CONTENTS

Preface vii

CHAPTER 1. The State and the Market 1

CHAPTER 2. Making Markets Work: Regulation and Competition 44

CHAPTER 3. The Government’s Role in Production 98

CHAPTER 4. Collective Choice 137

CHAPTER 5. Behavioral Policies 172

CHAPTER 6. Poverty, Inequality, and the Role of the State 202

CHAPTER 7. Government Failure 256

CHAPTER 8. Evidence and Economic Policies 297

Acknowledgments 337

Appendix: Consumer Surplus and Willingness to Pay/Willingness to Accept 339

Glossary of Technical Terms 343

Index 349
CHAPTER 1

The State and the Market

This chapter sets the scene by considering one of the fundamental issues in public policy economics: What are the relative roles of the government and the private sector, or market, in the economy? Economic theory provides some tools for analyzing the question, so the chapter sets out some of the basics of what is known as welfare economics—in other words, the analysis of economic efficiency and the criteria for assessing whether something makes a society better off or not. (Readers who have previously taken microeconomics courses will be familiar with this.) The theory, taken literally, implies that competitive markets will deliver the highest social welfare; but there are two pitfalls in taking too simplistic a view of economic theory, based as it is on some strong assumptions. One pitfall is concluding that the more markets can be relied on the better; in fact, there are pervasive “market failures.” The opposite one is concluding that it is possible for the government to work out how to correct all market failures; for government failure is widespread too. In fact, practicing economists use the theory as a framework for analyzing policy problems rather than as a guide to solving them. Besides, when it comes to policy choices, economic analysis alone is not enough, or there would be none of the familiar political debate about the proper roles of state and market. So the chapter also discusses the way political or historical events and economic thinking influence each other, helping to explain the variations in government interventions in the economy over time and across countries. It concludes by looking, in the light of this context, at the examples of specific types of market failure: externalities and public goods.
Governments intervene in the economy in many ways. For instance, government spending is a reasonably high share of national income in all developed economies, between 28.7% (Ireland) and 57% (Finland) in 2015, while the size of this expenditure relative to the economy has trended up over time, as well as moving up and down in business cycles (figure 1.1). The spending goes on many services: defense, the legal system, police, education, health, pensions, local government services, roads and infrastructure, state pensions, welfare or social security benefits, subsidies for certain activities or industries, and more. Almost as much (although usually less, as budget deficits are the norm) is raised in revenue through a wide range of taxes, licenses, and charges. All these ways of raising revenue affect the choices individual households and businesses make because they affect people’s incentives. Some of the taxing and spending is intended to redistribute money from rich to poor. The excess of expenditure over revenue is paid for by money borrowed in the financial markets, and this government borrowing can affect interest rates paid by private sector borrowers for their loans.

Figure 1.1. Total government spending, including interest government expenditures, as percentage of GDP. Source: IMF Fiscal Affairs Departmental Data, based on graph at https://ourworldindata.org/public-spending.
To focus just on the government’s taxing and spending is to miss a huge part of its intervention in the economy, though. Governments also write and enforce laws and regulations that govern how businesses are run and how consumers are protected. Competition policy aims to stop businesses from growing too powerful at the expense of consumers, or regulators. Employment law is intended to protect workers from exploitation or discrimination. Government bodies enforce technical and safety standards. Professionals of many kinds are required to hold licenses to operate their practices, in the interest of consumer protection. Therefore, governments can affect when and how people work, who businesses employ, what we can buy and the prices we pay, how goods are manufactured, what information has to be handed over to the authorities, and much more. Box 1.1 lists many of the ways the government influences the economy. It is not easy to measure the scope of all these kinds of intervention, or compare countries, but examples such as the length of the rule book for financial services or the tax code in many countries suggest it has been steadily increasing. In any case, the government is deeply involved in economic activity.

