Stephen King novel in your jacket instead, which is flattering in its own kind of way.) Meanwhile, time is one of our most scarce resources. At the moment, you are reading instead of working, playing with the dog, applying to law school, shopping for groceries, or having sex. Life is about trade-offs, and so is economics.

In short, getting out of bed in the morning and making breakfast involves more complex decisions than the average game of chess. (Will that fried egg kill me in twenty-eight years?) How do we manage? The answer is that each of us implicitly weighs the costs and benefits of everything we do. An economist would say that we attempt to maximize utility given the resources at our disposal; my dad would say that we try to get the most bang for our buck. Bear in mind that the things that give us utility do not have to be material goods. If you are comparing two jobs—teaching junior high school math or marketing Camel cigarettes—the latter job would almost certainly pay more while the former job would offer greater “psychic benefits,” which is a fancy way of saying that at the end of the day you would feel better about what you do. That is a perfectly legitimate benefit to be compared against the cost of a smaller paycheck. In the end, some people choose to teach math and some people choose to market cigarettes.

Similarly, the concept of cost is far richer (pardon the pun) than the dollars and cents you hand over at the cash register. The real cost of something is what you must give up in order to get it, which is almost always more than just cash. There is nothing “free” about concert tickets if you have to stand in line in the rain for six hours to get them. Taking the bus for \$2.75 may not be cheaper than taking an Uber for \$15 if you are running late for a meeting with a peevish client who will pull a \$50,000 account if you keep her waiting. Shopping at a discount store saves money but it usually costs time. I am a writer; I get paid based on what I produce. I could drive ninety miles to shop at an outlet in Kenosha, Wisconsin, to save \$50 on a new pair of dress shoes. Or I could walk into Nordstrom on Michigan Avenue and buy the shoes while I am out for lunch. I generally choose the latter; the total cost is \$225, fifteen minutes of my time, and ~~some hectoring from my mother who will invariably ask “Why didn’t you drive~~

Some reciting from my mother, who will invariably ask, “Why won’t you move to Kenosha?”

Every aspect of human behavior reacts to cost in some way. When the cost of something falls, it becomes more attractive to us. You can learn that by deriving a demand curve, or you can learn it by shopping the day after Christmas, when people snap up things that they weren’t willing to buy for a higher price several days earlier. Conversely, when the cost of something goes up, we use less of it. This is true of everything in life, even cigarettes and crack cocaine. Economists have calculated that a 10 percent decrease in the street price of cocaine eventually causes the number of adult cocaine users to grow by about 10 percent. Similarly, researchers estimated that the first proposed settlement between the tobacco industry and the states (rejected by the U.S. Senate in 1998) would have raised the price of a pack of cigarettes by 34 percent. In turn, that increase would have reduced the number of teenage smokers by a quarter, leading to 1.3 million fewer smoking-related premature deaths among the generation of Americans seventeen or younger at the time.⁶ Of course, society has already raised the cost of smoking in ways that have nothing to do with the price of a pack of cigarettes. Standing outside an office building when it is seventeen degrees outside is now part of the cost of smoking at work.

This broad view of cost can explain some very important social phenomena, one of which is the plummeting birth rate in the developed world. Having a child is more expensive than it was fifty years ago. This is not because it is more expensive to feed and clothe another little urchin around the house. If anything, those kinds of costs have gone down because we have become far more productive at making basic consumer goods like food and clothing. Rather, the primary cost of raising a child today is the cost of the earnings forgone when a parent, still usually the mother, quits or cuts back on work to look after the child at home. Because women have better professional opportunities than ever before, it has grown more costly for them to leave the workforce. My neighbor was a neurologist until her second child was born, at which point she decided to stay home. *It’s expensive to quit being a neurologist.*

Meanwhile, most of the economic benefits of having a large family have disappeared in the developed world. Young children no longer help out on the farm or provide extra income for the family (though they can be taught at a young age to fetch a beer from the refrigerator). We no longer need to have many children in order to ensure that some of them live through childhood or that we have enough dependents to provide for us in retirement. Even the most dour of economists would concede that we derive great pleasure from having

children. The point is that it is now more expensive to have eleven of them than it used to be. The data speak to that point: The average American woman had 3.77 children in 1905; she now has 2.07—a 45 percent drop.⁷

There is a second powerful assumption underpinning all of economics: Firms—which can be anything from one guy selling hot dogs to a multinational corporation—attempt to maximize profits (the revenue earned by selling stuff minus the cost of producing it). In short, firms try to make as much money as possible. Hence, we have an answer to another of life’s burning questions: Why did the entrepreneur cross the road? Because she could make more money on the other side.

Firms take inputs—land, steel, knowledge, baseball stadiums, etc.—and combine them in a way that adds value. That process can be as simple as selling cheap umbrellas on a busy corner in New York City when it starts to rain (where do those guys come from?) or as complex as assembling Boeing’s 787 Dreamliner (a passenger jet that required 800,000 hours on Cray supercomputers just to design). A profitable firm is like a chef who brings home \$30 worth of groceries and creates an \$80 meal. She has used her talents to create something that is worth far more than the cost of the inputs. That is not always an easy thing to do. Firms must decide what to produce, how and where to produce it, how much to produce, and at what price to sell what they produce—all in the face of the same kinds of uncertainties that consumers deal with.

How? These are massively complex decisions. One powerful feature of a market economy is that it directs resources to their most productive use. Why doesn’t Ryan Gosling sell automobile insurance? Because it would be an enormous waste of his unique talents. Yes, he is a charismatic guy who could probably sell more insurance policies than the average salesman. But he is also one of a handful of people in the world who can “open” a movie, meaning that millions of people around the world will go to see a film just because Ryan Gosling is in it. That is money in the bank in the risky Hollywood movie business, so studios are willing to pay handsomely to put Ryan Gosling in a starring role—about \$30 million a film. Insurance agencies would also be willing to pay for the Gosling charisma—but more like \$50,000. Ryan Gosling will go where he is paid the most. And he will be paid the most in Hollywood because that is where he can add the most value.

Prices are like giant neon billboards that flash important information. At the beginning of the chapter, we asked how a restaurant on the Rue de Rivoli in Paris has just the right amount of tuna on most nights. It is all about prices

~~Paris has just the right amount of tuna on most menus. It is all about prices.~~

When patrons start ordering more of the sashimi appetizer, the restaurateur places a larger order with his fish wholesaler. If tuna is growing more popular at other restaurants, too, then the wholesale price will go up, meaning that fishermen somewhere in the Pacific will get paid more for their tuna catch than they used to. Some fishermen, recognizing that tuna now commands a premium over other kinds of fish, will start fishing for tuna instead of salmon. Meanwhile, some tuna fishermen will keep their boats in the water longer or switch to more expensive fishing methods that can now be justified by the higher price their catch will fetch. These guys don't care about upscale diners in Paris. They care about the wholesale price of fish.

Money talks. Why are the pharmaceutical companies scouring the rain forests looking for plants with rare healing properties? Because the blockbuster drugs they may uncover earn staggering amounts of money. Other kinds of entrepreneurial activity take place on a smaller scale but are equally impressive in their own way. For several summers I coached a Little League baseball team near Cabrini Green, which is one of Chicago's rougher neighborhoods. One of our team customs was to go out periodically for pizza, and one of our favorite spots was Chester's, a small shack at the corner of Division and Sedgwick that was a testimony to the resiliency and resourcefulness of entrepreneurs. (It has since been demolished to make way for a new park as part of an aggressive development of Cabrini Green.) Chester's made decent pizza and was always busy. Thus, it was basically an armed robbery waiting to happen. But that did not deter the management at Chester's. They merely installed the same kind of bulletproof glass that one would find at the drive-up window of a bank. The customers placed their money on a small carousel, which was then rotated through a gap in the bulletproof glass. The pizza came out the other direction on the same carousel.

Profit opportunities attract firms like sharks to blood, even when bulletproof glass is required. We look for bold new ways to make money (creating the first reality TV show); failing that, we look to get into a business that is making huge profits for someone else (thereby creating the next twenty increasingly pathetic reality TV shows). All the while, we are using prices to gauge what consumers want. Of course, not every market is easy to enter. When LeBron James signed a four-year \$153 million contract with the Los Angeles Lakers, I thought to myself, "I need to play basketball for the Lakers." I would have gladly played for \$98 million, or, if pressed, for \$98,000. Several things precluded me from entering that market, however: (1) I'm five-ten; (2) I'm slow; and (3) when shooting under pressure, I have a tendency to miss the backboard. Why is

LeBron James paid almost \$40 million a year? Because nobody else can play like him. His unique talents create a barrier to entry for the rest of us. LeBron James is also the beneficiary of what University of Chicago labor economist Sherwin Rosen dubbed the “superstar” phenomenon. Small differences in talent tend to become magnified into huge differentials in pay as a market becomes very large, such as the audience for professional basketball. One need only be slightly better than the competition in order to gain a large (and profitable) share of that market.

In fact, LeBron’s salary is chump change compared to what talk-show host Rush Limbaugh is now paid. He recently signed an eight-year \$400 million contract with Clear Channel Communications, the company that syndicates his radio program around the country. Is Rush that much better than other political windbags willing to offer their opinions? He doesn’t have to be. He need only be a tiny bit more interesting than the next best radio option at that time of day in order to attract a huge audience—20 million listeners daily. Nobody tunes into their second-favorite radio station, so it’s winner-take-all when it comes to listeners and the advertisers willing to pay big bucks to reach them.

Many markets have barriers that prevent new firms from entering, no matter how profitable making widgets may be. Sometimes there are physical or natural barriers. Truffles cost \$500 a pound because they cannot be cultivated; they grow only in the wild and must be dug up by truffle-hunting pigs or dogs. Sometimes there are legal barriers to entry. Don’t try to sell sildenafil citrate on a street corner or you may end up in jail. This is not a drug that you snort or shoot up, nor is it illegal. It happens to be Viagra, and Pfizer holds the patent, which is a legal monopoly granted by the U.S. government. (Pfizer’s Viagra patent expires in April of 2020.) Economists may quibble over how long a patent should last or what kinds of innovations should be patentable, but most would agree that the entry barrier created by a patent is an important incentive for firms to make the kinds of investments that lead to new products. The political process creates entry barriers for dubious reasons, too. When the U.S. auto industry was facing intense competition from Japanese automakers in the 1980s, the American car companies had two basic options: (1) They could create better, cheaper, more fuel-efficient cars that consumers might want to buy; or (2) they could invest heavily in lobbyists who would persuade Congress to enact tariffs and quotas that would keep Japanese cars out of the market.

Some entry barriers are more subtle. The airline industry is far less competitive than it appears to be. You and some college friends could start a new airline relatively easily; the problem is that you wouldn’t be able to land

your planes anywhere. There are a limited number of gate spaces available at most airports, and they tend to be controlled by the big guys. At Chicago's O'Hare Airport, one of the world's biggest and busiest airports, American and United control some 80 percent of all the gates.⁸ Or consider a different kind of entry barrier that has become highly relevant in the Internet age: network effects. The basic idea of a network effect is that the value of some goods rises with the number of other people using them. Could you become as rich as Mark Zuckerberg by creating an alternative to Facebook? Probably not. Facebook has nearly two billion users. (I'm not sure if this figure includes the Russian hackers or not.) The reason Facebook is so popular is that Facebook is so popular. It would be very difficult to introduce a rival social networking site—no matter how good the technical features—as long as most of the world is on Facebook.

Meanwhile, firms are not just choosing what goods or services to produce but also how to produce them. I will never forget stepping off a plane in Kathmandu, Nepal; the first thing I saw was a team of men squatting on their haunches as they cut the airport grass by hand with sickles. Labor is cheap in Nepal; lawn mowers are very expensive. The opposite is true in the United States, which is why we don't see many teams of laborers using sickles. It is also why we have ATMs and self-service gas stations and those terribly annoying phone trees ("If you are now frustrated to the point of violence, please press the pound key"). All are cases where firms have automated jobs that used to be done by living beings. After all, one way to raise profits is by lowering the cost of production. That may mean laying off twenty thousand workers or building a plant in Vietnam instead of Colorado.

Firms, like consumers, face a staggering array of complex choices. Again, the guiding principle is relatively simple: What is going to make the firm the most money in the long run?

All of which brings us to the point where producers meet consumers. How much are you going to pay for that doggie in the window? Introductory economics has a very simple answer: the market price. This is that whole supply and demand thing. The price will settle at the point where the number of dogs for sale exactly matches the number of dogs that consumers want to buy. If there are more potential pet owners than dogs available, then the price of dogs will go up. Some consumers will then decide to buy ferrets instead, and some pet shops will be induced by the prospect of higher profits to offer more dogs for sale. Eventually the supply of dogs will match the demand. Remarkably, some markets actually

work this way. If I choose to sell a hundred shares of Microsoft on the NASDAQ, I have no choice but to accept the “market price,” which is simply the price at which the number of Microsoft shares for sale on the exchange exactly equals the number of shares that buyers would like to purchase.

Most markets do not look quite so much like the textbooks. There is not a “market price” for Gap sweatshirts that changes by the minute depending on the supply and demand of reasonably priced outerwear. Instead, the Gap, like most other firms, has some degree of market power, which means very simply that the Gap has some control over what it can charge. The Gap could sell sweatshirts for \$9.99, eking out a razor-thin profit on each. Or it could sell far fewer sweatshirts for \$29.99, but make a hefty profit on each. If you were in the mood to do calculus at the moment, or I had any interest in writing about it, then we would find the profit-maximizing price right now. I’m pretty sure I had to do it on a final exam once. The basic point is that the Gap will attempt to pick a price that leads to the quantity of sales that earn the company the most money. The marketing executives may err either way: They may underprice the items, in which case they will sell out; or they may overprice the items, in which case they will have a warehouse full of sweatshirts.

Actually, there is another option. A firm can attempt to sell the same item to different people at different prices. (The fancy name is “price discrimination.”) The next time you are on an airplane, try this experiment: Ask the person next to you how much he or she paid for the ticket. It’s probably not what you paid; it may not even be close. You are sitting on the same plane, traveling to the same destination, eating the same peanuts—yet the prices you and your row mate paid for your tickets may not even have the same number of digits.

The basic challenge for the airline industry is to separate business travelers, who are willing to pay a great deal for a ticket, from pleasure travelers, who are on tighter budgets. If an airline sells every ticket at the same price, the company will leave money on the table no matter what price it chooses. A business traveler may be willing to pay \$1,800 to fly round trip from Chicago to San Francisco; someone flying to cousin Irv’s wedding will shell out no more than \$250. If the airline charges the high fare, it will lose all of its pleasure travelers. If it charges the low fare, it will lose all the profits that business travelers would have been willing to pay. What to do? Learn to distinguish business travelers from pleasure travelers and then charge each of them a different fare.

The airlines are pretty good at this. Why does a flexible ticket typically cost more than one with a huge change fee for switching to a different flight? Because business travelers typically require more flexibility than pleasure

travelers, so they will pay more upfront for the right to change their ticket at the last minute. Similarly, buying the ticket two weeks ahead of time is usually much cheaper than buying it eleven minutes before the flight leaves. Vacationers plan ahead while business travelers (and very rich people) tend to buy tickets at the last minute. Airlines are the most obvious example of price discrimination, but look around and you will start to see it everywhere. Al Gore complained during the 2000 presidential campaign that his mother and his dog were taking the same arthritis medication but that his mother paid much more for her prescription. Never mind that he made up the story after reading about the pricing disparity between humans and canines. The example is still perfect. There is nothing surprising about the fact that the same medicine will be sold to dogs and people at different prices. It's airline seats all over again. People will pay more for their own medicine than they will for their pet's. So the profit-maximizing strategy is to charge one price for patients with two legs and another price for patients with four.

Price discrimination will become even more prevalent as technology enables firms to gather more information about their customers. It is now possible, for example, to charge different prices to customers ordering on-line rather than over the phone. Or, a firm can charge different prices to different on-line customers depending on the pattern of their past purchases. The logic behind firms like Priceline (a website where consumers bid for travel services) is that every customer could conceivably pay a different price for an airline ticket or hotel room. In an article entitled "How Technology Tailors Price Tags," the *Wall Street Journal* noted, "Grocery stores appear to be the model of one price for all. But even today, they post one price, charge another to shoppers willing to clip coupons and a third to those with frequent-shopper cards that allow stores to collect detailed data on buying habits."⁹

What can we infer from all of this? Consumers try to make themselves as well off as possible and firms try to maximize profits. Those are seemingly simple concepts, yet they can tell us a tremendous amount about how the world works.

The market economy is a powerful force for making our lives better. The only way firms can make profits is by delivering goods that we want to buy. They create new products—everything from thermal coffee mugs to lifesaving antibiotics. Or they take an existing product and make it cheaper or better. This kind of competition is fabulously good for consumers. In 1900, a three-minute

phone call from New York to Chicago cost \$5.45, the equivalent of about \$140 today. Now the same call is essentially free if you have a mobile phone with unlimited minutes. Profit inspires some of our greatest work, even in areas like higher education, the arts, and medicine. How many world leaders fly to North Korea when they need open-heart surgery?

At the same time, the market is amoral. Not immoral, simply amoral. The market rewards scarcity, which has no inherent relation to value. Diamonds are worth thousands of dollars a carat while water (if you are bold enough to drink it out of the tap) is nearly free. If there were no diamonds on the planet, we would be inconvenienced; if all the water disappeared, we would be dead. The market does not provide goods that we need; it provides goods that *we want to buy*. This is a crucial distinction. Our medical system does not provide health insurance for the poor. Why? Because they can't pay for it. Our most talented doctors do provide breast enhancements and face-lifts for Hollywood stars. Why? Because they can pay for it. Meanwhile, firms can make a lot of money doing nasty things. Why do European crime syndicates kidnap young girls in Eastern Europe and sell them into prostitution in wealthier countries? Because it's profitable.

In fact, criminals are some of the most innovative folks around. Drug traffickers can make huge profits by transporting cocaine from where it is produced (in the jungles of South America) to where it is consumed (in the cities and towns across the United States). This is illegal, of course; U.S. authorities devote a great amount of resources to interdicting the supply of such drugs headed toward potential consumers. As with any other market, drug runners who find clever ways of eluding the authorities are rewarded with huge profits.

Customs officials are pretty good at sniffing out (literally in many cases) large caches of drugs moving across the border, so drug traffickers figured out that it was easier to skip the border crossings and move their contraband across the sea and into the United States using small boats. When the U.S. Coast Guard began tracking fishing boats, drug traffickers invested in "go fast" boats that could outrun the authorities. And when U.S. law enforcement adopted radar and helicopters to hunt down the speedboats, the drug runners innovated yet again, creating the trafficking equivalent of Velcro or the iPhone: homemade submarines. In 2006, the Coast Guard stumbled across a forty-nine-foot submarine—handmade in the jungles of Colombia—that was invisible to radar and equipped to carry four men and three tons of cocaine. In 2000, Colombian police raided a warehouse and discovered a one-hundred-foot submarine under

construction that would have been able to carry two hundred tons of cocaine. Coast Guard Rear Admiral Joseph Nimmich told the *New York Times*, “Like any business, if you’re losing more and more of your product, you try to find a different way.”¹⁰ Like tunnels. In 2011, police discovered a 400-yard tunnel connecting the Mexican city of Tijuana to a warehouse south of San Diego.¹¹ The U.S. Border Patrol has begun using robots to search the border for such tunnels.¹² In 2012, drug traffickers used a pneumatic canon to fire soup cans full of marijuana across the border into Arizona.¹³ And so on.

The market is like evolution; it is an extraordinarily powerful force that derives its strength from rewarding the swift, the strong, and the smart. That said, it would be wise to remember that two of the most beautifully adapted species on the planet are the rat and the cockroach.

Our system uses prices to allocate scarce resources. Since there is a finite amount of everything worth having, the most basic function of any economic system is to decide who gets what. Who gets tickets to the Super Bowl? The people who are willing to pay the most. Who had the best seats for the Supreme Soviet Bowl in the old USSR (assuming some such event existed)? The individuals chosen by the Communist Party. Prices had nothing to do with it. If a Moscow butcher received a new shipment of pork, he slapped on the official state price for pork. And if that price was low enough that he had more customers than pork chops, he did not raise the price to earn some extra cash. He merely sold the chops to the first people in line. Those at the end of the line were out of luck. Capitalism and communism both ration goods. We do it with prices; the Soviets did it by waiting in line. (Of course, the communists had many black markets; it is quite likely that the butcher sold extra pork chops illegally out the back door of his shop.)

Because we use price to allocate goods, most markets are self-correcting. Periodically the oil ministers from the OPEC nations will meet in an exotic locale and agree to limit the global production of oil. Several things happen shortly thereafter: (1) Oil and gas prices start to go up; and (2) politicians begin falling all over themselves with ideas, mostly bad, for intervening in the oil market. But high prices are like a fever; they are both a symptom and a potential cure. While politicians are puffing away on the House floor, some other crucial things start to happen. We drive less. We get one heating bill and decide to

insulate the attic. We go to the Ford showroom and walk past the Expeditions to the Escorts.

When gas prices approached \$4 a gallon in 2008, the rapid response of American consumers surprised even economists. Americans began buying smaller cars (SUV sales plunged while subcompact sales rose). We drove fewer total miles (the first monthly drop in 30 years). We climbed on public buses and trains, often for the first time; transit ridership was higher in 2008 than at any time since the creation of the interstate highway system five decades earlier.¹⁴

Not all such behavioral changes were healthy. Many consumers switched from cars to motorcycles, which are more fuel efficient but also more dangerous. After falling steadily for years, the number of U.S. motorcycle deaths began to rise in the mid-1990s, just as gas prices began to climb. A study in the *American Journal of Public Health* estimated that every \$1 increase in the price of gasoline is associated with an additional 1,500 motorcycle deaths annually.¹⁵

High oil prices cause things to start happening on the supply side, too. Oil producers outside of OPEC start pumping more oil to take advantage of the high price; indeed, the OPEC countries usually begin cheating on their own production quotas. Domestic oil companies begin pumping oil from wells that were not economical when the price of petroleum was low. Meanwhile, a lot of very smart people begin working more seriously on finding and commercializing alternative sources of energy. The price of oil and gasoline begins to drift down as supply rises and demand falls.

If we fix prices in a market system, private firms will find some other way to compete. Consumers often look back nostalgically at the “early days” of airplane travel, when the food was good, the seats were bigger, and people dressed up when they traveled. This is not just nostalgia speaking; the quality of coach air travel has fallen sharply. But the price of air travel has fallen even faster. Prior to 1978, airline fares were fixed by the government. Every flight from Denver to Chicago cost the same, but American and United were still competing for customers. They used quality to distinguish themselves. When the industry was deregulated, price became the primary margin for competition, presumably because that is what consumers care more about. Since then, everything related to being in or near an airplane has become less pleasant, but the average fare, adjusted for inflation, has fallen by nearly half.

In 1995, I was traveling across South Africa, and I was struck by the remarkable service at the gas stations along the way. The attendants, dressed in

sharp uniforms, often with bow ties, would scurry out to fill the tank, check the oil, and wipe the windshield. The bathrooms were spotless—a far cry from some of the scary things I've seen driving across the USA. Was there some special service station mentality in South Africa? No. The price of gasoline was fixed by the government. So service stations, which were still private firms, resorted to bow ties and clean bathrooms to attract customers.

Every market transaction makes all parties better off. Firms are acting in their own best interests, and so are consumers. This is a simple idea that has enormous power. Consider an inflammatory example: The problem with Asian sweatshops is that there are not enough of them. Adult workers take jobs in these unpleasant, low-wage manufacturing facilities voluntarily. (I am not writing about forced labor or child labor, both of which are different cases.) So one of two things must be true. Either (1) workers take unpleasant jobs in sweatshops because it is the best employment option they have; or (2) Asian sweatshop workers are persons of weak intellect who have many more attractive job offers but choose to work in sweatshops instead.