Sometimes economic policies seem intrusive, and people often react in unanticipated ways to specific government actions. High taxes are never popular and have in the past been far higher than now. In 1966 the highest (marginal) rate of income tax was 91% in the United States and 98% in the United Kingdom. No surprise the Beatles wrote their song “Taxman” (on the 1966 album Revolver) complaining about the tax burden. Swedish pop star Abba’s Björn Ulvaeus revealed (in a 2014 book) that they wore such outrageous costumes because the cost of their clothes could be set against their tax due as long as the outfits could not be worn in everyday life. “In my honest opinion we looked like nuts in those years. Nobody can have been as badly dressed on stage as we were,” he wrote. Businesses constantly complain about the burden of regulation, but also constantly call for more government investment in research or in infrastructure such as bridges and roads or subsidies for innovative products. Sometimes policies are entirely counterproductive while other policies are astonishingly effective: see box 1.2.
Box 1.1. Examples of the scope of government involvement in the economy

Spending on services such as health, education, housing, defense, policing, pensions, waste collection, lighting, parks, social services, roads, justice, prisons, and much more
Taxation/licensing—multiple taxes, fees, auctions
Subsidies and tax incentives for specified activities
The “welfare state”—benefits, pensions, income redistribution
Regulation—of many activities
Competition policy—merger control, market investigations, antitrust
Public ownership, and also privatization of public corporations, contracting out of public activities, private finance initiatives
Shaping markets—legal frameworks, takeover rules, intellectual property law
Granting patents, copyright
Setting technical standards
Persuasion and “choice architecture”—public health information campaigns
Investment (infrastructure, research)

Box 1.2. Policy failures and successes

The Cash for Clunkers scheme was introduced in the US in 2008, intended to boost the revenues of the struggling auto manufacturers by encouraging Americans to trade in their old cars for environmentally cleaner new models. It cost $3 billion in subsidies of up to $4,500 to people who traded their “clunker” for a new fuel-efficient auto. In theory, the program would hit two targets: a stimulus for the manufacturers and a contribution to combating climate change and pollution by getting older gas-guzzlers off the road.

(continued on next page)
However, the program led to people bringing forward the purchase of a new car—and trading down to a cheaper model, due to the weak state of the economy at the time. The scheme actually reduced the industry’s revenues by an estimated several billion dollars compared to what they would have been without it. The new cars were less damaging environmentally, but as a “green” policy, Cash for Clunkers was not cost-effective. It was without question a policy failure.*

On the other hand, small taxes on plastic carrier bags seem like a highly effective policy. Even when low, they dramatically reduce the quantity of single-use bags shoppers use, many of which otherwise end up as landfill. The taxes also raise revenues for the government in an uncontroversial way. In Washington, DC, a 5 cent tax reduced the use of carryout bags by 60%. Ireland introduced a 22 (euro) cent tax in 2002, which almost eliminated their use. A 5 pence charge in the UK reduced usage by 85% and encouraged the government to propose doubling the fee to 10 pence. The aim of the charges is to reduce this non-biodegradable source of waste, often harmful to wildlife, and the policy is highly effective in this respect. However, the substitute canvas and other bags have an environmental impact, too, in their production and disposal; there may be trade-offs even between environmental aims.**


In traditional public economics courses, government activities are divided into three “branches”: stabilization, allocation, and distribution. The first of these concerns macroeconomic policy, aiming for a high and stable level of employment and steady growth and inflation. This book does not cover macroeconomic stabilization. Nor does it cover much of another staple of traditional courses, the structure of taxation and sources of tax revenues, which are at the heart of fiscal policy analysis. Instead, the focus here is on allocation and distribution: What is produced, how, and by whom? And how is what is produced distributed among different members of society? The fundamental issue here is therefore the collective use and consumption of resources by large numbers of individuals in society—how is the economy organized? Economics poses these as questions of efficiency and equity (or, in other words, fairness). Often economists focus on the efficiency questions, acting as if they can be analyzed in isolation from judgments about distribution or fairness, but it is impossible in practice to draw any policy conclusions without making value judgments. Almost any policy change creates winners and losers.

The starting point here is therefore to ask how a society can organize production and consumption—the economy—in the best way. This might seem to be a factual kind of question, but in many countries it is of course politically contested. People have conflicting views at any moment in time, and the modes of economic organization societies choose vary at different points in history and in different countries.

Which activities should be done by the government, which by the market, or in some other way? (And, by the way, what do we mean by “the government” or “the market,” and what other ways are there? These questions will be explored further.) If the government is involved, what is the best way for it to try to achieve some socially desirable outcome: public ownership, public provision of services, regulation, taxes, subsidies, or some other policy instrument? (And is it clear what outcome is desired, or are there competing, even conflicting, aims?) The way economists have answered these questions has changed considerably over time. This is due to significant events, such as financial crises or wars, and because poli-
tics responds to events. It is also because economic thinking changes, as ideas respond to events and to political trends, too. Tracking changes in economic thinking is important because the reasons for change illustrate some fundamental dilemmas in determining public policies. It is also important because a key message in this book is that, on many policy issues, economics does not have answers that are right for all time. The right answer is, ultimately, it depends—on context and on political choices. At the same time, economic analysis can provide analytical and empirical insights to inform these contingent choices. The aim of public policy economics is to combine this technical rigor with sensitivity to the specific context.

Social Aims

Evaluation of success and failure in policy has to begin with its ultimate aims. Societies are driven by different aims or values at different times. Some of these, such as patriotism, national power, or honor, have little relation to economics, and might even damage the economy. The aims where economists can contribute something to the discussion are **efficiency**, **equity** or **fairness**, and **mutual insurance against life’s uncertainties**; and perhaps also **social cohesion** or **civic participation**, and **freedom**.

These aims can conflict with each other. Clearly, some of them are not only economic but also ethical questions. Economics has tended to assume that answers to the ethical or political questions, requiring value judgments, can largely be separated from answers to the purely technical economic ones. The assumption is not always justified, although it is surely desirable to conduct economic policy analysis in as impartial a manner as possible.

One important potential trade-off between social aims, the one most often discussed in economics texts, is between efficiency and equity. If the government wants to redistribute income from rich to poor by taxing the former, it can bring about a more equal society but perhaps at the cost of discouraging some people from working as hard, or discouraging some investment, and so shrinking the size of economic output and incomes compared to what they would
otherwise have been. The tax causes some loss of efficiency. But many other things influence effort and output. So alternatively, it might be that a very unequal society discourages work effort by the poor—why bother to be productive if most of the gain goes to someone else? In which case, there is no simple trade-off between efficiency and equity.

Efficiency and equity are two key rationales for much state intervention in private economic activities (“the market”):

- **efficiency** whenever either individual or market failures occur—“failures” meaning sub-optimal decisions because of externalities, natural monopolies, public goods, or simply non-rational choices (all explored below);
- **equity** whenever enough people in society have a preference for redistributing resources—redistribution that can be either monetary payments or the provision of public services, such as education, health, or housing.

Much of the analysis in public policy economics sets aside the distribution question to start with, asking: For a given income distribution, what is the most efficient way for society to use its resources? What will deliver the greatest social welfare? This book starts the same way, returning to distributional questions in chapter 6. Framing the analysis like this also begs the question about the efficiency of government intervention. Chapter 7 focuses on government failure. While there are many examples throughout the book (as in life) of government policies gone wrong, one of the themes is that there are inherent difficulties in organizing an economy to achieve broad and possibly conflicting aims, and in some contexts both government and market solutions will “fail.” Another theme, following from this, is that it is a mistake to think of “the government” and “the market” as alternatives. Societies have a range of organizational structures involving a mixture of private and collective choices, the latter sometimes taken by “official” public sector bodies and sometimes by “unofficial” community agreement; chapter 4 explores this further.

The rest of this chapter covers the question of the appropriate roles of the government and the private sector (state and market)
in the economy, the main issue in so much political debate about economic policies. On certain assumptions, economic theory justifies the competitive market as the “best” way of organizing production and consumption. The next sections consider what “best” means and what assumptions lead to the presumption in favor of markets. It is worth emphasizing here that although economists working on public policy have this theoretical equipment at the back of their minds, all are aware that it provides no more than a useful framework for organizing their thoughts. No one thinks consumers and producers behave in reality as they do in these abstract models. Critics of economics often mistakenly think practitioners take the abstract theory at face value, whereas public policy economics in practice is firmly rooted in empirical reality. With that warning in mind, the next sections introduce the theoretical basics of what is referred to (somewhat confusingly) as welfare economics.

**Efficiency**

The first question is the criterion for preferring one way of organizing production and consumption in the economy over another: What does it mean to say an activity is efficient? The specific meaning used in economics is known as Pareto efficiency (after the Italian economist Vilfredo Pareto, 1848–1923).

An allocation of resources is Pareto efficient if nobody can be made better off without somebody else becoming worse off. A Pareto improvement is a change that makes some people better off without making anyone else worse off.

This requires a definition of “worse off” or “better off.” The criterion used is each individual’s own evaluation of their welfare. Social welfare must then in some way be the aggregate of the welfare of the individuals in the society—a question discussed below. For now it seems reasonable to agree that a change helping someone and harming no one is an improvement.