Most arguments against globalization implicitly assume number two. Anti-globalization protesters often try to make the case that workers in the developing world would be better off if we curtailed international trade, thereby closing down the sweatshops that churn out shoes and handbags for those of us in the developed world. But how exactly does that make workers in poor countries better off? It does not create any new opportunities. The only way it could possibly improve social welfare is if fired sweatshop workers take new, better jobs—opportunities they presumably ignored when they went to work in a sweatshop. When was the last time a plant closing in the United States was hailed as good news for its workers?

Sweatshops are nasty places by Western standards. And yes, one might argue that Nike should pay its foreign workers better wages out of sheer altruism. But they are a symptom of poverty, not a cause. Nike pays a typical worker in one of its Vietnamese factories roughly \$600 a year. That is a pathetic amount of money. It also happens to be twice an average Vietnamese worker's annual income.¹⁶ Indeed, sweatshops played an important role in the development of countries like South Korea and Taiwan, as we will explore in [Chapter 12](#).

Given that economics is built upon the assumption that humans act consistently

in ways that make themselves better off, one might reasonably ask: Are we really that rational? Not always, it turns out. One of the fiercest assaults on the notion of “strict rationality” comes from a seemingly silly observation. Economist Richard Thaler, the 2017 Nobel laureate I mentioned earlier, hosted a dinner party years ago at which he served a bowl of cashews before the meal. He noticed that his guests were wolfing down the nuts at such a pace that they would likely spoil their appetite for dinner. So Thaler took the bowl of nuts away, at which point his guests thanked him.¹⁷

Believe it or not, this little vignette exposed a fault in the basic tenets of microeconomics and guided much of Thaler’s subsequent work: In theory, it should never be possible to make rational individuals better off by denying them some option. People who don’t want to eat too many cashews should just stop eating cashews. But they don’t. And that finding turns out to have implications far beyond salted nuts. For example, if humans lack the self-discipline to do things that they know will make themselves better off in the long run (e.g., lose weight, stop smoking, or save for retirement), then society could conceivably make them better off by helping (or coercing) them to do things they otherwise would not or could not do—the public policy equivalent of taking the cashew bowl away. “We humans are absent minded, tend to be a little overweight. We procrastinate and are notoriously overconfident,” Thaler said in his Nobel Banquet speech. “To be sure, we still need traditional economic theory. But to make accurate predictions we need to enrich those theories by adding insights from other social sciences.”¹⁸

The field of behavioral economics has evolved as a marriage between psychology and economics that offers sophisticated insight into how humans really make decisions. Daniel Kahneman, a professor in both psychology and public affairs at Princeton, was awarded the Nobel Prize in Economics in 2002 for his studies of decision making under uncertainty, and, in particular, “how human decisions may systematically depart from those predicted by standard economic theory.”¹⁹

Kahneman and others have advanced the concept of “bounded rationality,” which suggests that most of us make decisions using intuition or rules of thumb, kind of like looking at the sky to determine if it will rain rather than spending hours poring over weather forecasts. Most of the time, this works just fine. Sometimes it doesn’t. The behavioral economists study ways in which these rules of thumb may lead us to do things that diminish our utility in the long run.

For example, individuals don’t always have a particularly refined sense of

risk and probability. This point was brought home to me recently as I admired a large Harley Davidson motorcycle parked on a sidewalk in New Hampshire (a state that does not require motorcycle helmets). The owner ambled up and said, “Do you want to buy it?” I replied that motorcycles are a little too dangerous for me, to which he exclaimed, “You’re willing to fly on a plane, aren’t you!”

In fact, riding a motorcycle is 2,000 times more dangerous than flying for every kilometer traveled. That’s not an entirely fair comparison since motorcycle trips tend to be much shorter. Still, any given motorcycle journey, regardless of length, is 14 times more likely to end in death than any trip by plane. Conventional economics makes clear that some people will ride motorcycles (with or without helmets) because the utility they get from going fast on a two wheeler outweighs the risks they incur in the process. That’s perfectly rational. But if the person making that decision doesn’t understand the true risk involved, then it may not be a rational trade-off after all.

Behavioral economics has developed a catalog of these kinds of potential errors, many of which are an obvious part of everyday life. Many of us don’t have all the self-control that we would like. Eighty percent of American smokers say they want to quit; most of them don’t. Some very prominent economists, including one Nobel Prize winner, have argued for decades that there is such a thing as “rational addiction,” meaning that individuals will take into account the likelihood of addiction and all its future costs when buying that first pack of Camels. MIT economist Jonathan Gruber, who has studied smoking behavior extensively, thinks that is nonsense. He argues that consumers don’t rationally weigh the benefits of smoking enjoyment against future health risks and other costs, as the standard economic model assumes. Gruber writes, “The model is predicated on a description of the smoking decision that is at odds with laboratory evidence, the behavior of smokers, econometric [statistical] analysis, and common sense.”²⁰

We may also lack the basic knowledge necessary to make sensible decisions in some situations. Annamaria Lusardi of the George Washington School of Business and Olivia Mitchell of the Wharton School at the University of Pennsylvania surveyed a large sample of Americans over the age of fifty to gauge their financial literacy. Only a third could do simple interest rate calculations; most did not understand the concept of investment diversification. (If you don’t know what that means either, you will after reading [Chapter 7](#).) Based on her research, Professor Lusardi has concluded that “financial illiteracy” is widespread.²¹

These are not merely esoteric fun facts that pipe-smoking academics like to

kick around in the faculty lounge. Bad decisions can have bad outcomes—for all of us. The global financial crisis arguably has its roots in irrational behavior. One of our behavioral “rules of thumb” as humans is to see patterns in what is really randomness; as a result, we assume that whatever is happening now will continue to happen in the future, even when data, probability, or basic analysis suggest the contrary. A coin that comes up heads four times in a row is “lucky”; a basketball player who has hit three shots in a row has a “hot hand.”

A team of cognitive psychologists made one of the enduring contributions to this field by disproving the “hot hand” in basketball using NBA data and by conducting experiments with the Cornell varsity men’s and women’s basketball teams. (This is the rare academic paper that includes interviews with the Philadelphia 76ers.) Ninety-one percent of basketball fans believe that a player has “a better chance of making a shot after having just made his last two or three shots than he does after having just missed his last two or three shots.” In fact, there is no evidence that a player’s chances of making a shot are greater after making a previous shot—not with field goals for the 76ers, not with free throws for the Boston Celtics, and not when Cornell players shot baskets as part of a controlled experiment.²²

Basketball fans are surprised by that—just as many homeowners were surprised in 2006 when real estate prices stopped going up. Lots of people had borrowed a lot of money on the assumption that what goes up must keep going up; the result was a wave of foreclosures with devastating ripple effects throughout the global economy—which is a heck of a lot more significant than eating too many cashews. Chapter 3 discusses what, if anything, public policy ought to do about our irrational tendencies.

As John F. Kennedy famously remarked, “Life is not fair.” Neither is capitalism in some important respects. Is it a good system?

I will argue that a market economy is to economics what democracy is to government: a decent, if flawed, choice among many bad alternatives. Markets are consistent with our views of individual liberty. We may disagree over whether or not the government should compel us to wear motorcycle helmets, but most of us agree that the state should not tell us where to live, what to do for a living, or how to spend our money. True, there is no way to rationalize spending money on a birthday cake for my dog when the same money could have vaccinated several African children. But any system that forces me to spend money on vaccines instead of doggy birthday cakes can only be held

together by oppression. The communist governments of the twentieth century controlled their economies by controlling their citizens' lives. They often wrecked both in the process. During the twentieth century, communist governments killed some 100 million of their own people in peacetime, either by repression or by famine.

Markets are consistent with human nature and therefore wildly successful at motivating us to reach our potential. I am writing this book because I love to write. I am writing this book because I believe that economics will be interesting to lay readers. And I am writing this book because I will soon have two children in college. We work harder when we benefit directly from our work, and that hard work often yields significant social gains.

Last and most important, we can and should use government to modify markets in all kinds of ways. The economic battle of the twentieth century was between capitalism and communism. Capitalism won. Even my leftist brother-in-law does not believe in collective farming or government-owned steel mills (though he did once say that he would like to see a health care system modeled after the U.S. Post Office). On the other hand, reasonable people can disagree sharply over when and how the government should involve itself in a market economy or what kind of safety net we should offer to those whom capitalism treats badly. The economic battles of the twenty-first century will be over how unfettered our markets should be.

CHAPTER 2

Incentives Matter:

Why you might be able to save your face by cutting off your nose (if you are a black rhinoceros)

The black rhinoceros is one of the most endangered species on the planet. Some 5,000 of them roam southern Africa, down from about 65,000 in 1970. This is an ecological disaster in the making. It is also a situation in which basic economics can tell us why the species is in such trouble—and perhaps even what we can do about it.

Why do people kill black rhinos? For the same reason they sell drugs or cheat on their taxes. Because they can make a lot of money relative to the risk of getting caught. In many Asian countries, the horn of the black rhino is believed to be a powerful aphrodisiac and fever reducer. It is also used to make the handles on traditional Yemenese daggers. As a result, a single rhino horn can fetch \$30,000 on the black market—a princely sum in countries where per capita income is around \$1,000 a year and falling. In other words, the black rhino is worth far more dead than alive to the people of impoverished southern Africa.

Sadly, this is a market that does not naturally correct itself. Unlike automobiles or personal computers, firms can't produce new black rhinos as they see the supply dwindling. Indeed, quite the opposite force is at work; as the black rhino becomes more and more imperiled, the black market price for rhino horn rises, providing even more incentive for poachers to hunt down the remaining animals. This vicious circle is compounded by another aspect of the situation that is common to many environmental challenges: Most black rhinos

are communal property rather than private property. That may sound wonderful. In fact, it creates more conservation problems than it solves. Imagine that all of the black rhinos were in the hands of a single avaricious rancher who had no qualms about making rhino horns into Yemenese daggers. This rancher has not a single environmental bone in his body. Indeed, he is so mean and selfish that sometimes he kicks his dog just because it gives him utility. Would this ogre of a rhino rancher have let his herd fall from 65,000 to 5,000 in fifty years? Never. He would have bred and protected the animals so that he would always have a large supply of horns to ship off to market—much as cattle ranchers manage their herds. This has nothing to do with altruism; it has everything to do with maximizing the value of a scarce resource.

Communal resources, on the other hand, present some unique problems. First, the villagers who live in close proximity to these majestic animals usually derive no benefit from having them around. To the contrary, large animals like rhinos and elephants can cause massive damage to crops. To put yourself in the shoes of local villagers, imagine that the people of Africa suddenly took a keen interest in the future of the North American brown rat and that a crucial piece of the conservation strategy involved letting these creatures live and breed in your house. Further imagine that a poacher came along and offered you cash to show him where the rats were nesting in your basement. Hmm. True, millions of people around the world derive utility from conserving species like the black rhino or the mountain gorilla. But that can actually be part of the problem; it is easy to be a “free rider” and let someone else, or some other organization, do the work. Last year, how much time and money did you contribute to preserving endangered species?

Tour and safari operators, who do make a lot of money by bringing wealthy tourists to see rare wildlife, face a similar “free rider” problem. If one tour company invests heavily in conservation, other tour companies that have made no such investment still enjoy all the benefits of the rhinos that have been saved. So the firm that spends money on conservation actually suffers a cost disadvantage in the market. Their tours will have to be more expensive (or they will have to accept a lower profit margin) in order to recoup their conservation investment. Obviously there is a role for government here. But the governments in sub-Saharan Africa are low on resources at best and corrupt and dysfunctional at worst. The one party who has a clear and powerful incentive is the poacher, who makes a king’s ransom by hunting down the remaining rhinos, killing them, and then sawing off their horns.

This is pretty depressing stuff. But economics also offers at least some

insight into how the black rhino and other endangered species can be saved. An effective conservation strategy must properly align the incentives of the people who live in or near the black rhino's natural habitat. Translation: Give local people some reason to want the animals alive rather than dead. This is the premise of the budding eco-tourism industry. If tourists are willing to pay great amounts of money to spot and photograph black rhinos, and, more important, *if local citizens somehow share the profits from this tourism*, then the local population has a large incentive to keep such animals alive. This has worked in places like Costa Rica, a country that has protected its rain forests and other ecological features by setting aside more than 25 percent of the country as national parks. Tourism currently generates over \$1 billion in annual revenue, accounting for 11 percent of the national income.¹

Sadly, this process is working in reverse at the moment with the mountain gorilla, another seriously endangered species (made famous by Dian Fossey, author of *Gorillas in the Mist*). It is estimated that only 620 mountain gorillas are left in the dense jungles of East Africa. But the countries that make up this region—Uganda, Rwanda, Burundi, and Congo—are embroiled in a series of civil wars that have devastated the tourism trade. In the past, local inhabitants have preserved the gorillas' habitat not because they have any great respect for the mountain gorilla, but because they can make more money from tourists than they can by chopping down the forests that make up the gorillas' habitat. That has changed as the violence in the region grinds on. One local man told the *New York Times*, “[The gorillas] are important when they bring in tourists. If not, they are not. If the tourists don't come, we will try our luck in the forest. Before this, we were good timber cutters.”²

Meanwhile, conservation officials are experimenting with another idea that is about as basic as economics can be. Black rhinos are killed because their horns fetch a princely sum. If there is no horn, then presumably there is no reason to poach the animals. Thus, some conservation officials have begun to capture black rhinos, saw off their horns, and then release the animals back into the wild. The rhinos are left mildly disadvantaged relative to some of their predators, but they are less likely to be hunted down by their most deadly enemy: man. Has it worked? The evidence is mixed. In some cases, poachers have continued to kill dehorned rhinos, for a number of possible reasons. Killing the animals without horns saves the poachers from wasting time tracking the same animal again. Also, there is some money to be made from removing and selling even the stump of the horn. And, sadly, dead rhinos, even without horns, make the species more endangered, which drives up the value of existing horn stocks.

Namibia has gone so far as to protect its rhinos by allowing trophy hunters to shoot them. The idea is not as asinine as it sounds (though it is controversial). Each year, the Namibian government auctions off the hunting permits for as many as five black rhinos; the fee paid by big game hunters is typically on the order of \$350,000 per rhino. All of the revenue is invested in conservation: building community conservancies; implanting transmitters in horns of wild rhinos to track their movements and health; and fighting poachers. The rhino hunters are only allowed to bag old males that are beyond normal breeding age. As one supporter points out, “Trophy hunting one rhino may thus save many others from being butchered.”³

All of this ignores the demand side of the equation. Should we allow trade in products made from endangered species? Most would say no. Making rhino-horn daggers illegal in countries like the United States lowers the overall demand, which diminishes the incentive for poachers to hunt down the animals. At the same time, there is a credible dissenting view. Some conservation officials argue that selling a limited amount of rhino horn (or ivory, in the case of elephants) that has been legally stockpiled would have two beneficial effects. First, it would raise money to help strapped governments pay for antipoaching efforts. Second, it would lower the market price for these illicit items and therefore diminish the incentive to poach the animals.

As with any complex policy issue, there is no right answer, but there are some ways of approaching the problem that are more fruitful than others. The point is that protecting the black rhino is at least as much about economics as it is about science. We know how the black rhino breeds, what it eats, where it lives. What we need to figure out is how to stop human beings from shooting them. That requires an understanding of how humans behave, not black rhinos.

Incentives matter. When we are paid on commission, we work harder; if the price of gasoline goes up, we drive less; when I give students quizzes on the assigned reading, they are more likely to do that reading. This was one of Adam Smith’s insights in *The Wealth of Nations*: “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.” Bill Gates did not drop out of Harvard to join the Peace Corps; he dropped out to found Microsoft, which made him one of the richest men on the planet and launched the personal computer revolution in the process —making all of us better off, too. Self-interest makes the world go around, a point that seems so obvious as to be silly. Yet it is routinely ignored. The old

slogan “From each according to his abilities, to each according to his needs” made a wonderful folk song; as an economic system, it has led to everything from inefficiency to mass starvation. In any system that does not rely on markets, personal incentives are usually divorced from productivity. Firms and workers are not rewarded for innovation and hard work, nor are they punished for sloth and inefficiency.

How bad can it get? Economists reckon that by the time the Berlin Wall crumbled, some East German car factories were actually destroying value. Because the manufacturing process was so inefficient and the end product was so shoddy, the plants were producing cars worth less than the inputs used to make them. Basically, they took perfectly good steel and ruined it! These kinds of inefficiencies can also exist in nominally capitalist countries where large sectors of the economy are owned and operated by the state, such as India. By 1991, the Hindustan Fertilizer Corporation had been up and running for twelve years.⁴ Every day, twelve hundred employees reported to work with the avowed goal of producing fertilizer. There was just one small complication: The plant had never actually produced any salable fertilizer. None. Government bureaucrats ran the plant using public funds; the machinery that was installed never worked properly. Nevertheless, twelve hundred workers came to work every day and the government continued to pay their salaries. The entire enterprise was an industrial charade. It limped along because there was no mechanism to force it to shut down. When government is bankrolling the business, there is no need to produce something and sell it for more than it cost to make.

These examples seem funny in their own way, but they aren’t. Right now, the North Korean economy is in such shambles that the country cannot feed itself, nor does it produce anything valuable enough to trade to the outside world in exchange for significant quantities of food. The nation is on the brink of famine, according to diplomats, United Nations officials, and other observers. This mass starvation would be a tragic repeat of the 1990s, when famine killed something on the order of a million people and left 60 percent of North Korean children malnourished. Journalists described starving people eating grass and scouring railroad tracks for bits of coal or food that may have fallen from passing trains.

In the United States, there is a great deal of hand-wringing about two energy-related issues: our dependence on foreign oil and the environmental impact of CO₂ emissions. To economists, the fix for these interrelated issues is as close to a no-brainer as we ever get: Make carbon-based energy more expensive. If it

costs more, we will use less—and therefore pollute less, too. I have powerful childhood memories of my father, who has no great affection for the environment but could squeeze a nickel out of a stone, stalking around the house closing the closet doors and telling us that he was not paying to air-condition our closets.

Meanwhile, American public education operates a lot more like North Korea than Silicon Valley. Consider one striking phenomenon related to incentives in education: The pay of American teachers is not linked in any way to performance; teachers' unions have consistently opposed any kind of merit pay. Instead, salaries in nearly every public school district in the country are determined by a rigid formula based on experience and years of schooling, factors that researchers have found to be generally unrelated to performance in the classroom. This uniform pay scale creates a set of incentives that economists refer to as adverse selection. Since the most talented teachers are also likely to be good at other professions, they have a strong incentive to leave education for jobs in which pay is more closely linked to productivity. For the least talented, the incentives are just the opposite.

The theory is interesting; the data are amazing. When test scores are used as a proxy for ability, the brightest individuals shun the teaching profession at every juncture. The brightest students are the least likely to choose education as a college major. Among students who do major in education, those with higher test scores are less likely to become teachers. And among individuals who enter teaching, those with the highest test scores are the most likely to leave the profession early. None of this proves that America's teachers are being paid enough. Many of them are not, especially those gifted individuals who stay in the profession because they love it. But the general problem remains: Any system that pays all teachers the same provides a strong incentive for the most talented among them to look for work elsewhere.

Having written all that, beware: Money is an imperfect, and sometimes ineffective, incentive. Harvard Economist Roland Fryer has conducted hundreds of experiments in schools around the country to determine if paying students for better academic outcomes, such as higher test scores or better grades, would improve their performance. Ninth graders in Chicago, for example, could earn up to \$2,000 for a dramatic improvement. Did it work? Not at all. There was no difference between the performance of students eligible for payment and a control group of students with no such incentives.

Fryer's theory is that students do not know how to improve their performance, so offering them cash to do better does not produce a meaningful

change in behavior. In a different experiment, he paid second graders \$2 for every book they read. This reward for *inputs*—something students can control directly—did change behavior and ultimately led to higher grades (though that is not what the students were rewarded for).⁵ Meanwhile, fining people for undesirable behavior might cause people to act worse not better. Several economists in Israel tried an experiment in which parents with children in a day care center were fined for picking up their youngsters more than ten minutes late. The number of late parents more than doubled. The best explanation is that the fine erased the shame of being late and replaced it with a “price” for doing so; parents felt more comfortable leaving their kids for extra time because they were now paying for it.⁶

Human beings are complex creatures who are going to do whatever it takes to make themselves as well off as possible. Sometimes it is easy to predict how that will unfold; sometimes it is enormously complex. Economists often speak of “perverse incentives,” which are the inadvertent incentives that can be created when we set out to do something completely different. In policy circles, this is sometimes called the “law of unintended consequences.” Consider a well-intentioned proposal to require that all infants and small children be restrained in car seats while flying on commercial airlines. During the Clinton administration, FAA administrator Jane Garvey told a safety conference that her agency was committed to “ensuring that children are accorded the same level of safety in aircraft as are adults.” James Hall, chairman of the National Transportation Safety Board at the time, lamented that luggage had to be stowed for takeoff while “the most precious cargo on that aircraft, infants and toddlers, were left unrestrained.”⁷ Garvey and Hall cited several cases in which infants might have survived crashes had they been restrained. Thus, requiring car seats for children on planes would prevent injuries and save lives.

Or would it? Using a car seat requires that a family buy an extra seat on the plane, which dramatically increases the cost of flying. Airlines no longer offer significant children’s discounts; a seat is a seat, and it is likely to cost at least several hundred dollars. As a result, some families will choose to drive rather than fly. Yet driving—even with a car seat—is dramatically more dangerous than flying. As a result, requiring car seats on planes might result in more injuries and deaths to children (and adults), not fewer.

Consider another example in which good intentions led to a bad outcome because the incentives were not fully anticipated. Mexico City is one of the most polluted cities in the world; the foul air trapped over the city by the surrounding

mountains and volcanoes has been described by the *New York Times* as “a grayish-yellow pudding of pollutants.”⁸ Beginning in 1989, the government launched a program to fight this pollution, much of which is caused by auto and truck emissions. A new law required that all cars stay off the streets one day a week on a rotating basis (e.g., cars with certain license plate numbers could not be driven on Tuesday). The logic of the plan was straightforward: Fewer cars on the road would lead to less air pollution.

So what really happened? As would be expected, many people did not like the inconvenience of having their driving days limited. They reacted in a way that analysts might have predicted but did not. Families who could afford a second car bought one, or simply kept their old car when buying a new one, so that they would always have one car that could be driven on any given day. This proved to be worse for emissions than no policy at all, since the proportion of old cars on the road went up, and old cars are dirtier than new cars. The net effect of the policy change was to put more polluting cars on the road, not fewer. Subsequent studies found that overall gas consumption had increased and air quality did not improve at all. The policy was later dropped in favor of a mandatory emissions test.⁹

Good policy uses incentives to some positive end. London has dealt with its traffic congestion problems by applying the logic of the market: It raised the cost of driving during the hours of peak demand. Beginning in 2003, the city of London began charging a £5 (\$8) congestion fee for all drivers entering an eight-square-mile section of the central city between 7:00 a.m. and 6:30 p.m.¹⁰ In 2005, the congestion charge was raised to £8 (\$13), and in 2007, the size of the zone for which the fee must be paid was expanded. Drivers are responsible for paying the charge by phone, Internet, or in selected retail shops. Video cameras were installed in some 700 locations to scan license plates and match the data against records of motorists who have paid the charge. Motorists caught driving in central London without paying the fee are fined £80 (\$130).

The plan was designed to take advantage of one of the most basic features of markets: Raising prices reduces demand. Raising the cost of driving discourages some drivers and improves the flow of traffic. Experts also predicted an increase in the use of public transit, both because it is a cheap alternative to driving, but also because buses would be able to move more quickly through central London. (Faster trips lower the opportunity cost of taking public transit.) Within a month, the results were striking. Traffic fell 20 percent (settling after several years at 15 percent lower). Average speed in the congestion zone doubled; bus delays were

cut in half; and the number of bus passengers climbed 14 percent. The only unpleasant surprise was that the program had such a significant deterrent effect on car traffic that revenues from the fee were lower than expected.¹¹ Retailers have also complained that the fee discourages shoppers from visiting central London.

Good policy uses incentives to channel behavior toward some desired outcome. Bad policy either ignores incentives, or fails to anticipate how rational individuals might change their behavior to avoid being penalized.

The wonder of the private sector, of course, is that incentives magically align themselves in a way that makes everyone better off. Right? Well, not exactly. From top to bottom, corporate America is a cesspool of competing and misaligned incentives. Have you ever seen some variation of the sign near the cash register at a fast-food restaurant that says, “Your meal is free if you don’t get a receipt. Please see a manager”? Does Burger King have a passionate interest in providing a receipt so that your family bookkeeping will be complete? Of course not. Burger King does not want its employees stealing. And the only way employees can steal without getting caught is by performing transactions without recording them on the cash register—selling you a burger and fries without issuing a receipt and then pocketing the cash. This is what economists call a principal-agent problem. The principal (Burger King) employs an agent (the cashier) who has an incentive to do a lot of things that are not necessarily in the best interest of the firm. Burger King can either spend a lot of time and money monitoring its employees for theft, or it can provide an incentive for you to do it for them. That little sign by the cash register is an ingenious management tool.

Principal-agent problems are as much a problem at the top of corporate America as they are at the bottom, in large part because the agents who run America’s large corporations (CEOs and other top executives) are not necessarily the principals who own those companies (the shareholders). I own shares in Starbucks, but I don’t even know the CEO’s name. How can I be sure that he (she?) is acting in my best interest? Indeed, there is ample evidence to suggest that corporate managers are no different from Burger King cashiers—they have some incentives that are not always in the best interest of the firm. They may steal from the cash register figuratively by showering themselves with private jets and country club memberships. Or they may make strategic decisions from which they benefit but shareholders do not. For example, a shocking two-

thirds of all corporate mergers do not add value to the merged firms and a third of them leave shareholders worse off. Why would very smart CEOs engage so often in behavior that seems to make little financial sense?

One partial answer, economists have argued, is that CEOs benefit from mergers even when shareholders are left with losses. A CEO draws a lot of attention to himself by engineering a complex corporate transaction. He is left running a bigger company, which is almost always more prestigious, even if the new entity is less profitable than the merged companies were when they were on their own. Big companies have big offices, big salaries, and big airplanes. On the other hand, some mergers and takeovers make perfect strategic sense. As an uninformed shareholder with a large financial stake in the company, how do I tell the difference? If I don't even know the name of the CEO of Starbucks, how can I be sure that she (he?) is not spending the bulk of her day chasing attractive secretaries around her office? Hell, this is harder than being a manager at Burger King.

For a time, clever economists believed that stock options were the answer. They were supposed to be the CEO equivalent of the sign near the cash register asking if you received your receipt. Most American CEOs and other important executives receive a large share of their compensation in the form of stock options. These options enable the recipient to purchase the company's stock in the future at some predetermined price, say \$10. If the company is highly profitable and the stock does well, climbing to say \$57, then those stock options are very valuable. (It is good to be able to buy something for \$10 when it is selling on the open market for \$57.) On the other hand, if the company's stock falls to \$7, the options are worthless. There is no point in buying something for \$10 when you can buy it on the open market for \$3 less. The point of this compensation scheme is to align the incentives of the CEO with the interests of the shareholders. If the share price goes up, the CEO gets rich—but the shareholders do well, too.

It turns out that wily CEOs can find ways to abuse the options game (just as cashiers can find new ways to steal from the register). Before the first edition of this book came out, I asked Paul Volcker, former chairman of the Federal Reserve, to give it a read since he had been a professor of mine. Volcker read the book. He liked the book. But he said that I should not have written admiringly about stock options as a tool for aligning the interests of shareholders and management because they are “an instrument of the devil.”

Paul Volcker was right. I was wrong. The potential problem with options is that executives can do things to goose the firm's stock in the short run that are

bad or disastrous for the company in the long run—after the CEO has sold tens of thousands of options for an astronomical profit. Michael Jensen, a Harvard Business School professor who has spent his career on issues related to management incentives, is even harsher than Paul Volcker. He describes options as “managerial heroin,” because they create an incentive for managers to seek short-term highs while doing enormous long-term damage.¹² Studies have found that companies with large options grants are more likely to engage in accounting fraud and more likely to default on their debt.¹³

Meanwhile, CEOs (with or without options) have their own monitoring headaches. Investment banks like Lehman Brothers and Bear Stearns were literally destroyed by employees who took huge risks at the firm’s expense. This is a crucial link in the chain of causality for the financial crisis; Wall Street is where a bad problem became disastrous. Banks across the country could afford to feed the real estate bubble with reckless loans because they could quickly bundle these loans together, or “securitize” them, and sell them off to investors. (A bank takes your mortgage, bundles it together with my mortgage and lots of others, and then sells the package off to some party willing to pay cash now in exchange for a future stream of income—our monthly mortgage payments.) This is not inherently a bad thing when done responsibly; the bank gets its capital back right away, which can then be used to make new loans. However, if you take the word “responsibly” out of that sentence, it does become a bad thing.

Simon Johnson, former chief economist for the International Monetary Fund, wrote an excellent postmortem of the financial crisis for *The Atlantic* in 2009. He noted, “Major commercial and investment banks—and the hedge funds that ran alongside them—were the big beneficiaries of the twin housing and equity-market bubbles of this decade, their profits fed by an ever-increasing volume of transactions founded on a relatively small base of actual physical assets. Each time a loan was sold, packaged, securitized, and resold, banks took their transaction fees, and the hedge funds buying those securities reaped ever-larger fees as their holdings grew.”¹⁴

Each transaction carries some embedded risk. The problem is that the bankers making huge commissions on the buying and selling of what would later become known as “toxic assets” do not bear the full risk of those products; their firms do. Heads they win, tails the firm loses. In the case of Lehman Brothers, that’s a pretty accurate description of what happened. Yes, the Lehman employees lost their jobs, but those most responsible for the collapse of the firm don’t have to give back the huge bonuses they made in the good years.

One other culpable party deserves mention, and again misaligned incentives was a key problem. The credit rating agencies—Standard & Poor’s, Moody’s, and others—are supposed to be the independent authorities that evaluate the risk of these newfangled products. Many of the “toxic assets” now at the heart of the financial meltdown were given stellar credit ratings. Part of this was pure incompetence. It didn’t help, however, that the credit rating agencies are paid by the firms selling the bonds or securities being rated. That’s a little like a used car salesman paying an appraiser to stand around the lot and provide helpful advice to customers. “Hey Bob, why don’t you come over here and tell the customer whether he is getting a good deal or not.” How useful do you think that would be?

These corporate incentive problems remain unresolved as far as I can tell, both for senior executives in public companies and for other employees taking risks with their firm’s capital. There is a fundamental tension that is tough to resolve. On the one hand, firms need to reward innovation, risk, insight, hard work, and so on. These are good things for the firm, and employees who do them well should be paid handsomely—even astronomically in some cases. On the other hand, the employees doing fancy things (like designing new financial products) will always have more information about what they are really up to than their superiors will; and their superiors will have more information than the shareholders. The challenge is to reward good outcomes without creating incentives for employees to game the system in ways that damage the company in the long run.

One need not be a corporate titan to deal with principal-agent problems. There are plenty of situations in which we must hire someone whose incentives are similar but not identical to our own—and the distinction between “similar” and “identical” can make all the difference. Take real estate agents, a particular breed of scoundrel who purport to have your best interest at stake but may not, regardless of whether you are buying or selling a property. Let’s look at the buy side first. The agent graciously shows you lots of houses and eventually you find one that is just right. So far, so good. Now it is time to bargain with the seller over the purchase price, often with your agent as your chief adviser. Yet your real estate agent will be paid a percentage of the eventual purchase price. The more you are willing to pay, the more your agent makes and the less time the whole process will take.

There are problems on the sell side, too, though they are more subtle. The better price you get for your house, the more money your agent will make. That

is a good thing. But the incentives are still not perfectly aligned. Suppose you are selling a house in the \$300,000 range. Your agent can list the house for \$280,000 and sell it in about twenty minutes. Or she could list it for \$320,000 and wait for a buyer who really loves the place. The benefit to you of pricing the house high is huge: \$40,000. Your real estate agent may see things differently. Listing high would mean many weeks of showing the house, holding open houses, and baking cookies to make the place smell good. Lots of work, in other words. Assuming a 3 percent commission, your agent can make \$8,400 for doing virtually nothing or \$9,600 for doing many weeks of work. Which would you choose? On the buy side or the sell side, your agent's most powerful incentive is to get a deal done, whether it is at a price favorable to you or not.

Economics teaches us how to get the incentives right. As Gordon Gekko told us in the movie *Wall Street*, greed is good, so make sure that you have it working on your side. Yet Mr. Gekko was not entirely correct. Greed can be bad—even for people who are entirely selfish. Indeed, some of the most interesting problems in economics involve situations in which rational individuals acting in their own best interest do things that make themselves worse off. Yet their behavior is entirely logical.

The classic example is the prisoner's dilemma, a somewhat contrived but highly powerful model of human behavior. The basic idea is that two men have been arrested on suspicion of murder. They are immediately separated so that they can be interrogated without communicating with one another. The case against them is not terribly strong, and the police are looking for a confession. Indeed, the authorities are willing to offer a deal if one of the men rats out the other as the trigger man.

If neither man confesses, the police will charge them both with illegal possession of a weapon, which carries a five-year jail sentence. If both of them confess, then each will receive a twenty-five-year murder sentence. If one man rats out the other, then the snitch will receive a light three-year sentence as an accomplice and his partner will get life in prison. What happens?

The men are best off collectively if they keep their mouths shut. But that's not what they do. Each of them starts thinking. Prisoner A figures that if his partner keeps his mouth shut, then he can get the light three-year sentence by ratting him out. Then it dawns on him: His partner is almost certainly thinking the same thing—in which case he had better confess to avoid having the whole crime pinned on himself. Indeed, his best strategy is to confess regardless of what his partner does: It either gets him the three-year sentence (if his partner

stays quiet) or saves him from getting life in prison (if his partner talks).

Of course, Prisoner B has the same incentives. They both confess, and they both get twenty-five years in prison when they might have served only five. Yet neither prisoner has done anything irrational.

The amazing thing about this model is that it offers great insight into real-world situations in which unfettered self-interest leads to poor outcomes. It is particularly applicable to the way in which renewable natural resources, such as fisheries, are exploited when many individuals are drawing from a common resource. For example, if Atlantic swordfish are harvested wisely, such as by limiting the number of fish caught each season, then the swordfish population will remain stable or even grow, providing a living for fishermen indefinitely. But no one “owns” the world’s swordfish stocks, making it difficult to police who catches what. As a result, independent fishing boats start to act a lot like our prisoners under interrogation. They can either limit their catch in the name of conservation, or they can take as many fish as possible. What happens?

Exactly what the prisoner’s dilemma predicts: The fishermen do not trust each other well enough to coordinate an outcome that would make them all better off. Rhode Island fisherman John Sorlien told the *New York Times* in a story on dwindling fish stocks, “Right now, my only incentive is to go out and kill as many fish as I can. I have no incentive to conserve the fishery, because any fish I leave is just going to be picked up by the next guy.”¹⁵ So the world’s stocks of tuna, cod, swordfish, and lobster are fished away. Meanwhile, politicians often make the situation worse by bailing out struggling fishermen with assorted subsidies. This merely keeps boats in the water when some fishermen might otherwise quit.

Sometimes individuals need to be saved from themselves. One nice example of this is the lobstering community of Port Lincoln on Australia’s southern coast. In the 1960s, the community set a limit on the number of traps that could be set and then sold licenses for those traps. Since then, any newcomer could enter the business only by buying a license from another lobsterman. This limit on the overall catch has allowed the lobster population to thrive. Ironically, Port Lincoln lobstermen catch more than their American colleagues while working less. Meanwhile, a license purchased in 1984 for \$2,000 now fetches about \$35,000. As Aussie lobsterman Daryl Spencer told the *Times*, “Why hurt the fishery? It’s my retirement fund. No one’s going to pay me \$35,000 a pot if there are no lobsters left. If I rape and pillage the fishery now, in ten years my licenses won’t be worth anything.” Mr. Spencer is not smarter or more altruistic than his

fishing colleagues around the world; he just has different incentives. Oddly, some environmental groups oppose these kinds of licensed quotas because they “privatize” a public resource. They also fear that the licenses will be bought up by large corporations, driving small fishermen out of business.

So far, the evidence strongly suggests that creating private property rights—giving individual fishermen the right to a certain catch, including the option of selling that right—is the most effective tool in the face of collapsing commercial fisheries. A 2008 study of the world’s commercial fisheries published in *Science* found that individual transferable quotas can stop or even reverse the collapse of fishing stocks. Fisheries managed with transferable quotas were half as likely to collapse as fisheries that use traditional methods.¹⁶

Two other points regarding incentives are worth noting. First, a market economy inspires hard work and progress not just because it rewards winners, but because it crushes losers. The 1990s were a great time to be involved in the Internet. They were bad years to be in the electric typewriter business. Implicit in Adam Smith’s invisible hand is the idea of “creative destruction,” a term coined by the Austrian economist Joseph Schumpeter. Markets do not suffer fools gladly. Take Wal-Mart, a remarkably efficient retailer that often leaves carnage in its wake. Americans flock to Wal-Mart because the store offers an amazing range of products cheaper than they can be purchased anywhere else. This is a good thing. Being able to buy goods cheaper is essentially the same thing as having more income. At the same time, Wal-Mart is the ultimate nightmare for Al’s Glass and Hardware in Pekin, Illinois—and for mom-and-pop shops everywhere else. The pattern is well established: Wal-Mart opens a giant store just outside of town; several years later, the small shops on Main Street are closed and boarded up.

Capitalism can be a brutal, cruel system. The innovation inspired by markets can be devastating for the losers. We look back and speak admiringly of technological breakthroughs like the steam engine, the spinning wheel, and the telephone. But those advances made it a bad time to be, respectively, a blacksmith, a seamstress, or a telegraph operator. Creative destruction is not just something that might happen in a market economy. It is something that *must* happen. At the beginning of the twentieth century, half of all Americans worked in farming or ranching.¹⁷ Now that figure is about one in a hundred and still falling. (Iowa is still losing roughly fifteen hundred farmers a year.) Note that two important things have *not* happened: (1) We have not starved to death; and

(2) we do not have a 49 percent unemployment rate. Instead, American farmers have become so productive that we need far fewer of them to feed ourselves. The individuals who would have been farming ninety years ago are now fixing our cars, designing computer games, playing professional football, etc. Just imagine our collective loss of utility if Jeff Bezos, Steven Spielberg, and Oprah Winfrey were corn farmers.

Creative destruction is a tremendous positive force in the long run. The bad news is that people don't pay their bills in the long run. The folks at the mortgage company can be real sticklers about getting that check every month. When a plant closes or an industry is wiped out by competition, it can be years or even an entire generation before the affected workers and communities recover. Anyone who has ever driven through New England has seen the abandoned or underutilized mills that are monuments to the days when America still manufactured things like textiles and shoes. Or one can drive through Gary, Indiana, where miles of rusting steel plants are a reminder that the city was not always most famous for having more murders per capita than any other city in the United States. The election of Donald Trump in 2016 was in part a protest by angry voters who feel that global competition is leaving them behind.

Competition means losers, which goes a long way toward explaining why we embrace it heartily in theory and then often fight it bitterly in practice. A college classmate of mine worked for a congressman from Michigan shortly after our graduation. My friend was not allowed to drive his Japanese car to work, lest it be spotted in one of the Michigan congressman's reserved parking spaces. That congressman will almost certainly tell you that he is a capitalist. Of course he believes in markets—unless a Japanese company happens to make a better, cheaper car, in which case the staff member who bought that vehicle should be forced to take the train to work. (I would argue that the American automakers would have been much stronger in the long run if they had faced this international competition head-on instead of looking for political protection from the first wave of Japanese imports in the 1970s and 1980s.) This is nothing new; competition is always best when it involves other people. During the Industrial Revolution, weavers in rural England demonstrated, petitioned Parliament, and even burned down textile mills in an effort to fend off mechanization. Would we be better off now if they had succeeded and we still made all of our clothes by hand?

If you make a better mousetrap, the world will beat a path to your door; if you make the old mousetrap, it is time to start firing people. This helps to explain our ambivalence to international trade and globalization, to ruthless

retailers like Wal-Mart, and even to some kinds of technology and automation. Competition also creates some interesting policy trade-offs. Government inevitably faces pressure to help firms and industries under siege from competition and to protect the affected workers. Yet many of the things that minimize the pain inflicted by competition—bailing out firms or making it hard to lay off workers—slow down or stop the process of creative destruction. To quote my junior high school football coach: “No pain, no gain.”

One other matter related to incentives vastly complicates public policy: It is not easy to transfer money from the rich to the poor. Congress can pass the laws, but wealthy taxpayers do not stand idly by. They change their behavior in ways that avoid as much taxation as possible—moving money around, making investments that shelter income, or, in extreme cases, moving to another jurisdiction. When Bjorn Borg dominated the tennis world during my childhood, the Swedish government taxed his earnings at an extremely high rate. Borg did not lobby the Swedish government for lower taxes or write passionate op-eds about the role of taxes in the economy. He merely transferred his residence to Monaco, where the tax burden is much lower.

At least he was still playing tennis. Taxes provide a powerful incentive to avoid or reduce the activity that is taxed. In America, where much of our revenue comes from the income tax, high taxes discourage . . . income? Will people really stop or start working based on tax rates? Yes—especially when the worker involved is the family’s second earner. Virginia Postrel, a writer for *Bloomberg View* and former columnist on economics for the *New York Times*, has declared that tax rates are a feminist issue. Because of the “marriage tax,” second earners in families with high household incomes, who are more likely to be women, pay an average of 50 cents in taxes for every dollar they earn, which profoundly affects the decision to work or stay home. “By disproportionately punishing married women’s work, the tax system distorts women’s personal choices. And by discouraging valuable work, it lowers our overall standard of living,” she writes. She offers some interesting evidence. As a result of the 1986 tax reform, marginal tax rates for women in the highest income brackets fell more sharply than tax rates for women with lower incomes, meaning that they saw a much sharper drop in the amount that the government takes from every paycheck. Did they respond differently from women who did not get the same large tax break? Yes, their participation in the work force jumped three times as much.¹⁸

On the corporate side, high taxes can have a similar effect. High taxes lower a firm’s return on investment, thereby providing less incentive to invest in

plants, research, and other activities that lead to economic growth. Once again we are faced with an unpleasant trade-off: Raising taxes to provide generous benefits to disadvantaged Americans can simultaneously discourage the kinds of productive investments that might make them better off.

If tax rates get high enough, individuals and firms may slip into the “underground economy” where they opt to break the law and avoid taxes entirely. Scandinavian countries, which offer generous government programs funded by high marginal tax rates, have seen large growth in the size of their black market economies. Experts estimate that the underground economy in Norway grew from 1.5 percent of gross national product in 1960 to 18 percent by the mid-1990s. Cheating the tax man can be a vicious circle. As more individuals and firms slip into the underground economy, tax rates must go up for everyone else in order to provide the same level of government revenue. Higher taxes in turn cause more flight to the underground economy—and so on.¹⁹

The challenge of transferring money from rich to poor is not just on the taxation side. Government benefits create perverse incentives, too. Generous unemployment benefits diminish the incentive to find work. Welfare policy, prior to reform in 1996, offered cash payments only to unemployed single women with children, which implicitly punished poor women who were married or employed—two things that the government generally does not try to discourage.

This is not to suggest that all government benefits go to poor people. They don’t. The largest federal entitlement programs are Social Security and Medicare, which go to all Americans, even the very rich. By providing guaranteed benefits in old age, both programs may discourage personal savings. Indeed, this is the subject of a long-simmering debate. Some economists argue that government old-age benefits cause us to save less (thereby lowering the national savings rate) because we need to set aside less money for retirement. Others argue that Social Security and Medicare do not reduce our personal savings; they merely allow us to pass along more money to our children and grandchildren. Empirical studies have not found a clear answer one way or the other. This is not merely an esoteric squabble among academics. As we shall explore later in the book, a low savings rate can limit the pool of capital available to make the kinds of investments that allow us to improve our standard of living.

None of this should be interpreted as a blanket argument against taxes or government programs. Rather, economists spend much more time than

politicians thinking about what kind of taxes we should collect and how we should structure government benefits. For example, both a gasoline tax and an income tax generate revenue. Yet they create profoundly different incentives. The income tax will discourage some people from working, which is a bad thing. The gasoline tax will discourage some people from driving, which can be a good thing. Indeed, “green taxes” collect revenue by taxing activities that are detrimental to the environment and “sin taxes” do the same thing for the likes of cigarettes, alcohol, and gambling.

In general, economists tend to favor taxes that are broad, simple, and fair. A simple tax is easily understood and collected; a fair tax implies only that two similar individuals, such as two people with the same income, will pay similar taxes; a broad tax means that revenue is raised by imposing a small tax on a very large group rather than imposing a large tax on a very small group. A broad tax is harder to evade because fewer activities are exempted, and, since the tax rate is lower, there is less incentive to evade it anyway. We should not, for example, impose a large tax on the sale of red sports cars. The tax could be avoided, easily and legally, by buying another color—*in which case everybody is made worse off*. The government collects no revenue and sports car enthusiasts do not get to drive their favorite color car. This phenomenon, whereby taxes make individuals worse off without making anyone else better off, is referred to as “deadweight loss.”

It would be preferable to tax all sports cars, or even all cars, because more revenue could be raised with a much smaller tax. Then again, a gasoline tax collects revenue from drivers, just as a tax on new cars does, but it also provides an incentive to conserve fuel. Those who drive more pay more. So now we’re raising a great deal of revenue with a tiny tax and doing a little something for the environment, too. Many economists would go yet one step further: We should tax the use of all kinds of carbon-based fuels, such as coal, oil, and gasoline. Such a tax would raise revenue from a broad base while creating an incentive to conserve nonrenewable resources and curtail the CO₂ emissions that cause global warming.

Sadly, this thought process does not lead us to the optimal tax. We have merely swapped one problem for another. A tax on red sports cars would be paid only by the rich. A carbon tax would be paid by rich and poor alike, but it would probably cost the poor a larger fraction of their income. Taxes that fall more heavily on the poor than the rich, so-called regressive taxes, often offend our sense of justice. (Progressive taxes, such as the income tax, fall more heavily on the rich than the poor.) Here, as elsewhere, economics does not give us a “right

answer”—only an analytical framework for thinking about important questions. Indeed the most efficient tax of all—one that is perfectly broad, simple, and fair (in the narrow, tax-related sense of the word)—is a lump-sum tax, which is imposed uniformly on every individual in a jurisdiction. Former British Prime Minister Margaret Thatcher actually tried it in 1989 with the community charge, or “poll tax.” What happened? Britons rioted in the streets at the prospect of every adult paying the same tax for local community services regardless of income or property wealth (though there were some reductions for students, the poor, and the unemployed). Obviously good economics is not always good politics.