Note that a Pareto improvement might—or might not—lead to a Pareto efficient outcome; but if the economy is at a Pareto efficient
point, there is no possibility of a Pareto improvement. What’s more, the criterion is agnostic about the distribution of resources; even in a very unequal society, it insists that it is not an improvement to make one rich person worse off even if many poorer people are better off.

Pareto efficiency is related to key concepts in microeconomic theory. The annex to this chapter sets out some of this background, which is covered in all the standard microeconomics textbooks; it will be familiar to anybody who has already studied economics, and rather mysterious to anybody who has not yet become familiarized with some of these nuts and bolts of economic theory. It does not help that different textbooks give slightly different definitions. Here I try to make the ideas as intuitive as possible.

Pareto efficiency consists of the following:

- **Productive efficiency**: Given the kind of resources available (such as land or minerals, labor, machines) and their relative prices, and given the state of technology, is output as high as it can be? Is the economy operating on its *production possibilities frontier*?

- **Allocative (or consumption or exchange) efficiency**: Given the production of different goods and their relative prices, are the goods produced going to the people who most value them? Are people on their highest possible *indifference curve*?

The definition used sometimes focuses on allocative efficiency alone, sometimes both allocative and productive; and sometimes it adds a third element:

- **Product mix (or output) efficiency**: Do the goods being produced correspond to the goods people want to buy, or is there another combination of goods produced with the same resources that would make people better off (put them on a higher indifference curve)?

Together the three components cover how effectively resources are turned into products, whether the products correspond to people’s preferences, and whether, through exchange, they go to the people who value them most. If any of the three is not satisfied, then
at least one person could be made better off (through use of re-
sources in production, mix of goods being produced, or exchange
of products) without making anyone else worse off. This seems
reasonably intuitive as a concept of efficiency.

It is important to note that the terminology can mislead people
into thinking Pareto efficiency is only a technical concept. After all,
it is silent on questions we would think of as ethical issues, particu-
larly the distribution of resources. This is correct in the case of
productive efficiency but not entirely when it comes to allocative
efficiency, which assumes that “better” means satisfying people’s
preferences, whatever they are (and also that it is possible to ag-
gregate up from individual preference satisfaction to social welfare).
“Efficiency” sounds like it is only about positive questions, matters
of fact; but Pareto efficiency is normative, involving a value judgment
in assuming the satisfaction of individual preferences is the right cri-
terior for assessing economic policy outcomes.

**Pareto Efficiency and the Competitive Market**

Equipped with the notion of Pareto efficiency and a set of assump-
tions, it is possible to prove two fundamental theorems of welfare
economics.

The first theorem states that if a competitive market equilibrium
exists, then it is Pareto efficient. Otherwise people would be able to
undertake exchanges that increased their utility—so it could not
have been an equilibrium to start with. The competitive prices mea-
ure the (marginal) increase in welfare for one more unit of each
good. As long as market exchange is possible, people can trade with
each other until all the potential improvements in their welfare have
been captured. This theorem is the underpinning of the instinct in
favor of competitive markets as a benchmark, although this depends
on the validity of the assumptions, which are discussed further below.

The second theorem says that given an initial allocation of re-
sources, there is a set of competitive prices that support the Pareto
efficient outcome. It implies that efficiency can be achieved by the
price mechanism in competitive markets, and can be separated from
the question of the preferred distribution of resources: exchanges at market prices will deliver a Pareto efficient outcome, whatever the distribution. If society wants to redistribute resources to begin with, the competitive market can again deliver a Pareto efficient outcome.

The theorems rely on certain assumptions, however; some are obvious, others subtler (box 1.3).

To list these is to see that they often do not hold in reality, and economists are well aware of this. Even Paul Samuelson, who did more than anyone to embed the grand theory sketched above in the way economics is learned and practiced, was explicit about this: "The above does not happen in real life." The Pareto efficiency approach and welfare theorems nevertheless hold powerful sway in the worldview of economics in offering a conceptual framework for thinking about why, in any particular real-world context, competition and market exchange are not the social welfare–maximizing approach. The theorems organize ideas rather than dictating recommendations. The nature of government interventions is assessed in light of how these correspond to the way reality departs from the

---

**Box 1.3. Assumptions for welfare theorems to hold**

- Consumers and producers are rational and self-interested
- They have fixed preferences
- There is perfect competition with no economies of scale and no barriers to entry (or exit)
- Individuals have full information, and it is symmetric (the same) for all
- Goods are rival—if I consume or use it, you can’t
- Private and social benefits are equal
- Private and social costs are equal
- There are complete markets (including markets for all future goods)
- Goods are owned and able to be exchanged—there are property rights and effective contract law

---
assumptions. And even though there is limited hope in reality of a Pareto improvement in public policy—as there are so often losers as well as winners—the evaluation of public policy is often made in terms of specific market failures as departures from Pareto efficiency. Otherwise economists would constantly need to make explicit judgments about the distributional questions, something they understandably hesitate to do.