Meanwhile, not all benefits are created equal either. One of the biggest poverty-fighting tools in recent years has been the earned income tax credit (EITC), an idea that economists have pushed for decades because it creates a far better set of incentives than traditional social welfare programs. Most social programs offer benefits to individuals who are not working. The EITC does just the opposite; it uses the income tax system to subsidize low-wage workers so that their total income is raised above the poverty line. A worker who earns \$11,000 and is supporting a family of four might get an additional \$8,000 through the EITC and matching state programs. The idea was to “make work pay.” Indeed, the system provides a powerful incentive for individuals to get into the labor force, where it is hoped they can learn skills and advance to higher-paying jobs. Of course, the program has an obvious problem, too. Unlike welfare, the EITC does not help individuals who cannot find work at all; in reality, those are the folks who are likely to be most desperate.

When I applied to graduate school many years ago, I wrote an essay expressing my puzzlement at how a country that could put a man on the moon could still have people sleeping on the streets. Part of that problem is political will; we could take a lot of people off the streets tomorrow if we made it a national priority. But I have also come to realize that NASA had it easy. Rockets conform to the unchanging laws of physics. We know where the moon will be at a given time; we know precisely how fast a spacecraft will enter or exit the earth’s orbit. If we get the equations right, the rocket will land where it is supposed to—always. Human beings are more complex than that. An opioid addict does not behave as predictably as a rocket in orbit. We don’t have a formula for persuading a sixteen-year-old not to drop out of school. But we do have a powerful tool: We know that people seek to make themselves better off, however they may define that. Our best hope for improving the human condition

is to understand why we act the way we do and then plan accordingly. Programs, organizations, and systems work better when they get the incentives right. It is like rowing downstream.

CHAPTER 3

Government and the Economy:

Government is your friend (and a round of applause for all those lawyers)

The first car I ever owned was a Honda Civic. I loved the car, but I sold it with a lot of good miles left in it. Why? Two reasons: (1) It didn't have a cup holder; and (2) my wife was pregnant, and I had become fearful that our whole family would get flattened by a Chevy Suburban. I could have gotten beyond the cup holder problem. But putting a car seat in a vehicle that weighed a quarter as much as the average SUV was not an option. So we bought a Ford Explorer and became part of the problem for all of those people still driving Honda Civics.*

The point is this: My decision to buy and drive an SUV affects everyone else on the road, yet none of those people has a say in my decision. I do not have to compensate all the owners of Honda Civics for the fact that I am putting their lives slightly more at risk. Nor do I have to compensate asthmatic children who will be made worse off by the exhaust I generate as I cruise around the city getting nine miles to the gallon. And I have never mailed off a check to people living on small Pacific islands who may someday find their entire countries underwater because my CO₂ emissions are melting the polar ice caps. Yet these are real costs associated with driving a less fuel-efficient car.

My decision to buy a Ford Explorer causes what economists refer to as an externality, which means that the private costs of my behavior are different from the social costs. When my wife and I went to the Bert Weinman Ford Dealership and the salesman, Angel, asked, "What is it going to take for me to put you in this car?", we tallied up the costs of driving an Explorer rather than a Civic:

more gas, more expensive insurance, higher car payments. There was nothing on our tally sheet about asthmatic children, melting polar ice caps, or pregnant women driving Mini Coopers. Are these costs associated with driving an Explorer? Yes. Do we have to pay them? No. Therefore, they did not figure into our decision (other than as a vague sense of guilt as we contemplated telling our environmentally conscious relatives who live in Boulder, Colorado, and flush the toilet only once a day in order to conserve water).

When an externality—the gap between the private cost and the social cost of some behavior—is large, individuals have an incentive to do things that make them better off at the expense of others. The market, left alone, will do nothing to fix this problem. In fact, the market “fails” in the sense that it encourages individuals and firms to cut corners in ways that make society worse off as a result. If this concept were really as dry as most economics textbooks make it seem, then a movie like *Michael Clayton* would not have made millions at the box office. After all, that film is about a simple externality: A large agribusiness company stands accused of producing a pesticide that is seeping into local water supplies and poisoning families. *There is no market solution in this case; the market is the problem.* The polluting company maximizes profits by selling a product that causes cancer in innocent victims. Farmers who are unaware of (or indifferent to) the pollution will actually reward the company by buying more of its product, which will be cheaper or more effective than what can be produced by competitors that invest in making their products nontoxic. The only redress in this film example (like *Erin Brockovich* and *A Civil Action* before it) was through a nonmarket, government-supported mechanism: the courts. And, of course, George Clooney looks good making sure justice is done (as Julia Roberts and John Travolta did before him).

Consider a more banal example, but one that raises the ire of most city dwellers: people who don’t pick up after their dogs. In a perfect world, we would all carry pooper scoopers because we derive utility from behaving responsibly. But we don’t live in a perfect world. From the narrow perspective of some individual dog walkers, it’s easier (“less costly” in economist speak) to ignore Fido’s unsightly pile and walk blithely on. (For those who think this is a trivial example, an average of 650 people a year break bones or are hospitalized in Paris after slipping in dog waste, according to the *New York Times*).¹ The pooper-scooper decision can be modeled like any other economic decision; a dog owner weighs the costs and benefits of behaving responsibly and then scoops or does not scoop. But who speaks for the woman running to catch the bus the next morning who makes one misstep and is suddenly having a very bad

day? No one, which is why most cities have laws requiring pet owners to pick up after their animals.

Thankfully there is a broader point: One crucial role for government in a market economy is dealing with externalities—those cases in which individuals or firms engage in private behavior that has broader social consequences. I noted in [Chapter 1](#) that all market transactions are voluntary exchanges that make the involved parties better off. That's still true, but note the word "involved" that has left me some wiggle room. The problem is that all of the individuals *affected* by a market transaction may not be sitting at the table when the deal is struck. My former neighbor Stuart, with whom we shared an adjoining wall, was an avid bongo drum player. I'm sure that both he and the music shop owner were both pleased when he purchased a new set of bongos. (Based on the noise involved, he may even have purchased some kind of high-tech amplifier.) *But I was not happy about that transaction.*

Externalities are at the root of all kinds of policy issues, from the mundane to those that literally threaten the planet:

- *The Economist* has suggested somewhat peevishly that families traveling with small children on airplanes should be required to fly at the back of the plane so that other passengers might enjoy a "child-free zone." An editorial in the magazine noted, "Children, just like cigarettes or mobile phones, clearly impose a negative externality on people who are near them. Anybody who has suffered a 12-hour flight with a bawling baby in the row immediately ahead or a bored youngster viciously kicking their seat from behind, will grasp this as quickly as they would love to grasp the youngster's neck. Here is a clear case of market failure: parents do not bear the full costs (indeed young babies travel free), so they are too ready to take their noisy brats with them. Where is the invisible hand when it is needed to administer a good smack?"²
- Mobile phone use is under stricter scrutiny, both in public places, such as restaurants and commuter trains, where the behavior is fabulously annoying, but also in vehicles, where it has been linked to a higher rate of accidents. Texting is the second-most dangerous thing you can do while driving a car, next to driving drunk.
- Some countries and several American cities have imposed a tax on sugary beverages, such as soda and sports drinks. The World Health Organization promotes this kind of "soda tax" as a way to discourage unhealthy diets. The

health care costs associated with obesity are now roughly as high as those related to smoking. Society picks up at least some of the tab for those bills through the costs of government health programs and higher insurance premiums—giving me a reason to care whether you have a Big Mac for lunch or not.

- Climate change will not be adequately addressed by the market because firms that emit large amounts of greenhouse gases pay only a small share of the cost of those emissions. Indeed, even the countries in which they reside do not bear the full cost of the pollution. A steel plant in Pennsylvania emits CO₂ that may one day cause a flood in Bangladesh. (Meanwhile, acid rain caused by U.S. emissions is already killing Canadian forests.) The same thing is true in all kinds of factories around the world. Any solution to global warming will have to raise the cost of emitting greenhouse gases in a way that is binding upon all of the earth's polluters—not the easiest of tasks.

It is worth noting that there can be positive externalities as well; an individual's behavior can have a positive impact on society for which he or she is not fully compensated. I once had an office window that looked out across the Chicago River at the Wrigley Building and the Tribune Tower, two of the most beautiful buildings in a city renowned for its architecture. On a clear day, the view of the skyline, and of these two buildings in particular, was positively inspiring. But I spent five years in that office without paying for the utility that I derived from this wonderful architecture. I didn't mail a check to the Tribune Company every time I glanced out the window. Or, in the realm of economic development, a business may invest in a downtrodden neighborhood in a way that attracts other kinds of investment. Yet this business is not compensated for anchoring what may become an economic revitalization, which is why local governments often offer subsidies for such investment.

Some activities have both positive and negative externalities. Cigarettes kill people who smoke them; that is old news. Responsible adults are free to smoke or not smoke as they choose. But cigarette smoke can also harm those who happen to be lingering nearby, which is why most office buildings consider smoking to be slightly less acceptable than running through the halls naked. Meanwhile, all fifty states filed suit against the tobacco industry (and subsequently accepted large settlements) on the grounds that smokers generate extra health care costs that must be borne by state governments. In other words, my taxes go to remove part of some smoker's lung. (Private insurance companies do not have this problem; they simply recoup the extra cost of

insuring smokers by charging them higher premiums.)

At the same time, smokers do provide a benefit to the rest of us. They die young. According to the American Lung Association, the average smoker dies seven years earlier than the average nonsmoker, which means that smokers pay into Social Security and private pension funds for all of their working lives but then don't stick around very long to collect the benefits. Nonsmokers, on average, get more back relative to what they paid in. The good folks at Philip Morris have even quantified this benefit for us. In 2001, they released a report on the Czech Republic (just as parliament was considering raising cigarette taxes) showing that premature deaths from smoking save the Czech government roughly \$28 million a year in pension and old-age housing benefits. The net benefit of smoking to the government, including taxes and subtracting public health costs, was reckoned to be \$148 million.³

How does a market economy deal with externalities? Sometimes the government regulates the affected activity. The federal government issues thousands of pages of regulations every year on everything from groundwater contamination to poultry inspection. The states have their own regulatory structures; California, for example, has a strict set of emissions standards for automobiles. Local governments have zoning laws that forbid private property owners from impinging on their neighbors by constructing buildings that may be unsafe, inappropriate for the neighborhood, or simply ugly. The island of Nantucket allows only a few select colors of exterior paint lest irresponsible property owners use neon colors that would destroy the quaint character of the island. I live in a historic neighborhood in which every external change to our homes—from the color of new windows to the size of a flower box—must be approved by an architecture committee.

There is another approach to dealing with externalities that tends to be favored in some cases by economists: taxing the offending behavior rather than banning it. I've conceded that my Ford Explorer was a menace to society. As Cornell economist Robert Frank noted in an op-ed for the *New York Times*, we are locked in an SUV arms race. "Any family can only choose the size of its own vehicle. It cannot dictate what others buy. Any family that unilaterally bought a smaller vehicle might thus put itself at risk by unilaterally disarming," he

wrote.⁴ Should the Hummer be banned? Should Detroit be ordered to manufacture safer, more fuel-efficient cars?

Economists, including Mr. Frank, would argue not. The primary problem with SUVs—and all vehicles, for that matter—is that they are too cheap to drive.

The private cost of driving a Hummer to the grocery store is obviously far lower than the social cost. *So raise the private cost.* As Mr. Frank writes, “The only practical remedy, given the undeniable fact that driving bulky, polluting vehicles causes damage to others, is to give ourselves an incentive to take this damage into account when deciding what vehicles to buy.” If the real cost to society of having an Explorer on the road is 75 cents a mile instead of the 50 cents a mile that it costs the vehicle’s owner to operate the vehicle, then tack on a tax that equates the two. This might be accomplished with a gas tax, or an emissions tax, or a weight tax, or some combination thereof. The result will make driving a Hummer to the grocery store a lot less attractive.

But now we have entered strange terrain. Is it appropriate to allow some drivers to pay for the privilege of driving a vehicle so bulky that it might run over a Mini Cooper without even spilling the sixty-four-ounce drink in the monster cup holder? Yes, for the same reason that most of us eat ice cream even though it causes heart disease. We weigh the health costs of Häagen-Dazs Mocha Almond Fudge against that divine, creamy taste and decide to have a pint every once in a while. We don’t quit ice cream entirely, nor do we have it with every meal. Economics tells us that the environment requires the same kinds of trade-offs as everything else in life. We should raise the cost of driving an SUV (or any vehicle) to reflect its true social cost and then let individual drivers decide if it still makes sense to commute forty-five miles to work in a Chevy Tahoe.

Taxing a behavior that generates a negative externality creates a lot of good incentives. First, it limits the behavior. If the cost of driving a Ford Explorer goes to 75 cents a mile, then there will be fewer Explorers on the road. As important, those people who are still driving them—and paying the full social freight—will be those who value driving an SUV the most, perhaps because they actually haul things or drive off-road. Second, a gas-guzzler tax raises revenue, which a ban on certain kinds of vehicles does not. That revenue might be used to pay for some of the costs of global warming (such as research into alternative energy sources, or at least building a dike around some of those Pacific island nations). Or it might be used to reduce some other tax, such as the income or payroll tax, that discourages behavior we would rather encourage.

Third, a tax that falls most heavily on hulking, fuel-hungry vehicles will encourage Detroit to build more fuel-efficient cars, albeit with a carrot rather than a stick. If Washington arbitrarily bans vehicles that get less than eighteen miles per gallon without raising the cost of driving those vehicles, then Detroit will produce a lot of vehicles that get—no big surprise here—about eighteen miles a gallon. Not twenty, not twenty-eight, not sixty using new solar

~~drives a gallon. For twenty, for twenty-five, for thirty using new solar~~

technology. On the other hand, if consumers are going to be stuck with a tax based on fuel consumption and/or the mass of the vehicle, then they will have very different preferences when they step into the showroom. The automakers will respond quickly, and other products like the Hummer will be sent where they belong, to some kind of museum for mutant industrial products.

Is taxing externalities a perfect solution? No, far from it. The auto example alone has a number of problems, the most obvious of which is getting the size of the tax right. Scientists are not yet in complete agreement on how quickly climate change is happening, let alone what the costs might be, or, many steps beyond that, what the real cost of driving a Hummer for a mile might be. Is the right tax \$0.75, \$2.21, \$3.07? You will never get a group of scientists to agree on that, let alone the Congress of the United States. There is an equity problem, too. I have stipulated correctly that if we raise the cost of driving gas guzzlers, then those who value them most will continue to drive them. But our measure of how much we value something is how much we are willing to pay for it—and the rich can always pay more for something than everyone else. If the cost of driving an Explorer goes to \$9 a gallon, then the people driving them might be hauling wine and cheese to beach parties on Nantucket while a contractor in Chicago who needs a pickup truck to haul lumber and bricks can no longer afford it. Who really “values” their vehicle more? (Clever politicians might get around the equity issue by using a tax on gas guzzlers to offset a tax that falls most heavily on the middle class, such as the payroll tax, in which case our Chicago contractor would pay more for his truck but less to the IRS.) And last, the process of finding and taxing externalities can get out of control. Every activity generates an externality at some level. Any thoughtful policy analyst knows that some individuals who wear spandex in public should be taxed, if not jailed. I live in Chicago, where hordes of pasty people, having spent the winter indoors on the couch, flock outside in skimpy clothing on the first day in which the temperature rises above fifty degrees. This can be a scary experience for those forced to witness it and is certainly something that young children should never have to experience. Still, a tax on spandex is probably not practical.

I've wandered from my original, more important point. Anyone who tells you that markets left to their own devices will always lead to socially beneficial outcomes is talking utter nonsense. Markets alone fail to make us better off when there is a large gap between the private cost of some activity and the social cost. Reasonable people can and should debate what the appropriate remedy might be. Often it will involve government.

Of course, sometimes it may not. The parties involved in an externality have

an incentive to come to a private agreement on their own. This was the insight of Ronald Coase, a University of Chicago economist who won the Nobel Prize in 1991. If the circumstances are right, one party to an externality can pay the other party to change their behavior. When my neighbor Stuart started playing his bongos, I could have paid him to stop, or to take up a less annoying instrument. If my disutility from his noise is greater than his utility from playing, I could theoretically write him a check to put the bongos away and leave us both better off. Some contrived numbers will actually help to make the point. If Stuart gets \$50 of utility from banging away, and I feel the noise does \$100 an hour of damage to my psyche, then we're both better off if I write him a check for \$75 to take up knitting. He gets cash that does him more good than the bongos; I pay for silence, which is worth more to me than the \$75 it costs.

But wait a minute: If Stuart is the guy making the noise, why should I have to pay him to stop? Maybe I don't. One of Coase's key insights is that private parties can only resolve an externality on their own if the relevant property rights are clearly defined—meaning that we know which party has the right to do what. (As we'll explore later in the chapter, property rights often involve things far more complicated than just property.) Does Stuart have the right to make whatever noise he wants? Or do I have the right to work in relative quiet? Presumably the statutes for the city of Chicago answer that question. (The answer may depend on time of day, giving him the right to make noise up until some specified hour and giving me the right to silence during the nighttime hours.)

If I have the right to work in peace, then any payment would have to go the opposite direction. Stuart would have to pay me to start banging away. But he wouldn't do that in this case, because it's not worth it to him. As a temperamental writer, the silence is worth \$100 to me, so Stuart would have to pay me at least that much to endure the noise. Playing the bongos is only worth \$50 to him. He's not going to write a check for \$100 to do something that provides only \$50 of utility. So I get my silence for free.

This explains Coase's second important insight: The private parties will always come to the same efficient solution (the one that makes the best use of the resources involved) regardless of which party starts out with the property right. The only difference is who ends up paying whom. In this case, the disputed resource is our common wall and the sound waves that move back and forth across it. The most efficient use of that resource is to keep it quiet, since I value my peaceful writing more than Stuart values his bongo playing. If Stuart has the right to make noise, I'll pay him to stop—and I get to write in peace. If I

have the right to silence, Stuart won't be willing to pay enough for me to accede to his bongos—and I get to write in peace.

Remarkably, this kind of thing actually happens in real life. My favorite example is the Ohio power company that neighbors claimed was emitting “a bizarre blue plume” that was causing damage to property and health. The Clean Air Act gave the town's 221 residents the right to sue the utility to stop the pollution. So the American Electric Power company had a decision to make: (1) Stop polluting; or (2) pay the entire town to move somewhere else.⁵

The *New York Times* reported on the answer: “Utility Buys Town It Choked, Lock, Stock and Blue Plume.” The company paid the residents roughly three times what their houses were worth in exchange for a signed agreement never to sue for pollution-related damages. For \$20 million, the utility's problems packed up and went away—literally. Presumably this made financial sense. The *New York Times* reported that this settlement was believed to be the first deal by a company to dissolve an entire town. “It will help the company avoid the considerable expense and public-relations mess of individual lawsuits, legal and environmental experts said.”

Coase made one final point: The transactions costs related to striking this kind of deal—everything from the time it takes to find everyone involved to the legal costs of making an agreement—must be reasonably low for the private parties to work out an externality on their own. Stuart and I can haggle over the fence in the backyard. The American Electric Power company can manage to strike a deal with 221 homeowners. But private parties are not going to work out a challenge like CO₂ emissions on their own. Every time I get into my car and turn on the engine, I make all of the seven billion inhabitants of the planet slightly worse off. It takes a long time to write checks to seven billion people, particularly when you are already late for work. (And it's arguable that some people in cold climates will benefit from climate change, so maybe they should pay me.) The property rights related to greenhouse gases are still ambiguous, too. Do I have the right to emit unlimited CO₂? Or does someone living in a Pacific island nation have the right to stop me from doing something that might submerge their entire country? This is one conflict that governments have to tackle.

But let's back up for a moment. Government does not just fix the rough edges of capitalism; it makes markets possible in the first place. You will get a lot of approving nods at a cocktail party by asserting that if government would simply get out of the way, then markets would deliver prosperity around the globe. Indeed, entire political campaigns are built around this issue. Anyone who

group. Indeed, some political campaigns are built around this issue. Any one who has ever waited in line at the Department of Motor Vehicles, applied for a building permit, or tried to pay the nanny tax would agree. There is just one problem with that cocktail party sentiment: It's wrong. Good government makes a market economy possible. Period. And bad government, or no government, dashes capitalism against the rocks, which is one reason that billions of people live in dire poverty around the globe.

To begin with, government sets the rules. Countries without functioning governments are not oases of free market prosperity. They are places in which it is expensive and difficult to conduct even the simplest business. Nigeria has one of the world's largest reserves of oil and natural gas, yet firms trying to do business there face a problem known locally as BYOI—bring your own

infrastructure.⁶ The Democratic Republic of Congo (DRC) has more mineral wealth than almost any country on the planet: diamonds, gold, timber, copper, uranium, and a host of minerals you have probably never heard of that are crucial for cell phones and other electronics.⁷ The DRC is also one of the poorest countries in the world, a place where roughly one in ten children die before the age of five (compared to four in a thousand in the Euro zone).⁸ These are not countries in which the market economy has failed; they are countries in which the government has failed to develop and sustain the institutions necessary to support a market economy. A report issued by the United Nations Development Program placed much of the blame for world poverty on bad government. Without good governance, reliance on trickle-down economic development and a host of other strategies will not work, the report concluded.⁹

The reality is that nobody ever likes the umpire, but you can't play the World Series without one. So what are the rules for a functional market economy? First, the government defines and protects property rights. You own things: your home, your car, your dog, your golf clubs. Within reasonable limits, you can do with that property as you wish. You can sell it, or rent it, or pledge it as collateral. Most important, you can make investments in your property having full confidence that the returns from that investment will also belong to you. Imagine a world in which you spend all summer tending to your corn crop and then your neighbor drives by in his combine, waves cheerily, and proceeds to harvest the whole crop for himself. Does that sound contrived? Not if you're a musician—because that is pretty much what the first online music sharing sites did by allowing individuals to download songs without paying any compensation to the musicians who created them or to the record companies that owned the copyrights. The music industry successfully sued such sites for facilitating

piracy. Applications like Spotify must now negotiate royalties with artists before sharing their music.

Property rights are not just about houses, cars, and things you can stack in a closet. Some of the most important property rights involve ownership of ideas, artwork, formulas, inventions, and even surgical procedures. This book is as good an example as any. I write the text. My agent sells it to a publisher, who contracts to have the book printed and distributed. The book is sold in private stores, where private security guards are hired to handle the massive, potentially unruly crowds trying to get a signed copy. At every juncture, only private parties are involved. These would appear to be straightforward market transactions; government could only get in the way. Indeed, I might curse the government for taxing my income, taxing the sale of the book, even taxing the wages I pay to assistants who help with research for the book.

In fact, the whole endeavor is made possible by one thing: copyright law, which is a crucial form of property right for those of us who write for a living. The United States government guarantees that after I invest my time in producing a manuscript, no company can steal the text and publish it without compensating me. Any professor who photocopies it to use it in a class must pay the publisher a royalty first. Indeed, the government enforces similar rights for Microsoft software, and a related property right, a patent, for the pharmaceutical company that invented Viagra. The case of patents is an interesting one that is often mischaracterized. The ingredients in Viagra cost pennies a pill, but because Pfizer has a patent on Viagra that gives it a monopoly on the right to sell the product for twenty years, the company sells each pill for as much as \$7. This huge markup, which is also common with new HIV/AIDS drugs and other lifesaving products, is often described as some kind of social injustice perpetrated by rapacious companies—the “big drug companies” that are periodically demonized during presidential campaigns. What would happen if other companies were allowed to sell Viagra, or if Pfizer were forced to sell the drug more cheaply? The price would fall to the point where it was much closer to the cost of production. Indeed, when a drug comes off patent—the point at which generic substitutes become legal—the price usually falls by 80 or 90 percent.

So why do we allow Pfizer to fleece Viagra users? Because if Viagra did not get patent protection, then Pfizer never would have made the large investments that were necessary to invent the drug in the first place. The real cost of breakthrough drugs is the research and development—scouring the world’s rain forests for exotic tree barks with medicinal properties—not making the pills

once the formula is discovered. The same is true with drugs for any other illness, no matter how serious or even life-threatening.[†] The average cost of bringing a new drug to market is somewhere in the area of \$600 million. And for every successful drug, there are many expensive research forays that end in failure. Is there a way to provide affordable drugs to low-income Americans—or poor individuals elsewhere in the world—without destroying the incentive to invent those drugs? Yes; the government could buy out the patent when a new drug is invented. The government would pay a firm up front a sum equal to what the firm would have earned over the course of its twenty-year patent. After that, the government would own the property right and could charge whatever price for the drugs it deemed appropriate. It's an expensive solution that comes with some problems of its own. For example, which drug patents would the government buy? Is arthritis serious enough to justify using public funds to make a new drug more affordable? How about asthma? Still, this kind of plan is at least consistent with the economic reality: Individuals and firms will make investments only when they are guaranteed to reap what they sow, literally or figuratively.

I once stumbled on a curious example of how ambiguous property rights can stifle economic development. I was working on a long story on American Indians for *The Economist*. Having spent time on a handful of reservations, I noticed that there was very little private housing stock. Tribal members lived either in houses that had been financed by the federal government or in trailers. Why? One principal reason is that it is difficult, if not impossible, to get a conventional home mortgage on an Indian reservation because the land is owned communally. A tribal member may be given a piece of land to use, but he or she does not own it; the Indian Nation does. What that means to a commercial bank is that a mortgage that has fallen delinquent cannot be foreclosed. If a bank is denied that unpleasant but necessary option, then the lender is left without any effective collateral on its loan. A trailer, on the other hand, is different. If you fall delinquent on your payments, the company can show up one day and haul it off the reservation. But trailers, unlike conventional housing, do not support local building trades. They are assembled thousands of miles away in a factory and then transported to the reservation. That process does not provide jobs for roofers, and masons, and drywallers, and electricians—and jobs are what America's Indian reservations need more than anything else.

Government lowers the cost of doing business in the private sector in all kinds of ways: by providing uniform rules and regulations, such as contract law; by

rooting out fraud; by circulating a sound currency. Government builds and maintains infrastructure—roads, bridges, ports, and dams—that makes private commerce less costly. E-commerce may be a modern wonder, but let's not lose sight of the fact that after you order a toaster from Amazon, it is dispatched from a distribution center in a truck barreling along an interstate. In the 1950s and 1960s, new roads, including the interstate highway system, accounted for a significant fraction of new capital created in the United States. And that investment in infrastructure is associated with large increases in productivity in industries that are vehicle-intensive.¹⁰ If drones are the next phase in home delivery, we will have to work out the low-altitude property rights so they are not invading our privacy or crashing into each other.

Effective regulation and oversight make markets more credible. Because of the diligence of the Securities and Exchange Commission (SEC), one can buy shares in a new company listed on the NASDAQ with a reasonable degree of certainty that neither the company nor the traders on the stock exchange are engaging in fraud. In short, government is responsible for the rule of law. (Failure of the rule of law is one reason why nepotism, clans, and other family-centered behavior are so common in developing countries; in the absence of binding contractual agreements, business deals can be guaranteed only by some kind of personal relationship.) Jerry Jordan, former president of the Federal Reserve Bank of Cleveland, once mused on something that is obvious but too often taken for granted: Our sophisticated institutions, both public and private, make it possible to undertake complex transactions with total strangers. He noted:

It seems remarkable, when you think about it, that we often take substantial amounts of money to our bank and hand it over to people we have never met before. Or that securities traders can send millions of dollars to people they don't know in countries they have never been in. Yet this occurs all the time. We trust that the infrastructure is set in place that allows us not to worry that the person at the bank who takes our money doesn't just pocket it. Or that when we use credit cards to buy a new CD or tennis racquet over the Internet, from a business that is located in some other state or country, we are confident we will get our merchandise, and they are confident they will get paid.¹¹

Shakespeare may have advised us to get rid of all the lawyers, but he was a playwright, not an economist. The reality is that we all complain about lawyers

until we have been wronged, at which point we run out and hire the best one we can find. Government enforces the rules in a reasonably fair and efficient manner. Is it perfect? No. But rather than singing the praises of the American justice system, let me simply provide a counterexample from India. Abdul Waheed filed a lawsuit against his neighbor, a milk merchant named Mohammad Nanhe, who had built several drains at the edge of his property that emptied into Mr. Waheed's front yard. Mr. Waheed did not like the water draining onto his property, in part because he had hoped to add a third room to his cement house and he was worried that the drains would create a seepage problem. So he sued.

The case came to trial in June 2000 in Moradabad, a city near New Delhi.¹²

There is one major complication with this civil dispute: The case had been filed thirty-nine years earlier; Mr. Waheed was dead and so was Mr. Nanhe. (Their relatives inherited the case.) By one calculation, if no new cases were filed in India, it would still take 324 years to clear all the existing cases from the docket. These are not just civil cases. In late 1999, a seventy-five-year-old man was released from a Calcutta jail after waiting thirty-seven years to be tried on murder charges. He was released because the witnesses and investigating officer were all dead. (A judge had declared him mentally incompetent to stand trial in 1963 but the action was somehow lost.) *Bear in mind that by developing world standards, India has relatively good government institutions.* In Somalia, these kinds of disputes are not resolved in the courts.

All the while, government enforces antitrust laws that forbid companies from conspiring together in ways that erase the benefits of competition. Having three airlines that secretly collude when setting fares is no better than having one slovenly monopoly. The bottom line is that all these institutions form the tracks on which capitalism runs. Thomas Friedman, foreign affairs columnist for the *New York Times*, once made this point in a column. “Do you know how much your average Russian would give for a week of [the U.S. Department of Justice] busting Russia’s oligarchs and monopolists?” he queried.¹³ He pointed out that with many of the world’s economies plagued by endemic corruption, particularly in the developing world, he has found that foreigners often envy us for . . . hold on to your latte here . . . our Washington bureaucrats; “that is, our institutions, our courts, our bureaucracy, our military, and our regulatory agencies—the SEC, the Federal Reserve, the FAA, the FDA, the FBI, the EPA, the IRS, the INS, the U.S. Patent Office and the Federal Emergency Management Agency.”

The government has another crucial role: It provides a wide array of goods, so-called “public goods,” that make us better off but would not otherwise be

provided by the private sector. Suppose I decide to buy an antimissile system to protect myself from missiles lobbed by rogue nations. (It would be similar to the DirecTV satellite dish, only a lot more expensive.) I ask my neighbor Etienne if he would like to share the cost of this system; he says no, knowing full well that my missile defense will shield his house from any missiles that North Korea may send our way. Etienne, and most of my other neighbors, have a powerful incentive to be “free riders” on my system. At the same time, I do not want to pay the full cost of the system myself. In the end, we get no missile defense system even though it might have made us all better off.

Public goods have two salient characteristics. First, the cost of offering the good to additional users—even thousands or millions of people—is very low or even zero. Think of that missile defense system; if I pay to knock terrorist missiles out of the sky, the millions of people who live relatively close to me in the Chicago metropolitan area get that benefit free. The same is true of a radio signal or a lighthouse or a large park; once it is operational for one person, it can serve thousands more at no extra cost. Second, it is very hard, if not impossible, to exclude persons who have not paid for the good from using it. How exactly do you tell a ship’s captain that he can’t use a lighthouse? Do you make him close his eyes as he sails by? (“Attention USS *Britannica*: You are peeking!”) I once had a professor at Princeton who began his lecture on public goods by saying, “Okay, who are the suckers who actually contribute to public radio?”

Free riders can cripple enterprises. Author Stephen King once attempted an experiment in which he offered his new novel directly to readers via the Internet. The plan was that he would offer monthly installments for readers to download in exchange for a \$1 payment based on the honor system. He warned that the story would fold if fewer than 75 percent of readers made the voluntary payment. “If you pay, the story rolls. If you don’t, it folds,” he wrote on the website. The outcome was sadly predictable to economists who have studied these kinds of problems. The story folded. At the time “The Plant” went into hibernation, only 46 percent of readers had paid to download the last chapter offered.

That is the basic problem if public goods are left to private enterprise. Firms cannot force consumers to pay for these kinds of goods, no matter how much utility they may derive from them or how often they use them. (Remember the lighthouse.) And any system of voluntary payments falls prey to the free riders. Think about the following:

- Basic research. We have already discussed the powerful incentives that

profits create for pharmaceutical companies and the like. But not all important scientific discoveries have immediate commercial applications. Exploring the universe or understanding how human cells divide or seeking subatomic particles may be many steps removed from launching a communications satellite or developing a drug that shrinks tumors or finding a cleaner source of energy. As important, this kind of research must be shared freely with other scientists in order to maximize its value. In other words, you won't get rich—or even cover your costs in most cases—by generating knowledge that may someday significantly advance the human condition. Most of America's basic research is done either directly by the government at places like NASA and the National Institutes for Health or at research universities, which are nonprofit institutions that receive federal funding.

- Law enforcement. There is no shortage of private security firms—"rent-a-cops" as we used to call them in college as they aggressively sought out twenty-year-old beer drinkers. But there is a limit to what they can or will do. They will only defend your property against some kind of trespass. They will not proactively seek out criminals who might someday break into your house; they will not track Mexican drug kingpins or stop felons from entering the country or solve other crimes so that the perpetrator does not eventually attack you. All of these things would make you and your property safer in the long run, but they have inherent free rider problems. If I pay for this kind of security, everyone else in the country benefits at no cost. Everywhere in the world, most kinds of law enforcement are undertaken by government.
- Parks and open space. Chicago's lakefront is the city's greatest asset. For some thirty miles along Lake Michigan, there are parks and beaches owned by the city and protected from private development. If this is the best use of the land, which I firmly believe it is, then why wouldn't a private landowner use it for the same purposes? After all, we've just stipulated that private ownership of an asset ensures that it will be put to its most productive use. If I owned thirty miles of lakefront, why couldn't I charge bicyclists and roller bladers and picnickers in order to make a healthy profit on my investment? Two reasons: First, it would be a logistical nightmare to patrol such a large area and charge admission. More important, many of the people who value an open lakefront don't actually use it. They may enjoy the view from the window of a high-rise apartment or as they drive along Lake Shore Drive. A private developer would never collect anything from these people and would

therefore undervalue the open space. This is true for many of America's natural resources. You have probably never been to Prince William Sound in Alaska and may never go there. Yet you almost certainly cared when the huge oil tanker *Exxon Valdez* ran aground and despoiled the area. Government can make us collectively better off by protecting these kinds of resources.

Obviously not all collective endeavors require the hand of government. Wikipedia is a pretty handy resource, even for those who don't make voluntary contributions to keep it up and running. Every school, church, and neighborhood has a group of eager beavers who do more than their fair share to provide important public benefits, to the great benefit of a much larger group of free riders. Those examples notwithstanding, there are compelling reasons to believe that society would underinvest in things that would make us better off without some kind of mechanism to force cooperation. As much as I love the spirit of Wikipedia, I'm comfortable leaving counterterrorism in the hands of the FBI—the government institution we've created (and pay for with taxes) to act on our behalf.

Government redistributes wealth. We collect taxes from some citizens and provide benefits to others. Contrary to popular opinion, most government benefits do not go to the poor; they go to the middle class in the form of Medicare and Social Security. Still, government has the legal authority to play Robin Hood; other governments around the world, such as the European countries, do so quite actively. What does economics have to say about this? Not much, unfortunately. The most important questions related to income distribution require philosophical or ideological answers, not economic ones. Consider the following question: Which would be a better state of the world, one in which every person in America earned \$30,000—enough to cover the basic necessities—or the status quo, in which some Americans are wildly rich, some are desperately poor, and the average income is somewhere around \$50,000? The latter describes a bigger economic pie; the former would be a smaller pie more evenly divided.

Economics does not provide the tools for answering philosophical questions related to income distribution. For example, economists cannot prove that taking a dollar forcibly from Jeff Bezos and giving it to a starving child would improve overall social welfare. Most people intuitively believe that to be so, but it is theoretically possible that Jeff Bezos would lose more utility from having the dollar taken from him than the starving child would gain. This is an extreme

example of a more general problem: We measure our well-being in terms of utility, which is a theoretical concept, not a measurement tool that can be quantified, compared among individuals, or aggregated for the nation. We cannot say, for example, that Candidate A's tax plan would generate 120 units of utility for the nation while Candidate B's tax plan would generate only 111.

Consider the following question posed by Amartya Sen, winner of the 1998 Nobel Prize in Economics.¹⁴ Three men have come to you looking for work. You have only one job to offer; the work cannot be divided among the three of them and they are all equally qualified. One of your goals is to make the world a better place by hiring the man who needs the job the most.

The first man is the poorest of the three. If improving human welfare is your primary aim, then presumably he should get the job. Or maybe not. The second man is not the poorest, but he is the unhappiest because he has only recently become poor and he is not accustomed to the deprivation. Offering him the job will cause the greatest gain in happiness.

The third man is neither the poorest nor the unhappiest. But he has a chronic health problem, borne stoically for his whole life, that can be cured with the wages from the job. Thus, giving him the job would have the most profound effect on an individual's quality of life.

Who should get the job? As would be expected of a Nobel Prize winner, Mr. Sen has many interesting things to say about this dilemma. But the bottom line is that there is no right answer. The same thing is true—contrary to what politicians on both sides of the political spectrum will tell you—with issues related to the redistribution of wealth in a modern economy. Will a tax increase that funds a better safety net for the poor but lowers overall economic growth make the country better off? That is a matter of opinion, not economic expertise. (Note that every presidential administration is able to find economists to support its ideological positions.) Liberals (in the American sense of the word) often ignore the fact that a growing pie, even if unequally divided, will almost always make even the small pieces larger. The developing world needs economic growth (to which international trade contributes heavily) to make the poor better off. Period. One historical reality is that government policies that ostensibly serve the poor can be ineffective or even counterproductive if they hobble the broader economy.

Meanwhile, conservatives often blithely assume that we should all rush out into the street and cheer for any policy that makes the economy grow faster, neglecting the fact that there are perfectly legitimate intellectual grounds for supporting other policies, such as protecting the environment or redistributing

income, that may diminish the overall size of the pie. Some evidence suggests that our sense of well-being is determined at least as much by our relative wealth as it is by our absolute level of wealth. In other words, we derive utility not just from having a big television but from having a television that is as big as or bigger than the neighbors.'

Then there is one of the most controversial questions of all: Should government protect people from themselves? Should society expend resources to stop you from doing stupid things that don't affect the rest of us? Or is that your business? The most important thing to realize is that the answer to this question is philosophical; the best economics can do is frame the range of defensible views. At one end of the continuum is the belief that individuals are rational (or at least more rational than government), meaning that individual citizens are the best judge of what is good for them, not the rest of us. If you like to sniff glue and then roll backward down the basement steps, good for you. Just make sure that you pay all your own health care costs and don't drive a car after you've been into the glue.

The behavioral economists have provided plenty of ammunition for the opposite end of the continuum, where reasonable people argue that society can and should stop people from doing things that are likely to turn out badly. We have good evidence that human decision making is prone to certain kinds of errors, such as underestimating risk or planning poorly for the future. As a practical matter, those mistakes often do spill over to affect the rest of us, as we saw in the real estate collapse and the accompanying mortgage mess.

And there is a range of views in between (e.g., you're allowed to sniff glue and roll down the steps but only while wearing a helmet). One intriguing and practical middle ground is the notion of "libertarian paternalism," which was advanced in an influential book called *Nudge* by Richard Thaler, the aforementioned Nobel Prize winner, and Cass Sunstein, a Harvard Law School professor who served in the Obama administration. The idea behind libertarian paternalism is that individuals do make systematic errors of judgment, but society should not force you to change your behavior (that's the libertarian part); instead, we should merely point you in the right direction (that's the paternalism part).

One of Thaler and Sunstein's key insights is that our decisions are often a product of inertia. If our employer automatically signs us up for some kind of insurance coverage, then we'll stick with that, even if six other plans are offered. Conversely, we may not sign up for any plan at all if it requires some proactive behavior on our part—reading a benefits manual, filling out a form, going to a

stupid human resources seminar, or doing anything else that involves time and effort. Thaler and Sunstein propose that inertia (and other decision-making foibles) can be used to some advantage. If policymakers are concerned about some individual behavior, such as inadequate retirement savings, then the libertarian paternalistic option is to make the default option one that automatically puts a decent amount of money from every paycheck into a retirement account. That's the "nudge." Anyone is free to choose another option at any time. But a shockingly high proportion of people will stay wherever you put them in the first place.

This idea has profound implications when it comes to something like organ donation. Spain, France, Norway, Israel, and many other countries have "opt-out" (or presumed consent) laws when it comes to organ donation. You are an organ donor unless you indicate otherwise, which you are free to do. (In contrast, the United States has an "opt-in" system, meaning that you are not an organ donor unless you sign up to be one.) Inertia matters, even when it comes to something as serious as organ donation. Economists have found that presumed consent laws have a significant positive effect on organ donation, controlling for relevant country characteristics such as religion and health expenditures. Spain has the highest rate of cadaveric organ donations in the world—50 percent higher than the United States.¹⁵ True libertarians (as opposed to the paternalistic kind) reject presumed consent laws, because they imply that the government "owns" your internal organs until you make some effort to get them back.

Good government matters. The more sophisticated our economy becomes, the more sophisticated our government institutions need to be. The Internet is a perfect example. The private sector is the engine of growth for the web economy, but it is the government that roots out fraud, makes on-line transactions legally binding, sorts out property rights (such as domain names), settles disputes, and deals with issues that we have not even thought about yet.

One sad irony of September 11 was that one simple-minded view of government—that "taxpayers know better what to do with their money than the government does"—was exposed for its hollowness. Individual taxpayers cannot gather intelligence, track down a fugitive in the mountains of Afghanistan, do research on bioterrorism, or protect planes and airports. It is true that if the government takes money out of my paycheck, then there are things that would have given me utility that I can no longer buy. But it is also true that there are things that would make me better off that I cannot buy for myself. I cannot build a missile defense system, or protect endangered species, or stop global warming,

or install traffic lights, or regulate the New York Stock Exchange, or negotiate lower trade barriers with China. Government enables us to work collectively to do those things.

* When our Ford Explorer rolled over at 65 mph on an interstate three years later, we bought a Volvo.

† I cannot fully explain why the pharmaceutical companies were initially so resistant to providing low-cost HIV/AIDS drugs to Africa. These countries will never be able to pay the high prices charged in the developed world, so the companies would not be forgoing profits by selling the drugs cheaply. In places like South Africa, it's either cheap drugs or no drugs. This would appear to be a perfect opportunity for price discrimination: Make the drugs cheap in Cape Town and expensive in New York. True, price discrimination could create an opportunity for a black market; drugs sold cheaply in Africa could be resold illegally at high prices in New York. But that seems a manageable problem relative to the huge public relations cost of denying important drugs to large swathes of the world's population.

CHAPTER 4

Government and the Economy II:

The army was lucky to get that screwdriver for \$500

By now you are probably ready to extol the virtues of bureaucracy at your next dinner party. Not so fast. If government were so wonderful, then the most government-intensive countries in the world—places like North Korea and Cuba—would be economic powerhouses. They’re not. Government is good at doing some things and tragically bad at doing others. Government can deal with significant externalities—or it can regulate an economy to the point of ruin. Government can provide essential public goods—or it can squander enormous tax revenues on ineffective programs and pet projects. Government can transfer money from the wealthy to the disadvantaged—or it can transfer money from common folk to the politically well-connected. In short, government can be used to create the foundations for a vibrant market economy or to stifle highly productive behavior. The wisdom, of course, lies in telling the difference.

There is an old joke, one of Ronald Reagan’s favorites, that goes something like this:

A Soviet woman is trying to buy a Lada, one of the cheap automobiles made in the former Soviet Union. The dealer tells her that there is a shortage of these cars, despite their reputation for shoddy quality. Still, the woman insists on placing an order. The dealer gets out a large, dusty ledger and adds the woman’s name to the long waiting list. “Come back two years from now on March 17th,” he says.

The woman consults her calendar. “Morning or afternoon?” she asks. “What difference does it make?” the surly dealer replies. “That’s two years

from now!"

"The plumber is coming that day," she says.

If the USSR taught us anything, it is that monopoly stifles any need to be innovative or responsive to customers. And government is one very large monopoly. Why is the clerk at the Department of Motor Vehicles plodding and surly? Because she can be. *What would your business look like if your customers, by law, could not go anywhere else?* It would certainly make me think twice about working late, or, for that matter, working at all on warm summer days when the Cubs were playing at home.

Government operations are often described as inefficient. In fact, they operate exactly as we would expect given their incentives. Think about the Department of Motor Vehicles, which has a monopoly on the right to grant driver's licenses. What is the point of being friendly, staying open longer, making customers comfortable, adding clerks to shorten lines, keeping the office clean, or interrupting a personal call when a customer comes to the window? *None of these things will produce even one more customer!* Every single person who needs a driver's license already comes to the DMV and will continue to come no matter how unpleasant the experience. There are limits, of course. If service becomes bad enough, then voters may take action against the politicians in charge. But that is an indirect, cumbersome process. Compare that to your options in the private sector. If a rat scampered across the counter at your favorite Chinese take-out restaurant, you would (presumably) just stop ordering there. End of problem. The restaurant will get rid of the rats or go out of business. Meanwhile, if you stop going to the Department of Motor Vehicles, you may end up in jail.

This contrast was illustrated to me quite sharply when a check I was expecting from Fidelity, the mutual fund company, failed to show up in the mail. (I needed the money to pay back my mother, who can be a fierce creditor.) Day after day went by—no check. Meanwhile, my mother was "checking in" with increasing frequency. One of two parties was guilty, Fidelity or the U.S. Postal Service, and I was getting progressively more angry. Finally I called Fidelity to demand proof that the check had been mailed. I was prepared to move all of my (relatively meager) assets to Vanguard, Putnam, or some other mutual fund company (or at least make the threat). Instead, I spoke with a very friendly customer assistant who explained that the check had been mailed two weeks earlier but apologized profusely for my inconvenience anyway. She canceled the check and issued another one in a matter of seconds. Then she apologized some more for a problem that, it was now apparent, her company did not cause.

The culprit was the post office. So I got even angrier and then . . . I did nothing. What exactly was I supposed to do? The local postmaster does not accept complaints by phone. I did not want to waste time writing a letter (which might never arrive anyway). Nor would it help to complain to our letter carrier, who has never been consumed by the quality of his service. Roughly once a month he gets “off” by a house and delivers every family’s mail to the house one door to the west. The point, carefully disguised in this diatribe, is that the U.S. Postal Service has a monopoly on the delivery of first-class mail. And it shows.

There are two broader lessons to be learned from this. First, government should not be the sole provider of a good or service unless there is a compelling reason to believe that the private sector will fail in that role. This exclusion leaves plenty for government to do in areas ranging from public health to national defense. Having just lambasted the Department of Motor Vehicles, I must admit that issuing driver’s licenses is probably a function that should remain in the hands of government. Private firms issuing driver’s licenses might not compete only on price and quality of service; they would have a powerful incentive to attract customers by issuing licenses to drivers who don’t deserve them.