Departures from the assumptions behind the welfare theorems also form the organizing principle for the rest of this chapter, and the book. First, though, there are some other issues relating to the theorems to touch on: the problem of the “second best” world, questions of distribution, and how to aggregate individual welfare into social welfare.

**The Second Best Theorem**

One issue is how useful the Pareto efficiency criterion is when the economy is not in a competitive equilibrium, and there are multiple market failures or departures from competition and free exchange. The *second best theorem* (proved by Richard Lipsey and Kelvin Lancaster in 1956) shows that a change that would be a Pareto improvement in a first best world will rarely be so in a second best world. For instance, if European tariffs on high-cost imports from the US are abolished, making their purchase price lower, but there are still tariffs on imports from low-cost Asian producers, then Europeans switching to buying American goods produced at higher cost will not increase social welfare. Another example is a monopolist polluting the atmosphere. Ending the monopoly—removing one market failure—makes another market failure, the pollution externality, worse because prices will fall and output will increase in a more competitive market.

The second best theorem makes formally the important point that it is not possible to take a pick-and-mix (or *partial equilibrium*) approach to evaluating society’s economic welfare, considering policy changes in isolation. For example, imperfect information often leads to *moral hazard* in insurance markets: if I have insurance
on my house, I might not take enough care about fire safety, with more careful householders subsidizing my insurance premium. One solution might be to subsidize the price of smoke alarms. However, that fixes a problem in one market but creates a distortion in another, leading to more-than-efficient production of smoke alarms relative to, say, bicycle lights. Ideally, there should be a policy to correct for that distortion, but the real-world analysis of such connections is challenging to say the least. These complexities gave rise to a *third best* theory, which says that as governments cannot have all the empirical evidence they need to make general equilibrium assessments, they should just address the problems they do know enough about.

Again, the second best theorem is a formal exercise, but one that underlines a key message of this book, which is that neither “the market” nor “the government” is the solution to economic problems. The second best theorem explains why in any context where one thing diverges from Pareto efficiency, the competitive market outcome for everything else need not be the most efficient. However, it also explains why so many government policy interventions have unintended consequences, a key form of “government failure.” In both cases, there is a failure to take on board this lesson that everything in the economy is connected.

**Distributional Questions**

The definition of Pareto efficiency puts questions of distribution or fairness to one side. As it requires that nobody be made worse off, the initial distribution of resources is a given. The second welfare theorem formalizes the separation between distribution and efficiency. It implies that if the initial distribution is undesirable a society should make a lump-sum redistribution, and then the market process of exchange at prevailing prices will bring about a Pareto efficient outcome. This led economists to argue for a principle of compensation (first discussed in 1939 papers by John Hicks and Nicholas Kaldor, and so sometimes referred to as Kaldor-Hicks compensation). If a particular policy would make someone worse
off, could the winner simply pay the loser a suitable amount in compensation?

The answer (pointed out almost immediately in a 1941 journal article by Tibor Skitovsky and several times subsequently) was no, because the amount of compensation required would need to be valued at the prevailing prices for the goods in the economy, and a policy change would change these relative prices. Should compensation be calculated at winners’ prices or losers’ prices? Depending on the choice, a policy and its reversal could both look like Pareto improvements. It depends whose perspective you take. This debate about deep issues in theoretical welfare economics makes little difference to practical policy questions, which quite often involve compensation to losers—such as payments to households having a new rail track laid at the end of their garden, or to private shareholders being bought out if a company is nationalized. However, it underlines the point that the theory is for all practical purposes a framework for organizing concepts.

**Social Welfare**

There is also the question of how to aggregate from individuals’ welfare to society. Is it possible to calculate aggregate social welfare by adding up individuals’ utilities? Kenneth Arrow’s famous 1951 impossibility theorem proved it is not possible to aggregate individual preferences into social preferences without breaching some reasonable-seeming assumptions—including the Pareto efficiency criterion. Social welfare can be defined, however, by allowing interpersonal comparisons of welfare, for example. (There is more detail in the annex to this chapter.)

In this case, the government, or its economists, can define a social welfare function incorporating specific value judgments about distribution. A simple one would be basic utilitarianism, the arithmetic sum of individual utilities. The aim is to maximize the total sum of individual utilities; as long as there are enough gainers, or the gains are large enough, losses to other individuals are acceptable. As Mr. Spock put it, sacrificing his life for others in *Star Trek II: The Wrath*
of Khan, “The needs of the many outweigh the needs of the few. Or the one.” Other options would include giving different weights to the utility of different groups or putting a floor on the outcome for any individual. Typically, the judgments economists express about social welfare (i.e., whether a policy is desirable or not) have a social welfare function implicitly in mind, and it is also typically a utilitarian or consequentialist one. For example, cost-benefit analysis, widely used in policy appraisal, weighs costs borne by some people against benefits gained by others. Utilitarianism is woven into the fabric of economics, as indeed is indicated by the use of “utility” as the criterion for judging policy success or failure.

Market Failure and Government Failure

As already noted, in practice a polite veil is drawn over the theoretical issues with welfare economics, but the theory shapes a useful conceptual framework for analyzing market failures. The competitive market benchmark means economic policies are typically often evaluated in terms of specific market failures corresponding to failures of the assumptions for the fundamental welfare theorems (box 1.4).

This framework for considering the rationale for policy interventions is used in this book because it helps to clarify what kinds of policy might be best suited to a particular problem. However, the “market failure” approach can often fall into one of two opposing traps. The first is to assume, perhaps because of the terminology or the elegance of the economic proofs, that market failures are exceptional, and there is therefore a presumption in favor of “free markets.” Yet the assumptions are an idealized benchmark and clearly never hold in practice, as practicing economists are well aware. On the other hand, this does not mean that there should be an opposite presumption in favor of the government correcting (frequent) market failures by some kind of intervention. For “government” consists of people who might have their own motivations or incentives, and who are acting as “agents” for the rest of the population—questions chapter 7 returns to. Economists have often underestimated the limits on state capacity in analyzing policy
### Box 1.4. Market failures

<table>
<thead>
<tr>
<th>Assumption</th>
<th>“Market failure” when it does not hold</th>
</tr>
</thead>
<tbody>
<tr>
<td>A1 Consumers and producers are rational and self-interested</td>
<td>“Non-rational” choice, social influence</td>
</tr>
<tr>
<td>A2 They have fixed preferences</td>
<td>Natural monopoly</td>
</tr>
<tr>
<td>A3 There is perfect competition with no economies of scale and no barriers to entry (or exit)</td>
<td>Information asymmetries</td>
</tr>
<tr>
<td>A4 Individuals have full information, and it is symmetric (the same) for all</td>
<td>Externalities</td>
</tr>
<tr>
<td>A5 Private and social benefits are equal; private and social costs are equal</td>
<td>Adverse selection; tragedy of the commons</td>
</tr>
<tr>
<td>A6 There are complete markets (including for all future goods)</td>
<td>Transaction costs</td>
</tr>
<tr>
<td>A7 Goods are owned and able to be exchanged—there are property rights, and people obey the law</td>
<td>Public goods/free riding</td>
</tr>
<tr>
<td>A8 Goods are rival—if I use it, you can’t</td>
<td></td>
</tr>
</tbody>
</table>

choices. Hence, as well as frequent market failure, there is also frequent government failure, and it is just as important not to contrast market failure against an idealized perfect state as the other way around.

In fact, markets and governments often fail in the same contexts and for the same reasons. This is why the structures of economic organization have varied so much over time and between countries.
It is why different societies end up with different mixes of “state” and “market,” and there is never either a pure state-run or a pure free market economy.

The Historical Ebb and Flow of “Market” and “State”

Earlier, this chapter referred to the links between historical events, political trends, and economic ideas. Having now set out the basics of the theoretical economic framework to provide a classification of policy challenges, this section briefly locates this modern framework in its broad historical context. Later chapters also include relevant economic history. This is a UK- and to some extent US-centric account, not only because I am British but also because US and UK economists and universities have been so dominant in the discipline, meaning the experience of those two countries has had a disproportionate effect on economics. However, although the historical narrative is different for other countries, the issues and analytical principles are more universal.