Still, that leaves a lot of things that government should not be doing. Delivering mail is one of them. A century ago the government may have had legitimate reasons for being in the mail business. The U.S. Postal Service indirectly assisted underdeveloped regions of the country by guaranteeing mail delivery at a subsidized rate (since delivering mail to remote areas is more expensive than delivering to a metropolitan area but the stamp costs the same). The technology was different, too. In 1820, it was unlikely that more than one private firm would have made the massive investment necessary to build a system that could deliver mail anywhere in the country. (A private monopoly is no better—and perhaps worse—than a government monopoly.) Times have changed. FedEx and UPS have proved that private firms are perfectly capable of building worldwide delivery infrastructures.

Is there a huge economic cost associated with mediocre mail service? Probably not. But imagine the U.S. Postal Service controlling other important sectors of the economy. Elsewhere in the world, the government runs steel mills, coal mines, banks, hotels, airlines. All the benefits that competition can bring to these businesses are lost, and citizens are made worse off as a result. (Food for thought: One of the largest government monopolies remaining in the United States is public education.)

There is a second more subtle point. Even if government has an important role to play in the economy—such as building roads and bridges—it does not

role to play in the economy, such as building roads and bridges, it does not follow that government must actually do the work. Government employees do not have to be the ones pouring cement. Rather, government can plan and finance a new highway and then solicit bids from private contractors to do the work. If the bidding process is honest and competitive (big “ifs” in many cases), then the project will go to the firm that can do the best work at the lowest cost. In short, a public good is delivered in a way that harnesses all the benefits of the market.

This distinction is sometimes lost on American taxpayers, a point that Barack Obama made during a town hall meeting on health care reform. He said, “I got a letter the other day from a woman. She said, ‘I don’t want government-run health care. I don’t want socialized medicine. And don’t touch my Medicare.’ ” The irony, of course, is that Medicare *is* government-run health care; the program allows Americans over age 65 to seek care from their private doctors, who are then reimbursed by the federal government. Even the Central Intelligence Agency has taken this lesson to heart. The CIA needs to be on the cutting edge of technology, yet it cannot provide the same incentives to innovate as the private sector can. Someone who makes a breakthrough discovery at the CIA will not find himself or herself worth hundreds of millions of dollars six months later, as might happen at a Silicon Valley startup. So the CIA decided to use the private sector for its own ends by using money appropriated by Congress to open its own venture capital firm, named In-Q-It (in a sly reference to Q, the technology guru who develops gadgets for James Bond).¹ An In-Q-It executive explained that the purpose of the venture was to “move information technology to the agency more quickly than traditional Government procurement processes allow.” Like any other venture capital firm, In-Q-It will make investments in small firms with promising new technologies. In-Q-It and the firms it bankrolls will make money—perhaps a lot of money—if these technologies turn out to have valuable commercial applications. At the same time, the CIA will retain the right to use any new technology with potential intelligence-gathering applications. A Silicon Valley entrepreneur funded by In-Q-It may develop a better way to encrypt data on the Internet—something that e-commerce firms would snap up. Meanwhile, the CIA would end up with a better way to safeguard information sent to Washington by covert operatives around the world.

In the private sector, markets tell us where to devote our resources. While sitting in the center-field seats at a Chicago White Sox game, I spotted a vendor

walking through the stands wearing what was prominently advertised as the Margarita Space Pak. This piece of technology enabled the vendor to make frozen margaritas on the spot; somehow he mixed the drinks in his backpack-like device and then poured them through a hose into plastic cups. The ostensible social benefit of this breakthrough technology was that baseball fans could now enjoy margaritas, rather than just beer, without leaving their seats. I suspect that some of our country's top engineering minds—a scarce resource—devoted their time and effort to creating the Margarita Space Pak, which means that they were *not* spending their time searching for a cheaper, cleaner source of energy or a better way to deliver nutrients to malnourished children in Africa. Does the world need the Margarita Space Pak? No. Could the engineering minds that created it have been put to some more socially useful purpose? Yes. But—this is an important point—that's my opinion and I don't run the world.

When government controls some element of the economy, scarce resources are allocated by autocrats or bureaucrats or politicians rather than by the market. In the former Soviet Union, massive steel plants churned out tons of steel, but the average citizen couldn't buy soap or decent toilet paper. In hindsight, it should not have been a surprise that the USSR was the first to send a rocket into orbit (and equally obvious that it would not invent the Margarita Space Pak). The government could simply mandate that resources be spent on the space program, even if people would rather have had fresh vegetables or tube socks. Some of these resource allocation decisions were tragic. For example, Soviet central planners did not consider birth control to be an economic priority. The Soviet government could have made contraceptives available to all; any country that can build intercontinental ballistic missiles has the know-how to make a birth control pill, or at least a condom. But contraception simply was not where central planners chose to channel the country's resources, leaving abortion as the only form of family planning. In the years of communism, there were roughly two abortions for every single live birth. Since the collapse of the Soviet Union, Western contraceptives have become widely available and the abortion rate has fallen by half.

Even in democratic countries, the political process can devote resources to some pretty strange places. I once interviewed a technology expert about the government's plans at the time to build a high-speed particle accelerator (a good example of basic research). The accelerator would bring jobs and federal money to the location that landed the project. This was in the early 1990s, and the two leading sites were northern Illinois and somewhere in Texas. According to the fellow I was speaking with, Illinois was the more attractive site because it already had a particle accelerator and a major federal laboratory. Much of the

scientific infrastructure was in place and would not have to be duplicated. Despite that, the project was sited in Texas. “Why?” I asked. This guy looked at me as if I were some kind of idiot. “Because George [H. W.] Bush was president,” he answered, as if there could be no more obvious reason to put a giant particle accelerator in Texas. In the end, the government spent roughly \$1 billion on the project and then abandoned it.

The private sector allocates resources where they will earn the highest return. In contrast, the government allocates resources wherever the political process sends them. (Consider a front-page headline in the *Wall Street Journal*: “Industries That Backed Bush Are Now Seeking Return on Investment.”)²

Is that because Republicans are particularly prone to this kind of money-grubbing political influence? Perhaps. But during the Obama Administration, Jamie Dimon, head of JPMorgan Chase, held the company’s first ever board meeting in Washington, DC, and invited White House Chief of Staff Rahm Emanuel as a special guest. According to the *New York Times*, Mr. Emanuel’s appearance reflected “a good return on what Mr. Dimon has labeled his company’s ‘seventh line of business’—government relations.”³

There is nothing inherently wrong with this. Politics is a necessary but imperfect process, and everyone has a right to seek influence. Military bases get built or closed in a way that reflects the makeup of the Senate Armed Services Committee as much as or more than the military needs of the country. A private army is not an option, so this is the best we can reasonably expect. But the less the economy is left to politics, the better. Powerful politicians should not be deciding, for example, who gets bank credit and who does not. Yet that is exactly what happens in autocratic nations like China and in democratic countries like Indonesia where politicians play “crony capitalism.” Projects that have the potential to be highly profitable do not get financing while dubious undertakings sponsored by the president’s brother-in-law are lavished with government funds. Consumers lose in two ways. First, their tax money is squandered when projects that never should have been funded in the first place go bust (or when the whole banking system needs to be bailed out because it is full of rotten, politically motivated loans). Second, the economy does not develop as quickly or efficiently as it might because credit (a finite resource) is channeled away from worthwhile projects: car plants don’t get built; students don’t get loans; entrepreneurs don’t get funding. As a result, resources are squandered and the economy does not perform anywhere near its potential.

Government need not run steel mills or parcel out bank loans to meddle in the economy. The more subtle and pervasive kind of government involvement is regulation. Markets work because resources flow to where they are valued most. Government regulation inherently interferes with that process. In the world painted by economics textbooks, entrepreneurs cross the road to earn higher profits. In the real world, government officials stand by the road and demand a toll, if they don't block the crossing entirely. The entrepreneurial firm may have to obtain a license to cross the road, or have its vehicle emissions tested by the Department of Transportation as it crosses the road, or prove to the INS that the workers crossing the road are U.S. citizens. Some of these regulations may make us better off. It's good to have government officials blocking the road when the "entrepreneur" is carrying seven kilos of cocaine. But every regulation carries a cost, too.

Milton Friedman, who was a delightful writer and an articulate spokesman for a less intrusive government (and a far more subtle thinker than many of the writers who haunt the op-ed pages these days purporting to have inherited his mantle), makes this point in *Capitalism and Freedom* by recounting an exchange between an economist and a representative of the American Bar Association at a large meeting of lawyers.⁴ The economist was arguing before the group that admission to the bar should be less restrictive. Allowing more lawyers to practice, including those who might not be the sharpest knives in the drawer, would lower the cost of legal services, he argued. After all, some legal procedures, such as basic wills and real estate closings, do not require the services of a brilliant Constitutional scholar. He argued by analogy that it would be absurd for the government to require that all automobiles be Cadillacs. At that point, a lawyer in the audience rose and said, "The country cannot afford anything but Cadillac lawyers!"

In fact, demanding only "Cadillac lawyers" completely misses all that economics seeks to teach us about tradeoffs (for reasons that have nothing to do with the fact that General Motors has a steadily declining market share). In a world with only Cadillacs, most people would not be able to afford any transportation at all. Sometimes there is nothing wrong with allowing people to drive Toyota Corollas.

For a striking international example of the effects of regulation on the economy, consider the civil unrest in 2000 in Delhi, India.⁵ Delhi is one of the most polluted cities in the world. After the Supreme Court of India made a major decision regarding industrial pollution, thousands of Delhi residents took to the

streets in violent protest. “Mobs torched buses, threw stones, and blocked major roads,” the *New York Times* reported. Here is the twist: *The protesters were supporting the polluters.* The Supreme Court held the city of Delhi in contempt for failing to close some ninety thousand small factories that pollute the area. Those factories employed roughly a million people who would be thrown out of work. The headline on the story nicely encapsulated the tradeoff: “A Cruel Choice in New Delhi: Jobs vs. a Safer Environment.”

How about DDT, one of the nastier chemicals mankind has unleashed on the environment? DDT is a “persistent organic pollutant” that works its way into and up the food chain, wreaking havoc along the way. Should this noxious pesticide be banned from the planet? *The Economist* has made a convincing argument that it should not.⁶ Much of the developing world is ravaged by malaria; some 300 million people suffer from the disease every year and more than a million die. (Of course, malaria is not a disease that we are particularly sensitive to in the developed world, since it was eradicated in North America and Europe fifty years ago. Tanzanian researcher Wen Kilama once famously pointed out that if seven Boeing 747s, mostly filled with children, crashed into Mt. Kilimanjaro *every day*, then the world would take notice. That is the scale on which malaria kills its victims.)⁷

Harvard economist Jeffrey Sachs has estimated that sub-Saharan Africa would be almost a third richer today if malaria had been eradicated in 1965. Now, back to DDT, which is the most cost-effective way of controlling the mosquitoes that spread the disease. The next best alternative is not only less effective but also four times as expensive. Do the health benefits of DDT justify its environmental costs?

Yes, argue some groups—like the Sierra Club, the Endangered Wildlife Trust, Environmental Defense Fund, and the World Health Organization. Yes, you read those names correctly. They have all embraced DDT as a “useful poison” for fighting malaria in poor countries. When the United Nations convened representatives from 120 countries in South Africa in 2000 to ban “persistent organic pollutants,” the delegates agreed to exempt DDT in situations where it is being used to fight malaria.⁸

Meanwhile, not all regulations are created equal. The relevant question is not always whether or not government should involve itself in the economy; the more important issue may be how the subsequent regulation is structured. University of Chicago economist and Nobel laureate Gary Becker spent his summers on Cape Cod, where he was a fond consumer of striped bass.⁹ Because

the stocks of this fish are dwindling, the government has imposed a limit on the total commercial catch of striped bass allowed every season. Mr. Becker had no problem with that; he wanted future consumers to be able to eat striped bass, too.

Instead, he raised the issue in a column for *Business Week* about how the government chose to limit the total catch. At the time he was writing, the government had imposed an aggregate quota on the quantity of striped bass that could be harvested every season. Mr. Becker wrote, “Unfortunately, this is a very poor way to control fishing because it encourages each fishing boat to catch as much as it can early in the season, before other boats bring in enough fish to reach the aggregate quota that applies to all of them.” Everybody loses: The fishermen get low prices for their fish when they sell into a glut early in the season; then, after the aggregate quota is reached early in the season, consumers are unable to get any striped bass at all. Several years later, Massachusetts did change its system so that the striped bass quota is divided among individual fishermen; the total catch is still limited but individual fishermen can fulfill their quota anytime during the season.

Individualized quotas can make fishing safer, too. Alaskan crabbing was formerly governed by a collective quota, prompting “derbies” in which boats would work at a frantic pace to capture up to half their annual catch in just a few days. One crabber explained, “The gun went off and everyone scrambled. Some boats loaded too many crab pots and capsized. Others pushed their crews to work too long.” The profession was so dangerous that it spawned the reality television show *Deadliest Catch*. In 2006, the quota system was changed so that each boat received its own quota to fill over the course of the entire season. Crabbers can now get enough sleep, work at a safe pace, and avoid treacherous weather. Fatalities have plummeted, and the crab population receives the same level of overall protection.¹⁰

The key to thinking like an economist is recognizing the tradeoffs inherent to fiddling with markets. Regulation can disrupt the movement of capital and labor, raise the cost of goods and services, inhibit innovation, and otherwise shackle the economy (such as by letting mosquitoes escape alive). *And that is just the regulation inspired by good intentions.* At worst, regulation can become a powerful tool for self-interest as firms work the political system to their own benefit. After all, if you can’t beat your competitors, then why not have the government hobble them for you? University of Chicago economist George Stigler won the Nobel Prize in Economics in 1982 for his trenchant observation and supporting evidence that firms and professional associations often seek regulation as a way of advancing their own interests.

Consider a regulatory campaign that took place in my home state of Illinois. The state legislature was being pressured to enact more stringent licensing requirements for manicurists. Was this a grassroots lobbying campaign being waged by the victims of pedicures gone terribly awry? (One can just imagine them limping in pain up the capital steps.) Not exactly. The lobbying was being done by the Illinois Cosmetology Association on behalf of established spas and salons that would rather not compete with a slew of immigrant upstarts. The number of nail salons grew 23 percent in just one year in the late 1990s, with discount salons offering manicures for as little as \$6, compared to \$25 in a full-service salon. Stricter licensing requirements—which almost always exempt existing service providers—would have limited this fierce competition by making it more expensive to open a new salon.

Milton Friedman has pointed out that the same thing happened on a wider scale in the 1930s. After Hitler came to power in 1933, large numbers of professionals fled Germany and Austria for the United States. In response, many professions erected barriers such as “good citizenship” requirements and language exams that had a tenuous connection to the quality of service provided. Friedman pointed out that the number of foreign-trained physicians licensed to practice in the United States in the five years after 1933 was the same as in the five years before—which would have been highly unlikely if licensing requirements existed only to screen out incompetent doctors but quite likely if the licensing requirements were used to ration the number of foreign doctors allowed into the profession.

By global standards, the United States has a relatively lightly regulated economy (though try making that argument at a Chamber of Commerce meeting). Indeed, one sad irony of the developing world is that governments fail in their most basic tasks, such as defining property rights and enforcing the law, while piling on other kinds of heavy-handed regulation. In theory, this kind of regulation could protect consumers from fraud, improve public health, or safeguard the environment. On the other hand, economists have asked whether this kind of regulation is less of a “helping hand” for society and more of a “grabbing hand” for corrupt bureaucrats whose opportunities to extort bribes rise along with the number of government permits and licenses required for any endeavor.

A group of economists studied the “helping hand” versus “grabbing hand” question by examining the procedures, costs, and expected delays associated with starting up a new business in seventy-five different countries.¹¹ The range was extraordinary. Registering and licensing a business in Canada requires a

mere two procedures compared to twenty in Bolivia. The time required to open a new business legally ranges from two days, again in Canada, to six months in Mozambique. The cost of jumping through these assorted government hoops ranges from 0.4 percent of per capita GDP in New Zealand to 260 percent of per capita GDP in Bolivia. The study found that in poor countries like Vietnam, Mozambique, Egypt, and Bolivia an entrepreneur has to give up an amount equal to one to two times his annual salary (not counting bribes and the opportunity cost of his time) just to get a new business licensed.

So are consumers safer and healthier in countries like Mozambique than they are in Canada or New Zealand? No. The authors find that compliance with international quality standards is lower in countries with more regulation. Nor does this government red tape appear to reduce pollution or raise health levels. Meanwhile, excessive regulation pushes entrepreneurs into the underground economy, where there is no regulation at all. It is hardest to open a new business in countries where corruption is highest, suggesting that excessive regulation is a potential source of income for the bureaucrats who enforce it.

India has over a billion people, many of whom are desperately poor. Education has clearly played a role in moving the nation's economy forward and lifting millions of citizens out of poverty. Higher education in particular has contributed to the creation and expansion of a vibrant information technology sector; however, a recent shortage of skilled workers has been a drag on economic growth. So it's no great economic conundrum as to why a pharmaceutical college in Mumbai would seek to use empty space in its eight-story building to double student enrollment.

The problem is that this action turned the college administration into criminals. It's true—the Indian government imposes strict regulations on its technical colleges that protect against something as reckless and potentially dangerous as using empty space to educate more students. Specifically, the law stipulates that a technical college must provide 168 square feet of building space for each student (to ensure adequate space for learning). That formula precludes the Principal K. M. Kundnani College of Pharmacy from teaching more than 300 students—regardless of the fact that all the lecture halls on the top floor of the building are padlocked for lack of use.

According to the *Wall Street Journal*, "The rules also stipulate the exact size for libraries and administrative offices, the ratio of professors to assistant professors and lecturers, quotas for student enrollment and the number of computer terminals, books and journals that must be on site."¹²

Thankfully, governments sometimes roll back these kinds of regulation. In November 2008, the European Union acted boldly to legalize . . . ugly fruits and vegetables. Prior to that time, supermarkets across Europe were forbidden from selling “overly curved, extra knobbly or oddly shaped” produce. This was a true act of political courage by European Union authorities, given that representatives from sixteen of the twenty-seven member nations tried to block the deregulation while it was being considered by the EU Agricultural Management Committee.¹³

I wish I were making this stuff up.

Let's step out of our cynical mode for a moment and return to the idea that government has the capacity to do many good things. Even then, when government is doing the things that it is theoretically supposed to do, government spending must be financed by levying taxes, and taxes exert a cost on the economy. This “fiscal drag,” as Burton Malkiel has called it, stems from two things. First, taxes take money out of our pockets, which necessarily diminishes our purchasing power and therefore our utility. True, the government can create jobs by spending billions of dollars on jet fighters, but we are paying for those jets with money from our paychecks, which means that we buy fewer televisions, we give less to charity, we take fewer vacations. Thus, government is not necessarily creating jobs; it may be simply moving them around, or, on net, destroying them. This effect of taxation is less obvious than the new defense plant at which happy workers churn out shiny airplanes. (When we turn to macroeconomics later in the book, we will examine the Keynesian premise that government can increase economic growth by stoking the economy during economic downturns.)

Second, and more subtly, taxation causes individuals to change their behavior in ways that make the economy worse off without necessarily providing any revenue for the government. Think about the income tax, which can be as high as 50 cents for every dollar earned by the time all the relevant state and federal taxes are tallied up. Some individuals who would prefer to work if they were taking home every dollar they earn may decide to leave the labor force when the marginal tax rate is 50 percent. *Everybody loses in this situation.* Someone whose preference is to work quits his or her job (or does not start working in the first place), yet the government raises no revenue.

As we noted in [Chapter 2](#), economists refer to this kind of inefficiency associated with taxation as “deadweight loss.” It makes you worse off without

making anyone else better off. Imagine that a burglar breaks into your home and steals assorted personal possessions; in his haste, he makes off with wads of cash but also a treasured family photo album. There is no deadweight loss associated with the cash he has stolen; every dollar purloined from you makes him better off by a dollar. (Perversely, it is simply a transfer of wealth in the eyes of our amoral economists.) On the other hand, the stolen photo album is pure deadweight loss. It means nothing to the thief, who tosses it in a dumpster when he realizes what he has taken. Yet it is a tremendous loss to you. Any kind of taxation that discourages productive behavior causes some deadweight loss.

Taxes can discourage investment, too. An entrepreneur who is considering making a risky investment may do so when the expected return is \$100 million but not when the expected return, diminished by taxation, is only \$60 million. An individual may pursue a graduate degree that will raise her income by 10 percent. But that same investment, which is costly in terms of tuition and time, may not be worthwhile if her *after-tax* income—what she actually sees after all those deductions on the paycheck—only goes up 5 percent. (On the day my younger brother got his first paycheck, he came home, opened the envelope, and then yelled, “Who the hell is FICA?”) Or consider a family that has a spare \$1,000 and is deciding between buying a big-screen television and squirreling the money away in an investment fund. These two options have profoundly differently impacts on the economy in the long run. Choosing the investment makes capital available to firms that build plants, conduct research, train workers. These investments are the macro equivalents of a college education; they make us more productive in the long run and therefore richer. Buying the television, on the other hand, is current consumption. It makes us happy today but does nothing to make us richer tomorrow.

Yes, money spent on a television keeps workers employed at the television factory. But if the same money were invested, it would create jobs somewhere else, say for scientists in a laboratory or workers on a construction site, while also making us richer in the long run. Think about the college example. Sending students to college creates jobs for professors. Using the same money to buy fancy sports cars for high school graduates would create jobs for auto workers. The crucial difference between these scenarios is that a college education makes a young person more productive for the rest of his or her life; a sports car does not. Thus, college tuition is an investment; buying a sports car is consumption (though buying a car for work or business might be considered an investment).

So back to our family with a spare \$1,000. What will they choose to do with it? Their decision will depend on the after-tax return the family can expect to earn by investing the money rather than spending it. The higher the tax such as a

carry investing the money raised with spending it. The higher the tax, such as a capital gains tax, the lower the return on the investment—and therefore the more attractive the television becomes.

Taxation discourages both work and investment. Many economists argue that cutting taxes and rolling back regulation unleashes productive forces in the economy. This is true. The most ardent “supply-siders” argue further that tax cuts can actually raise the amount of revenue collected by the government because we all will work harder, earn higher incomes, and end up paying more in taxes even though tax rates have fallen. This is the idea behind the Laffer curve, which provided the intellectual underpinnings for the large Reagan-era tax cuts. Economist Arthur Laffer theorized in 1974 that high tax rates discourage so much work and investment that cutting taxes will earn the government more revenue, not less. (He first sketched a graph of this idea on a restaurant napkin while having dinner with a group of journalists and politicians.

In one of life’s delicious ironies, it was Dick Cheney’s napkin.)¹⁴ At some level of taxation, this relationship must be true. If the personal income tax is 95 percent, for example, then no one is going to do a whole lot of work beyond what is necessary to subsist. Cutting the tax rate to 50 percent would almost certainly boost government revenues.

But would the same relationship hold true in the United States, where tax rates were much lower to begin with? Both the Reagan tax cuts and the George W. Bush tax cuts provided an answer: no. These large tax cuts did not boost government revenues (relative to what they would have been in the absence of the tax cut);* they led to large budget deficits. In the case of the Reagan tax cuts, Mr. Laffer’s conjecture did appear to hold true for the wealthiest Americans, who ended up sending more money to the Treasury after their tax rates were cut. Of course, this may be mere coincidence. As we shall explore in [Chapter 6](#), highly skilled workers saw their wages rise sharply over the last several decades as the economy increasingly demanded more brains than brawn. Thus, the wealthiest Americans may have paid more in taxes because their incomes went up sharply, not because they were working harder in response to lower tax rates.