The dominant view in economics concerning the role of government has shifted over time. In The Wealth of Nations (published in 1776), Adam Smith was advocating a greater role for market exchange because there were then many government restrictions on activity, favoring established interests, at a time when the economy was on the cusp of the huge technological and social changes of the Industrial Revolution. He set the dial in favor of markets being the preferred means of coordinating economic activity in society—hence the first welfare theorem is sometimes described as the invisible hand theorem. But modern free market advocates have often caricatured his views, omitting his emphasis on the importance of ethical values and social bonds in making markets function effectively.

Thanks to Smith and other classical economists, as economics was formalized in the late nineteenth and early twentieth century, and the theoretical welfare economics framework described above developed, the role for government came to be seen as fixing market failures in some specific ways. If you could identify an externality or a natural monopoly, then the government could in theory calcu-
late how to fix it, although preferably in a way that would distort
private choices as little as possible. For example, in his 1920 book
*The Economics of Welfare* Pigou recommended a flat rate tax to
raise the private cost of selling alcohol until it matched the social
cost (of rowdy behavior, crime, illness). This approach is how alco-
hol is still taxed in many countries (see box 1.5).

**Box 1.5 Pigouvian taxes on alcohol**

Applying a Pigouvian tax on alcohol, to correct for externalities
associated with drinking, is appealing but involves practical difficul-
ties, including how to measure the size of the externalities and the
appropriate tax rate. One challenge is that the ideal tax rate will
vary between individuals, and ought to be much higher for heavy
drinkers. For instance, in the US only 7% of the population are
frequent binge drinkers, but they account for around 75% of the
costs of excessive alcohol use. A “second best” policy would set a
tax equal to the average external marginal cost across all drinkers.
However, if heavy drinkers tend to choose different drinks than light
drinkers (say, whiskey rather than wine), a better policy would set
a higher tax on the form of alcohol preferred by the heavy drinkers.
One study found that in the UK heavy drinkers indeed prefer drinks
with a higher alcohol content, and are also more than three times
as likely as light drinkers to switch to a cheaper type of drink (rather
than drinking less) when the price goes up. Using these differential
preferences and these differential *price elasticities of demand*, it is
possible to show there would be a big increase in social welfare from
introducing higher taxes on high-strength spirits. The researchers
also point out that this is a second best world (i.e., the optimal Pig-
ouvian alcohol taxes could have distributional consequences); that
the alcoholic beverage industry might have some monopoly power;
and that government regulation is an alternative to using Pigouvian
taxation.

Before the twentieth century, state capacity was more limited than it is now. Governments collected taxes, fought wars, and administered some justice, and perhaps set some standards for weights and measures. But beyond these basics most policies (including enforcement of justice, or policing of standards, but also poverty relief) operated at the local level if at all. This limited capacity is still the reality in many low-income economies. In the industrialized economies, though, the early part of the twentieth century saw a big expansion in the role of government. The Wall Street crash of 1929 and the Great Depression, combined with the steady expansion of the vote from the mid-nineteenth century on, led to growing demands for the government to manage the economy, given the dramatic demonstration of how badly things could go if left to the market.

Indeed, central planning looked rather attractive at that stage—more rational and efficient—to some economists on both left and right of the political spectrum. From the communism of the USSR to the corporatist economic policies of fascist Germany and Italy, there were many examples in the early 1930s of increasingly extensive state involvement in production and allocation. A vigorous debate took place among economists at this time, known as the “socialist calculation” debate, which explored whether a centrally planned economy could substitute for the competitive market, delivering as much social welfare. Some economists who opposed socialism on the grounds that it would reduce liberty nevertheless thought socialism would prove a more attractive and successful option than capitalism—famously, Joseph Schumpeter in his 1942 book *Capitalism, Socialism and Democracy*. On the other hand, Friedrich Hayek argued that the market is a means of decentralized information processing far superior to any possible centralized approach. In a famous 1945 article, he argued that prices are a uniquely elegant way of summarizing information and coordinating the choices of many individual consumers and producers with different preferences, or facing different costs and conditions of supply. It is impossible for any centralized planning authority to handle so much information, he argued—probably even now with vastly greater computer power and online information—but the market discovers
and coordinates so that the myriad everyday goods and services are available to consumers when they want them.