In the United States, where tax rates are low relative to the rest of the world, supply-side economics is a chimera: In all but unique circumstances, we cannot cut taxes *and* have more money to spend on government programs—a point that conservative economists readily concede. Bruce Bartlett, an official in both the Reagan and the George H. W. Bush administrations, has publicly lamented that the term “supply-side economics” has morphed from an important and defensible idea—that lower marginal tax rates stimulate economic activity—into

the “implausible” notion “that *all* tax cuts raise revenue.”¹⁵ When Senator John McCain told the *National Review* in 2007 that tax cuts “as we all know, increase revenues,” Harvard economist Greg Mankiw (who served as chairman of the Council of Economic Advisers for George W. Bush) posed the logical follow-up question on his blog: “If you think tax cuts increase revenue, why advocate spending restraint? Can’t we pay for new spending programs with more tax cuts?”¹⁶ If I sound rather emphatic in making this point, I am. The problem with the tax-cuts-increase-revenue fallacy is that it confuses the debate over our public finances by giving the illusion that we can get something for nothing. You should recognize by now that this is not usually the case in economics. There are a lot of good things about tax cuts. They leave more money in our pockets. They stimulate hard work and risk-taking. In fact, the increased economic activity caused by lower tax rates usually does help to make up for *some* of the lost revenue. One dollar in tax cuts may only cost the government eighty cents in lost revenue (or fifty cents in extreme cases), as government is taking a smaller slice of a bigger pie.

And yet . . . the notion that we can pay less and get more persists—in large part because it’s significantly more attractive than paying less and getting less. When the Trump Administration proposed its large tax cuts in 2017, Treasury Secretary Steve Mnuchin said confidently, “Not only will this tax plan pay for itself, but it will pay down debt.”¹⁷ Never mind that the Congressional Budget Office, the nonpartisan agency that does the authoritative economic analysis on these kinds of things, estimated that the tax cuts would result in \$1 trillion in lost revenue over ten years, even when additional growth is taken into account. The Booth School of Business at the University of Chicago periodically polls an ideologically diverse panel of economists on issues of the day, such as tax cuts. When the panel was polled on the Trump tax plan as it made its way through Congress, 100 percent of the economists answered that it would add to the debt—not 86 percent, or 91 percent, *but every single one of them.*¹⁸ Hence one news headline: “Trump’s team says the tax bill will pay for itself. It won’t.”¹⁹

Less than a year later, the White House reported that “the deficit was growing faster than it had expected” and that the federal debt would grow by \$1 trillion in the coming decade because of the Trump tax cuts. This is like being surprised that a marble dropped from a bridge goes down rather than up. *It is what every single economist polled by the Booth School said would happen.*

Think about a simple numerical example. Suppose the tax rate is 50 percent and the tax base is \$100 million. Tax revenues would be \$50 million. Now

suppose that the tax rate is cut to 40 percent. Some people work extra hours now that they get to keep more of their earnings; a few spouses take second jobs. Assume that the tax base grows to \$110 million. Government revenue is now 40 percent of that bigger economy, or \$44 million. Government has lost revenue by taking a smaller percentage of preexisting economic activity, but some of that loss is offset by taking a percentage of the new economic activity. If there had been no economic response to the tax cut, the 10 percentage point cut in the tax rate would have cost the government \$10 million in lost revenue; instead, only \$6 million is forgone. (In the case of a tax increase, the same phenomenon is likely in reverse: The increase in new revenues will be offset in part by some shrinking of the economic pie.) Tax experts typically take these behavioral responses into account when projecting the effects of a tax cut or a tax increase.

In all but the most extraordinary of circumstances, there is no free lunch. Lower tax rates mean less total government revenue—and therefore fewer resources to fight wars, balance the budget, catch terrorists, educate children, or do anything else governments typically do. That's the tradeoff. The bastardization of supply-side economics has taken an important intellectual debate—whether we should pay more in taxes to get more in government services, or pay less and get less—and transformed it into an intellectually dishonest premise: that we can pay less and get more. I wish that were true, just as I wish that I could get rich by working less or lose weight by eating more. So far, it hasn't happened.

Having said all that, the proponents of smaller government have a point. Lower taxes can lead to more investment, which causes a faster long-term rate of economic growth. It is facile to dismiss this as a bad idea or a policy that strictly favors the rich. A growing pie is important—perhaps even most important—for those with the smallest slices. When the economy grows slowly or sinks into recession, it is steelworkers and busboys who are laid off, not brain surgeons and university professors. In 2009, in the midst of the recession induced by the financial crisis, the American poverty rate was more than 13 percent—the highest rate in more than a decade.

Conversely, the 1990s were pretty good for those at the bottom of the economic ladder. Rebecca Blank, a University of Michigan economist and member of the Council of Economic Advisers in the Clinton administration, looked back on the remarkable economic expansion of the 1990s and noted:

I believe that the first and most important lesson for anti-poverty warriors from the 1990s is that sustained economic growth is a wonderful thing.

To the extent that policies can help maintain strong employment growth, low unemployment, and expanding wages among workers, these policies may matter as much or more than the dollars spent on targeted programs for the poor. If there are no job opportunities, or if wages are falling, it is much more expensive—both in terms of dollars spent and political capital—for government programs alone to lift people out of poverty.²⁰

So, for two chapters now I have danced around the obvious “Goldilocks” question: Is the role that government plays in the United States economy too big, too small, or just about right? I can finally offer a simple, straightforward, and unequivocal answer: It depends on whom you ask. There are smart and thoughtful economists who would like to see a larger, more activist government; there are smart and thoughtful economists who would prefer a smaller government; and there is a continuum of thinkers in between.

In some cases, the experts disagree over factual questions, just as eminent surgeons may disagree over the appropriate remedy for opening a clogged artery. For example, there is an ongoing dispute over the effects of raising the minimum wage. Theory suggests that there must be a tradeoff: A higher minimum wage obviously helps those workers whose wages are raised; at the same time, it hurts some low-wage workers who lose their jobs (or never get hired in the first place) because firms cut back on the number of workers they employ at the new higher wage. Economists disagree (and present competing research) over how many jobs are lost when the minimum wage goes up. This is a crucial piece of information if one is to make an informed decision on whether or not raising the minimum wage is a good policy for helping low-wage workers. Over time, it is a question that can be answered with good data and solid research. (As one policy analyst once pointed out to me, it may be easy to lie with statistics, but it’s a lot easier to lie without them.)

More often, economics can merely frame issues that require judgments based on morals, philosophy, and politics—somewhat as a doctor lays out the options to a patient. The physician can outline the medical issues related to treating an advanced cancer with chemotherapy. The treatment decision ultimately resides with the patient, who will interject his or her own views on quality of life versus longevity, willingness to experience discomfort, family circumstances, etc.—all perfectly legitimate considerations that have nothing to do with medicine or science. Yet making that decision still requires excellent medical advice.

In that vein of thought, we can present a framework for thinking about the role of the government in the economy.

Government has the potential to enhance the productive capacity of the economy and make us much better off as a result. Government creates and sustains the legal framework that makes markets possible; it raises our utility by providing public goods that we are unable to purchase for ourselves; it fixes the rough edges of capitalism by correcting externalities, particularly in the environmental realm. Thus, the notion that smaller government is always better government is simply wrong.

That said, reasonable people can agree with everything above and still disagree over whether the U.S. government should be bigger or smaller. It is one thing to believe, in theory, that government has the capacity to spend resources in ways that will make us better off; it is another to believe that the fallible politicians who make up Congress are going to choose to spend money that way. Is a German-Russian museum in Lawrence Welk's birthplace of Strasburg, North Dakota, really a public good? Congress allocated \$500,000 for the museum in 1990 (and then withdrew it in 1991 when there was a public outcry). How about a \$100 million appropriation to search for extraterrestrial life? Searching for ET meets the definition of a public good, since it would be impractical for each of us to mount his or her own individual search for life in outer space. Still, I suspect that many Americans would prefer to see their money spent elsewhere.

If I were to poll one hundred economists, nearly every one of them would tell me that significantly improving primary and secondary education in this country would lead to large economic gains. But the same group would be divided over whether or not we should spend more money on public education. Why? Because they would disagree sharply over whether pouring more money into the existing system would improve student outcomes.

Some government activity shrinks the size of the pie but still may be socially desirable. Transferring money from the rich to the poor is technically "inefficient" in the sense that sending a check for \$1 to a poor family may cost the economy \$1.25 when the deadweight costs of taxation are taken into account. The relatively high taxation necessary to support a strong social safety net falls most heavily on those with productive assets, including human capital, making countries like France a good place to be a child born into a poor family and a bad place to be an Internet entrepreneur (which in turn makes it a bad place to be a high-tech worker). Overall, policies that guarantee some pie for everybody will slow the growth of the pie itself. Per capita income in the United States is higher

than per capita income in France; the United States also has a higher proportion of children living in poverty.

Having said all that, reasonable people can disagree over the appropriate level of social spending. First, they may have different preferences about how much wealth they are willing to trade off for more equality. The United States is a richer but more unequal place than most of Europe. Second, the notion of a simple tradeoff between wealth and equality oversimplifies the dilemma of helping the most disadvantaged. Economists who care deeply about the poorest Americans may disagree over whether the poor would be helped more by expensive government programs, such as universal health care, or by lower taxes that would encourage economic growth and put more low-income Americans to work at higher wages.

Last, some government involvement in the economy is purely destructive.

Heavy-handed government can be like a millstone around the neck of a market economy. Good intentions can lead to government programs and regulations whose benefits are grossly outweighed by their costs. Bad intentions can lead to all kinds of laws that serve special interests or corrupt politicians. This is especially true in the developing world, where much good could be done just by getting government out of areas of the economy where it does not belong. As Jerry Jordan, former president and CEO of the Federal Reserve Bank of Cleveland, has noted, “What separates the economic ‘haves’ from the ‘have-nots’ is whether the role of an economy’s institutions—particularly its public institutions—is to facilitate production or to confiscate it.”²¹

In short, government is like a surgeon’s scalpel: It is an intrusive tool that can be used for good or for ill. Wielded carefully and judiciously, it will facilitate the body’s remarkable ability to heal itself. In the wrong hands, or wielded overzealously with even the best of intentions, it can cause great harm.

* There is a subtle but important analytical point here. Those who argue that tax cuts increase government revenues often point out, correctly, that government revenues are higher after a major tax cut than before. But this is not the appropriate comparison to make. The question we should ask is whether government revenues after the tax cut are higher than they would have been if there had not been a tax cut. The reason this distinction matters is that inflation and economic growth push government revenues higher year after year even when the tax rate is unchanged. So it’s entirely plausible that revenues would have climbed 5 percent without the tax cut; if they climb 2 percent with the tax cut, government revenues are indeed higher than the year before—but lower than they would have been without the tax cut. If spending growth is not curtailed to match this new revenue reality, then budget deficits will result, which is usually what happens.

CHAPTER 5

Economics of Information:

McDonald's didn't create a better hamburger

When Bill Clinton ran for president in 1992, he floated the idea of Hope Scholarships. The Clinton plan (based on an earlier experiment at Yale) was seemingly elegant: Students could borrow money for college and then repay the loans after graduation with a percentage of their annual income rather than the usual fixed payments of principal plus interest. Graduates who went on to become investment bankers would owe more in student loans than graduates who counseled disadvantaged teens in poor neighborhoods, which was exactly the point. The plan was designed to address the concern that students graduating with large debts are forced to do well rather than do good. After all, it is hard to become a teacher or a social worker after graduating with \$75,000 in student loans.

In theory, the program would finance itself. Administrators could determine the average postgraduation salary for eligible students and then calculate the percentage of income they would have to pay in order for the program to recoup its costs—say 1.5 percent of annual income for fifteen years. Students who became brain surgeons would pay back more than average; students who fought tropical diseases in Togo would pay less. On average, the high and low earners would cancel each other out and the program would break even.

There was just one problem: The Hope Scholarships had no hope of working, at least not without a large, ongoing government subsidy. The problem was a crucial asymmetry of information: Students know more about their future career plans than loan administrators do. College students never know their future plans with certainty, but most have a good idea whether their postgraduation income will be more or less than average—which is enough to

determine if a Hope Scholarship would be more or less expensive than a conventional loan. Aspiring Wall Street barons would avoid the program because it's a bad deal for them. Who wants to pay back 1.5 percent of \$5 million every year for fifteen years when a conventional loan would be much cheaper? Meanwhile, the world's future kindergarten teachers and Peace Corps volunteers would opt in.

The result is called adverse selection; future graduates sort themselves in or out of the program based on private information about their career plans. In the end, the program attracts predominantly low earners. The repayment calculations, based on the average postgraduation salary, no longer apply and the program cannot recover its costs. One may assume that Mr. Clinton ignored what his advisers almost certainly told him about the Yale experiment: It was quietly canceled after five years, both because repayments fell short of projections and because the administrative costs were prohibitive.

Of course, Bill Clinton was not the last to dally with this idea, which is just too alluring to go away. In 2013, Oregon legislators proposed Pay It Forward, which was a rewarmed version of the HOPE Scholarship (which was a rewarmed version of the Yale plan). Instead of tuition, students attending an Oregon college or university would be able to pledge a percentage of their future income for a set number of years. If the plan were optional, students who expected high future incomes would opt out. If it were mandatory, those future doctors and engineers would likely attend college in a different state. Yes, college is too expensive; no, adverse selection is not going away any time soon. In describing this legislative trial balloon, *The Atlantic* minced no words in the headline: "Oregon's Very Radical and Very Terrible Plan to Make College 'Tuition-Free.'"¹

What we don't know *can* hurt us. Economists study how we acquire information, what we do with it, and how we make decisions when all we get to see is a book's cover. Indeed, the Swedish Academy of Sciences recognized this point in 2001 by awarding the Nobel Prize in Economics to George Akerlof, Michael Spence, and Joseph Stiglitz for their seminal work on the economics of information. Their work explores the problems that arise when rational people are forced to make decisions based on incomplete information, or when one party to a transaction knows more than another. Their insights are relevant to some of our most pressing social issues, from genetic screening to discrimination in the workplace.

Consider a small law firm interviewing two job candidates, one male and one female. Both candidates are recent Harvard Law School graduates and are

eminently qualified for the position. If the “best” candidate for the job is the one who will earn the most money for the firm, which seems a reasonable assumption, then I will argue that the rational choice is to hire the man. The interviewer has no specific information on the family plans of the candidates at hand (and is forbidden by law from asking about them), but can make a reasonable inference based on what everyone knows about America in the twenty-first century: Women still bear the bulk of child-rearing responsibilities. Demographics suggest that both candidates are likely to start families in the near future. Yet only the female candidate will take paid maternity leave. More important, she may not return to work after having the child, which leaves the firm with the cost of finding, hiring, and training another lawyer.

Is any of this certain? No. The male candidate may have dreams of staying home with his five children; the female candidate may have decided years ago that she has no interest in having children. But these are not the most likely scenarios. The female candidate is punished because the firm has no information on her specific circumstances but good data on broad social trends. Is this fair? No. (And it’s not legal either.) *Yet the firm’s logic makes sense.* In other words, it is rational to discriminate in this case, which turns the whole idea of discrimination on its head. Discrimination is usually irrational. As Nobel laureate Gary Becker pointed out in *The Economics of Discrimination*, employers with a “taste for discrimination” sacrifice profits because they pass over minorities in favor of less qualified whites.² A patient who refuses to see an eminent black doctor because of his skin color is a fool. A law firm that minimizes employee turnover by playing the statistical averages may offend our sensibilities and violate federal law—but it is not foolish.

When we approach this situation as an information problem, there are several crucial insights. First, firms are not the only villains. When professional women choose to have a child, take paid maternity leave, and then quit their companies, they impose a cost, arguably unfair, on their firms. *More important, they impose a cost on other women.* Firms that feel they have been “burned” by employees who take maternity leave and then quit are more likely to discriminate against young women in the hiring process (particularly those who are already pregnant) and less likely to offer generous maternity benefits. The good news is that there is a quick and easy solution: a generous but refundable maternity package. Keep it if you come back to work, return it if you don’t. That simple policy change gives us nearly everything we want. Firms no longer have to be concerned about paying benefits to women who will not return to work. Indeed, it becomes possible to offer more generous benefits without providing an incentive for

workers to take the money and run. Women, in turn, do not face the same level of discrimination in the hiring process. Obviously, the best long-term solution is for men to take on more child-rearing responsibilities. As that happens, employers will have less reason to assume that young female workers are more likely to quit or cut back when they have children than young men are.

Statistical discrimination, or so-called “rational discrimination,” takes place when an individual makes an inference that is defensible based on broad statistical patterns but (1) is likely to be wrong in the specific case at hand; and (2) has a discriminatory effect on some group. Suppose an employer has no racial prejudice but does have an aversion to hiring workers with a criminal background. That’s certainly a reasonable preference, for all kinds of reasons. If this employer has to make a hiring decision without access to applicants’ criminal backgrounds (either because he doesn’t have the time or resources to gather such information, or perhaps because he is forbidden by law from asking), then it’s entirely plausible that he will discriminate against black male applicants, who are far more likely to have served time in prison (28 percent) than white male applicants (4 percent).

Of course, all this employer cares about is whether or not the person standing in front of him has a criminal record. If he can acquire that information with certainty, then the broader social patterns don’t matter. In theory, we would expect access to criminal background checks to reduce discrimination against black men without criminal records. In fact, that is what the data show us. A group of economists compared hiring decisions at firms that conduct criminal background checks with hiring decisions at firms that don’t. They concluded, “We find that employers who check criminal backgrounds are more likely to hire African-American workers, especially men. This effect is stronger among those employers who report an aversion to hiring those with criminal records than among those who do not.”³

With race, more information is usually better. The corresponding implication is that less information can be worse. The United States has a huge ex-offender population. (America has a high incarceration rate, and most people who go to prison eventually get out; the median sentence is less than two years.) Policies that seek to help ex-offenders by suppressing information on their criminal backgrounds may be bad for a much wider population. The authors of the study cited above warned that their results “suggest that curtailing access to criminal history records may actually harm more people than it helps and aggravate racial differences in labor market outcomes.”

This chapter is not about discrimination. It is about information, which lies at the heart of many discrimination-related problems. Information matters, particularly when we don't have all that we need. Markets tend to favor the party that knows more. (Have you ever bought a used car?) But if the imbalance, or asymmetry of information, becomes too large, then markets can break down entirely. This was the fundamental insight of 2001 Nobel laureate George Akerlof, an economist at the University of California, Berkeley. His paper entitled "The Market for Lemons" used the used-car market to make its central point. Any individual selling a used car knows more about its quality than someone looking to buy it. This creates an adverse selection problem, just as it did with the Hope Scholarships. Car owners who are happy with their vehicles are less likely to sell them. Thus, used-car buyers anticipate hidden problems and demand a discount. But once there is a discount built into the market, owners of high-quality cars become even less likely to sell them—which guarantees the market will be full of lemons. In theory, the market for high-quality used cars will not work, much to the detriment of anyone who may want to buy or sell such a car. (In practice, such markets often do work for reasons explained by the gentlemen with whom Mr. Akerlof shared his Nobel prize; more on that in a moment.)

"The Market for Lemons" is characteristic of the kinds of ideas recognized by the Nobel committee. It is, in the words of the Royal Swedish Academy of Sciences, "a simple but profound and universal idea, with numerous implications and widespread applications." Health care, for example, is plagued with information problems. Consumers of health care—the patients—almost always have less information about their care than their doctors do. Even after we see a doctor, we may not know whether we were treated properly. This asymmetry of information is at the heart of our health care woes.

Under any "fee for service" system, doctors charge a fee for each procedure they perform. Patients do not pay for these extra tests and procedures; their insurance companies (or the federal government, in the case of older Americans who are eligible for Medicare) do. At the same time, medical technology continues to present all kinds of new medical options, many of which are fabulously expensive. This combination is at the heart of rapidly rising medical costs: Doctors have an incentive to perform expensive medical procedures and patients have no reason to disagree. If you walk into your doctor's office with a headache and the doctor suggests a CAT scan, you would almost certainly agree "just to be sure." Neither you nor your doctor is acting unethically. When cost is not a factor, it makes perfect sense to rule out brain cancer even when the only symptom is a headache the morning after the holiday office party. Your doctor might also reasonably fear that if she doesn't order a CAT scan, you might sue

for big bucks later if something turns out to be wrong with your head.

Medical innovation is terrific in some cases and wasteful in others. Consider the current range of treatments for prostate cancer, a cancer that afflicts many older men. One treatment option is “watchful waiting,” which involves doing nothing unless and until tests show that the cancer is getting worse. This is a reasonable course of action because prostate cancer is so slow-growing that most men die of something else before the prostate cancer becomes a serious problem. Another treatment option is proton radiation therapy, which involves shooting atomic particles at the cancer using a proton accelerator that is roughly the size of a football field. Doing nothing essentially costs nothing (more or less); shooting protons from an accelerator costs somewhere in the range of \$100,000.

The cost difference is not surprising; the shocking thing is that proton therapy has not been proven any more effective than watchful waiting. An analysis by the RAND Corporation concluded, “No therapy has been shown superior to another.”⁴

Health maintenance organizations were designed to control costs by changing the incentives. Under many HMO plans, general practitioners are paid a fixed fee per patient per year, regardless of what services they provide. Doctors may be restricted in the kinds of tests and services they can prescribe and may even be paid a bonus if they refrain from sending their patients to see specialists. That changes things. Now when you walk into the doctor’s office (still at a disadvantage in terms of information about your own health) and say, “I’m dizzy, my head hurts, and I’m bleeding out my ear,” the doctor consults the HMO treatment guidelines and tells you to take two aspirin. As exaggerated as that example may be, the basic point is valid: The person who knows most about your medical condition may have an economic incentive to deny you care. Complaints about too much spending are replaced by complaints about too little spending. Every HMO customer has a horror story about wrangling with bureaucrats over acceptable expenses. In the most extreme (and anecdotal) stories, patients are denied lifesaving treatments by HMO bean counters.

Some doctors are willing to do battle with the insurance companies on behalf of their patients. Others simply break the rules by disguising treatments that are not covered by insurance as treatments that are. (Patients aren’t the only ones suffering from an asymmetry of information.) Politicians have jumped into the fray, too, demanding things like disclosure of the incentives paid to doctors by insurance companies and even a patient’s bill of rights.

The information problem at the heart of health care has not gone away: (1)

The patient, who does not pay the bill, demands as much care as possible; (2) the doctor maximizes income and minimizes lawsuits by delivering as much care as possible; (3) the insurance company maximizes profits by paying for as little care as possible; (4) technology has introduced an array of massively expensive options, some of which are miracles and others of which are a waste of money; and (5) it is very costly for either the patient or the insurance company to prove the “right” course of treatment. In short, information makes health care different from the rest of the economy. When you walk into an electronics store to buy a big-screen TV, you can observe which picture looks clearest. You then compare price tags, knowing that the bill will arrive at your house eventually. In the end, you weigh the benefits of assorted televisions (whose quality you can observe) against the costs (that you will have to pay) and you pick one. *Brain surgery really is different.*

The fundamental challenge of health care reform is paying for the “right” treatment—the “product” that makes the most sense relative to what it costs. This is an exercise that consumers perform on their own everywhere else in the economy. Bean counters should not automatically say no to super-expensive treatments; some may be wonderfully effective and worth every penny. They *should* say no to expensive treatments that are not demonstrably better than less expensive options. They should also say no to doing some tests “just to be sure,” both because these diagnostics are expensive, but also because when administered to healthy people they tend to generate “false positives,” which can breed expensive, unnecessary, and potentially dangerous follow-up care.

There is an old aphorism in advertising: “I know I’m wasting half my money; I just wish I knew which half.” Health care is similar, and if the goal of health care reform is to restrain rapidly rising costs, then any policy change will have to focus on quality and outcomes rather than just paying for inputs. *New York Times* financial columnist David Leonhardt describes the treatment for prostate cancer (where fabulously expensive technology does not appear to be delivering better health) as his own “personal litmus test” for health care reform. When President Obama and the Democrats were crafting the Affordable Care Act (ACA), Leonhardt wrote, “The prostate cancer test will determine whether President Obama and Congress put together a bill that begins to fix the fundamental problem with our medical system: the combination of soaring costs and mediocre results. If they don’t, the medical system will remain deeply troubled, no matter what other improvements they make.” In the end, the ACA did not fundamentally change the incentives embedded in American health care. President Trump has sought to repeal the ACA, or Obamacare as it is commonly

known, but without substantiating any new reform that would pass Leonhardt's "personal litmus test."

But we're not done with health care yet. The doctor may know more about your health than you do, but you know more about your long-term health than your insurance company does. You may not be able to diagnose rare diseases, but you know whether or not you lead a healthy lifestyle, if certain diseases run in your family, if you are engaging in risky sexual behavior, if you are likely to become pregnant, etc. This information advantage has the potential to wreak havoc on the insurance market.

Insurance is about getting the numbers right. Some individuals require virtually no health care. Others may have chronic diseases that require hundreds of thousands of dollars of treatment. The insurance company makes a profit by determining the average cost of treatment for all of its policyholders and then charging slightly more. When Aetna writes a group policy for 20,000 fifty-year-old men, and the average cost of health care for a fifty-year-old man is \$1,250 a year, then presumably the company can set the annual premium at \$1,300 and make \$50—*on average*—for each policy underwritten. Aetna will make money on some policies and lose money on others, but overall the company will come out ahead—if the numbers are right.

Is this example starting to look like the Hope Scholarships or the used-car market? It should. The \$1,300 policy is a bad deal for the healthiest fifty-year-old men and a very good deal for the overweight smokers with a family history of heart disease. So, the healthiest men are most likely to opt out of the program; the sickest guys are most likely to opt in. As that happens, the population of men on which the original premium was based begins to change; on average, the remaining men are less healthy. The insurance company studies its new pool of middle-aged men and reckons that the annual premium must be raised to \$1,800 in order to make a profit. Do you see where this is going? At the new price, more men—the most healthy of the unhealthy—decide that the policy is a bad deal, so they opt out. The sickest guys cling to their policies as tightly as their disease-addled bodies will allow. Once again the pool changes and now even \$1,800 does not cover the cost of insuring the men who sign up for the program. In theory, this adverse selection could go on until the market for health insurance fails entirely.

That does not actually happen. Insurance companies usually insure large groups whose individuals are not allowed to select in or out. If Aetna writes policies for all General Motors employees, for example, then there will be no

adverse selection. The policy comes with the job, and all workers, healthy and unhealthy, are covered. They have no choice. Aetna can calculate the average cost of care for this large pool of men and women and then charge a premium sufficient to make a profit.

Writing policies for individuals, however, is a much scarier undertaking. Companies rightfully fear that the people who have the most demand for health coverage (or life insurance) are those who need it most. *This will be true no matter how much an insurance company charges for its policies.* At any given price—even \$5,000 a month—the individuals who expect their medical costs to be higher than the cost of the policy will be the most likely to sign up. Of course, the insurance companies have some tricks of their own, such as refusing coverage to individuals who are sick or likely to become sick in the future. This is often viewed as some kind of cruel and unfair practice perpetrated on the public by the insurance industry. On a superficial level, it does seem perverse that sick people have the most trouble getting health insurance. But imagine if insurance companies did not have that legal privilege. A (highly contrived) conversation with your doctor might go something like this:

DOCTOR: I'm afraid I have bad news. Four of your coronary arteries are fully or partially blocked. I would recommend open-heart surgery as soon as possible.

PATIENT: Is it likely to be successful?

DOCTOR: Yes, we have excellent outcomes.

PATIENT: Is the operation expensive?

DOCTOR: Of course it's expensive. We're talking about open-heart surgery.

PATIENT: Then I should probably buy some health insurance first.

DOCTOR: Yes, that would be a very good idea.

Insurance companies ask applicants questions about family history, health habits, smoking, dangerous hobbies, and all kinds of other personal things. When I applied for term life insurance, a representative from the company came to my house and drew blood to make sure that I was not HIV-positive. He asked whether my parents were alive, if I scuba dive, if I race cars. (Yes, yes, no.) I peed in a cup; I got on a scale; I answered questions about tobacco and illicit drug use—all of which seemed reasonable given that the company was making a commitment to pay my wife a large sum of money should I die in the near future.

Insurance companies have another subtle tool. They can design policies, or “screening” mechanisms, that elicit information from their potential customers. This insight, which is applicable to all kinds of other markets, earned Joseph Stiglitz, an economist at Columbia University and a former chief economist of the World Bank, a share of the 2001 Nobel Prize. How do firms screen customers in the insurance business? They use a deductible. Customers who consider themselves likely to stay healthy will sign up for policies that have a high deductible. In exchange, they are offered cheaper premiums. Customers who privately know that they are likely to have costly bills will avoid the deductible and pay a higher premium as a result. (The same thing is true when you are shopping for car insurance and you have a sneaking suspicion that your sixteen-year-old son is an even worse driver than most sixteen-year-olds.) In short, the deductible is a tool for teasing out private information; it forces customers to sort themselves.

Any insurance-type situation ultimately raises one explosive question: How much information is too much? I guarantee that this will become one of the most nettlesome policy problems in coming years. Here is a simple exercise. Pluck one hair from your head. (If you are totally bald, take a swab of saliva from your cheek.) That sample contains your entire genetic code. In the right hands (or the wrong hands), it can be used to determine if you are predisposed to heart disease, certain kinds of cancer, depression, and—if the science continues at its current blistering pace—all kinds of other diseases. With one strand of your hair, a researcher (or insurance company) may soon be able to determine if you are at risk for Alzheimer’s disease—twenty-five years before the onset of the disease. This creates a dilemma. If genetic information is shared widely with insurance companies, then it will become difficult, if not impossible, for those most prone to illness to get any kind of coverage. In other words, the people who need health insurance most will be the least likely to get it—not just the night before surgery, but ever. Individuals with a family history of Huntington’s disease, a hereditary degenerative brain disorder that causes premature death, are already finding it hard or impossible to get life insurance. On the other hand, new laws are forbidding insurance companies from gathering such information, leaving them vulnerable to serious adverse selection. Individuals who know that they are at high risk of getting sick in the future will be the ones who load up on generous insurance policies.

An editorial in *The Economist* noted this looming quandary: “Governments thus face a choice between banning the use of test results and destroying the

industry, or allowing their use and creating an underclass of people who are either uninsurable or cannot afford to insure themselves.” *The Economist*, which is hardly a bastion of left-wing thought, suggested that the private health insurance market may eventually find this problem intractable, leaving government with a much larger role to play. The editorial concluded: “Indeed, genetic testing may become the most potent argument for state-financed universal health care.”⁵

Any health care reform that seeks to make health insurance both more accessible and more affordable, particularly for those who are sick or likely to get sick, will have devastating adverse selection problems. Think about it: If I promise that you can buy affordable insurance, regardless of whether or not you are already sick, then the optimal time to buy that insurance is in the ambulance on the way to the hospital. The only fix for this inherent problem is to combine guaranteed access to affordable insurance with a requirement that everyone buy insurance—healthy and sick, young and old—a so-called “personal mandate.” The insurance companies will still lose money on the policies that they are forced to sell to bad risks, but those losses can be offset by the profits earned from healthy people who are forced to buy insurance. (Any country with a national health care system effectively has a personal mandate; all citizens are forced to pay taxes, and in return they get government-funded health care.)

This is the approach that Massachusetts took as part of a state plan to provide universal access to health insurance. State residents who can afford health insurance but don’t buy it are fined on their state tax return. Hillary Clinton supported a personal mandate in the 2008 Democratic presidential primaries; Barack Obama did not, though that arguably had more to do with distinguishing himself from his toughest Democratic opponent than it did with his analysis of adverse selection. Obviously, forcing healthy people to buy something that they would otherwise not buy is a heavy-handed use of government; it’s also the only way to pool risk (which is the purpose of insurance) when the distribution of risk is not random.

When the Obama Administration passed the Affordable Care Act (Obamacare), the most unpopular part of the legislation was the personal mandate, which required that all Americans buy health insurance or face a fine. The irony is that Democrats did not come up with the idea of mandatory health insurance; conservatives did—decades earlier as a tool for protecting private insurance markets from adverse selection. The ACA offers reasonably affordable insurance coverage to all Americans, even those who are already sick or at a high risk of becoming so. That is an admirable goal, but it invites abuse. As

noted earlier, if anyone can buy insurance at any time—sick or healthy—the most sensible time to buy insurance is after getting a nasty diagnosis. Mandatory health insurance is a way to ensure that there are enough healthy people paying into the system to fund care for those who are sick. When Mitt Romney, a Republican, passed health care reform in Massachusetts—long before Obamacare—the plan included a personal mandate.

Here are the relevant economics: (1) We know who is sick; (2) increasingly we know who will become sick; (3) sick people can be extremely expensive; and (4) private insurance doesn't work well under these circumstances. That's all straightforward. The tough part is philosophical/ideological: To what extent do we want to share health care expenses anyway (if at all), and how should we do it? Those were the fundamental questions when Bill Clinton sought to overhaul health care in 1993, and again when the Obama administration took it up in 2009. The Trump Administration repealed the personal mandate component of the ACA in 2017, leaving the rest of the legislation intact. It's not clear what the long-term impact will be on private health insurance.

This chapter started with the most egregious information-related problems—cases in which missing information cripples markets and causes individuals to behave in ways that have serious social implications. Economists are also intrigued by more mundane examples of how markets react to missing information. We spend our lives shopping for products and services whose quality we cannot easily determine. (You had to pay for this book before you were able to read it.) In the vast majority of cases, consumers and firms create their own mechanisms to solve information problems. Indeed, therein lies the genius of McDonald's that inspired the title of this chapter. The “golden arches” have as much to do with information as they do with hamburgers. Every McDonald's hamburger tastes the same, whether it is sold in Moscow, Mexico City, or Cincinnati. That is not a mere curiosity; it is at the heart of the company's success. Suppose you are driving along Interstate 80 outside of Omaha, having never been in the state of Nebraska, when you see a McDonald's. Immediately you know all kinds of things about the restaurant. You know that it will be clean, safe, and inexpensive. You know that it will have a working bathroom. You know that it will be open seven days a week. You may even know how many pickles are on the double cheeseburger. *You know all of these things before you get out of your car in a state you've never been in.*

Compare that to the billboard advertising Chuck's Big Burger. Chuck's may

offer one of the best burgers west of the Mississippi. Or it might be a likely spot for the nation's next large *E. coli* outbreak. How would you know? If you lived in Omaha, then you might be familiar with Chuck's reputation. But you don't; you are driving through Nebraska at nine o'clock at night. (What time does Chuck's close, anyway?) If you are like millions of other people, even those who find fast food relatively unappealing, you will seek out the golden arches because you know what lies beneath them. McDonald's sells hamburgers, fries, and, most important, predictability.

This idea underlies the concept of "branding," whereby companies spend enormous sums of money to build an identity for their products. Branding solves a problem for consumers: How do you select products whose quality or safety you can determine only after you use them (and sometimes not even then)? Hamburgers are just one example. The same rule applies in everything from vacations to fashion. Will you have fun on your cruise? Yes, because it is Royal Caribbean—or Celebrity or Viking or Cunard. I have a poor sense of fashion, so I am reassured that when I buy a Tommy Hilfiger shirt I will look reasonably presentable when I leave the house. Michelin tire advertisements feature babies playing inside of Michelin tires with the tag line "Because so much is riding on your tires." The implicit message is clear enough.

Branding has come under assault as a tool by which avaricious multinational corporations persuade us to pay extortionate premiums for goods that we don't need. Economics tells a different story: Branding helps to provide an element of trust that is necessary for a complex economy to function. Modern business requires that we conduct major transactions with people whom we've never met before. I regularly mail off checks to Fidelity even though I do not know a single person at the company. Harried government regulators can only protect me from the most egregious kinds of fraud. They do not protect me from shoddy business practices, many of which are perfectly legal. Businesses routinely advertise their longevity. That sign outside the butcher proclaiming "Since 1927" is a politic way of saying, "We wouldn't still be here if we ripped off our customers."

Brands do the same thing. Like reputations, they are built over time. Indeed, sometimes the brand becomes more valuable than the product itself. In 1997, Sara Lee, a company that sells everything from underwear to breakfast sausages, declared that it would begin selling off its manufacturing facilities. No more turkey farms or textile mills. Instead, the company would focus on attaching its prestigious brand names—Champion, Hanes, Coach, Jimmy Dean—to products manufactured by outside firms. One business magazine noted, "Sara Lee believes that its soul is in its brands, and that the best use of its energies is to

breathe commercial life into the inert matter supplied by others.”⁶ The irony is lovely: Sara Lee’s strategy for growth and profits is to produce nothing.

Branding can be a very profitable strategy. In competitive markets, prices are driven relentlessly toward the cost of production. If it costs 10 cents to make a can of soda and I sell it for \$1, someone is going to come along and sell it for 50 cents. Soon enough, someone else will be peddling it for a quarter, then 15 cents. Eventually, some ruthlessly efficient corporation will be peddling soda for 11 cents a can. From the consumer’s standpoint, this is the beauty of capitalism. From the producer’s standpoint, it is “commodity hell.” Consider the sorry lot of the American farmer. A soybean is a soybean; as a result, an Iowa farmer cannot charge even one penny above the market price for his crop. Once transportation costs are taken into account, every soybean in the world sells for the same price, which, in most years, is not a whole lot more than it cost to produce.

How does a firm save its profits from the death spiral of competition? By convincing the world (rightfully or not) that its mixture of corn syrup and water is different from everyone else’s mixture of corn syrup and water. Coca-Cola is not soda; it’s Coke. Producers of branded goods create a monopoly for themselves—and price their products accordingly—by persuading consumers that their products are like no other. Nike clothes are not pieces of fabric sewn together by workers in Vietnam; they are Tiger Woods’s clothes. Even farmers have taken this message to heart. At the supermarket, one finds (and pays a premium for) Sunkist oranges, Angus beef, Tyson chickens.

Sometimes we gather information by paying outsiders to certify quality. Roger Ebert’s job is to see lots of bad movies so that I don’t have to. When he sees the occasional gem, he gives it a “thumbs up.” In the meantime, I am spared from seeing the likes of *Tomcats*, a film that Mr. Ebert awarded zero stars. I pay for this information in the form of my subscription to the *Chicago Sun-Times* (or by looking at ads that the *Sun-Times* is paid to display on its free website).^{*} *Consumer Reports* provides the same kind of information on consumer goods; Underwriters Laboratories certifies the safety of electrical appliances; Morningstar evaluates the performance of mutual funds. And then there is Oprah’s book club, which has the capacity to send obscure books rocketing up the best-seller lists.

Meanwhile, firms will do whatever they can to “signal” their own quality to the market. This was the insight of 2001 Nobel laureate Michael Spence, an economist at Stanford University. Suppose that you are choosing an investment adviser after a good stroke of fortune in the Powerball lottery. The first firm you

visit has striking wood paneling, a marble lobby, original Impressionist paintings, and executives wearing handmade Italian suits. Do you think: (1) My fees will pay for all this very nice stuff—what a ripoff!; or (2) wow, this firm must be extremely successful and I hope they will take me on as a client. Most people would choose 2. (If you’re not convinced, think about it the other way: How would you feel if your investment adviser worked in a dank office with twenty-year-old government-surplus WANG word processors?)

The trappings of success—the paneling, the marble, the art collection—have no inherent relation to the professional conduct of the firm. Rather, we interpret them as “signals” that reassure us that the firm is top-notch. They are to markets what a peacock’s bright feathers are to a prospective mate: a good sign in a world of imperfect information.

What signals success when you walk into an office in parts of Asia? Ridiculously cold temperatures. The blast of frigid air tells you immediately that this firm can afford lots of air-conditioning. Even when the temperature is more than ninety degrees outside, office temperatures are sometimes so cold that some workers use space heaters. The *Wall Street Journal* reports, “Frosty air conditioning is a way for businesses and building owners to show that they’re ahead of the curve on comfort. In ostentatious Asian cities, bosses like to send out the message: We are so luxurious, we’re arctic.”⁷

Here is a related question that economists like to ponder: Harvard graduates do very well in life, but is that because they learned things at Harvard that made them successful, or is it because Harvard finds and admits talented students who would have done extraordinarily well in life anyway? In other words, does Harvard add great value to its students, or does it simply provide an elaborate “signaling” mechanism that allows bright students to advertise their talents to the world by being admitted to Harvard? Alan Krueger, a Princeton economist, and Stacy Dale, an economist at the Mellon Foundation, have done an interesting study to get at this question.⁸ They note that graduates of highly selective colleges earn higher salaries later in life than graduates of less selective colleges. For example, the average student who entered Yale, Swarthmore, or the University of Pennsylvania in 1976 earned \$92,000 in 1995; the average student who entered a moderately selective college, such as Penn State, Denison, or Tulane, earned \$22,000 less. That is not a particularly surprising finding, nor does it get at the question of whether the students at schools like Yale and Princeton would earn more than their peers at less competitive schools even if

they played beer pong and watched television for four years.

So Mr. Krueger and Ms. Dale took their analysis one step further. They examined the outcomes of students who were admitted to both a highly selective school and a moderately selective school. Some of those students headed to places like the Ivy League; others chose their less selective option. Mr. Krueger and Ms. Dale's chief finding is best summarized by the title of the paper: "Children Smart Enough to Get into Elite Schools May Not Need to Bother." The average earnings of students admitted to both a highly selective school and a moderately selective school were roughly the same regardless of which type of college they attended. (The one exception was students from lower-income families for whom attending a more selective school increased earnings significantly.) Overall, the quality of student appears to matter more later in life than the quality of the university he or she attended.

Is it irrational to spend \$200,000 or more to attend an Ivy League university? Not necessarily. At a minimum, a Princeton or Yale diploma is the résumé equivalent of Roger Ebert's "thumbs up." It pronounces you highly qualified so that others in life—employers, spouses, in-laws—will have fewer doubts. And there is always the possibility that you may learn something while huddling for four years with the world's great minds. Still, Mr. Krueger offers this advice to students applying to college: "Don't believe that the only school worth attending is one that would not admit you. . . . Recognize that your own motivation, ambition and talents will determine your success more than the college name on your diploma."

The notion that bright, motivated individuals (with similarly motivated parents) will do well, however or wherever they are schooled, is often lost on America's school reformers. In Illinois, each fall is greeted with the release of the state's school report cards. Every school in the state is evaluated based on how well its students have performed on a battery of standardized exams. The media quickly seize on these school report cards to identify the state's "best" schools, most of which are usually in affluent suburbs. But does this process really tell us anything about which schools are the most effective? Not necessarily. "In many suburban communities, students would do well on standardized tests even if they went to school and sat in a closet every day for four years," says University of Rochester economist Eric Hanushek, an expert on the somewhat tenuous relationship between school inputs and student outcomes. There is a fundamental piece of missing information: How much value is really being added at these "high-performing schools"? Do they have exceptional teachers and administrators, or are they repositories for privileged students who would do well on standardized tests regardless of where they went to school? It's

~~would do well on standardized tests regardless of where they went to school. It's~~
the Harvard question all over again.

This chapter started with a serious social issue, and so it will end. Racial profiling is an information problem. There are two simple questions at the heart of the issue. First, does race or ethnicity—alone or in conjunction with some other circumstance—convey meaningful information related to potential criminal activity? If so, what do we do about it? The answer to the first question gets most of the attention. After the attacks of September 11, one could certainly make the case that thirty-five-year-old Arab men posed a greater risk to the country than sixty-five-year-old Polish women. Police officers have long argued that race can be a tip-off; well-dressed white kids in poor black neighborhoods are often looking to buy drugs. Criminal organizations have racial or ethnic affiliations. At the same time President Clinton was declaring racial profiling “morally indefensible,” the website of his drug czar, Barry McCaffrey, was doing just that. In Denver, the site noted, the heroin dealers are predominantly Mexican nationals. In Trenton, crack dealers are predominantly African-American males and the powdered cocaine dealers are predominantly Latino.⁹

Indeed, we all profile in our own way. We are taught from a young age that one should never judge a book by its cover. *But we must; it is often all we get to see.* Imagine you are walking in a parking garage at night when you hear footsteps behind you. Ideally, you would ask this person for a résumé; you and he would sit down for coffee and discuss his goals, his job, his family, his political philosophy, and, most important, the reason he is walking behind you in a dark parking garage. You would do a criminal background check. Then, with all this information in hand, you would decide whether or not to hit the panic button on your key ring. The reality, of course, is different. You get one quick glance over your shoulder. What information matters? Sex? Race? Age? Briefcase? Clothing?

I’ll never forget my own experience as a victim of racial profiling. I boarded a westbound bus from downtown Chicago just as it started to get dark. Chicago is a very segregated city; most of the neighborhoods west of downtown are predominantly African-American. I was wearing a suit, and after a few blocks I was the only white guy on the bus. Around that time, an older black woman asked kindly, “Oh, are the Bulls playing tonight?” The Chicago Bulls play at the Chicago Stadium, which is also directly west of the city center. This woman had inferred, innocently enough, that the only reason a white guy in a suit would be on this bus around 7:00 p.m. would be to go to a Bulls game. Obviously it was

unfair and potentially hurtful for her to draw any conclusion about my destination based only on my skin color and style of dress. The really weird thing is that I was on my way to the Bulls game.

Race, age, ethnicity, and/or country of origin can convey information in some circumstances, particularly when other better information is lacking. From a social policy standpoint, however, the fact that these attributes may convey meaningful information is a red herring. The question that matters is: Are we willing to systematically harass individuals who fit a broad racial or ethnic profile that may, on average, have some statistical support but will still be wrong far more often than it is right? Most people would answer no in most circumstances. We've built a society that values civil liberties even at the expense of social order. Opponents of racial profiling always seem to get dragged into the quagmire of whether or not it is good police work or an effective counterterrorism tool. That's not the only relevant point—and it may be completely irrelevant in some cases. If economics teaches us anything, it's that we ought to weigh costs and benefits. The costs of harassing ten or twenty or one hundred law-abiding people to catch one more drug dealer are not worth it. Terrorism is trickier because the potential costs of letting just one person slip through the cracks are so devastatingly high. So what exactly should we do about it? That is one of the tough trade-offs in the post-September 11 world.

In the world of Econ 101, all parties have “perfect information.” The graphs are neat and tidy; consumers and producers know everything they could possibly want to know. The world outside of Econ 101 is more interesting, albeit messier. A state patrolman who has pulled over a 1990 Grand Am with a broken taillight on a deserted stretch of Florida highway does not have perfect information. Nor does a young family looking for a safe and dependable nanny, or an insurance company seeking to protect itself from the extraordinary costs of HIV/AIDS. Information matters. Economists study what we do with it, and, sometimes more important, what we do without it.

* Yes, Roger Ebert is dead, but his brand is so strong that the website RobertEbert.com is still alive and well!