This period also saw the development of national accounting in the form still in use today, in parallel with John Maynard Keynes’s macroeconomics in his famous book *The General Theory of Employment, Interest and Money*. Measurement of total economic activity had begun before the Second World War with the efforts of Simon Kuznets and Colin Clark, and became imperative during the war so governments could know what resources were available for wartime production and what consumption sacrifice their populations would have to make. The construction of national accounts—including GDP/GNP—continued in the postwar era, becoming an international standard. As well as the creation of this key data, macroeconomic management was also made possible by the work on business cycles (pioneered by Ragnar Frisch) and macroeconomic models (by Jan Tinbergen and his followers). All of this important intellectual activity in economics, which later made possible macroeconomic management and the postwar welfare state, had poignantly overlapped with the rising tide of tragedy and conflict from the mid-1930s to mid-1940s.

The demands of the Second World War, when wartime needs had priority, followed by the scale of reconstruction required after the conflict ended, involved governments ever more heavily in economic planning. Many Western economies, such as France and the Netherlands, and also Japan set up planning agencies after the war in part to manage their use of the generous Marshall Plan funds provided by the United States to rebuild their damaged economies. These countries still have a strong legacy of state involvement in the economy.

Through the 1940s and into the 1950s, the scope of government economic intervention in most of the rich industrialized economies grew. The welfare state expanded, including state pensions and unemployment insurance. The state undertook house-building programs and funded more public services, such as education and health. Governments intervened more in production, nationalizing industries or individual firms, to a greater or lesser degree. The post office and communications had been government-owned in most
countries from the early twentieth century or even earlier, govern-
ments always having a particular interest in what citizens were 
saying to each other. Many municipalities either provided utilities 
such as gas and electricity, water and sewage services, and local 
transport themselves, or privatized these essential services very early, 
too. However, across Europe (but not the US) the big wave of na-
tionalization of business occurred in the 1940s through the 1970s. The 
UK government, for instance, nationalized car manufacturer 
British Leyland in 1973 and aircraft and shipbuilding companies 
as late as 1977.

The dominant philosophy regarding ownership of the means of 
production, and more broadly the economic role of the state, 
changed after the late 1970s. This was partly political, driven by 
the election of Margaret Thatcher in the UK and Ronald Reagan 
in the US, but events played a role. Economic thinking evolved 
alongside the political changes.

The ideas of market-oriented economists like Hayek had gradu-
ally become more influential over time because some of the problems 
with government ownership or production were growing more ap-
parent. Thirty years of extensive state ownership in the European 
nations provided many examples of government failure. Chapter 3 
looks at this in detail. For now it is enough to note that the profit 
motive in a competitive market gives private firms a strong incentive 
to keep costs down and to innovate. The postwar experience of 
nationalized industries showed they were indeed not as efficient or 
as innovative as private sector equivalents. Partly due to strong 
public sector unions or professional bodies, too, many services were 
rung more in the interest of producers than consumers. Managers in 
the government sector are not held accountable by the profitability 
of their enterprise, and tend to get bailed out by finance ministries 
if they are losing money.

Right-wing politicians and think tanks promoted Hayek’s ap-
proach for ideological reasons. Yet in academic economics at the 
same time the leading areas of research emphasized individual ra-
tional, maximizing behavior in line with the invisible hand theorems 
described above. What’s more, one increasingly influential branch 
of economics, public choice theory, rightly insisted it was essential 
to take into account the motives and incentives of public policymak-
ers and public sector employees. Earlier economic analysis assumed “the government” was benevolent and objective, acting in a disinterested manner to maximize social welfare. But public choice theorists (such as James Buchanan) argued that the lens of economic analysis should be applied to the incentives public sector officials and workers face and assume that, like anyone else, they respond to those incentives, acting in their own interest. This could be financial (promotion, or even corruption), or it could be growing their bureaucratic empire or getting re-elected.

Events in the 1970s helped make this case. It was a troubled decade for all the advanced economies, with OPEC increasing the price of oil dramatically, inflation trending up at the same time that many countries experienced a recession, and a sense by mid-decade that there was a crisis of capitalism. In the UK, the decade saw a growing number of strikes and pay increases and an upward wage-price spiral, culminating in the so-called Winter of Discontent in 1978–79, when a Labour government presided over rubbish piling up in the streets, power cuts, and even the dead lying unburied because of strikes by municipal workers. Mrs. Thatcher, elected in 1979, and Mr. Reagan, in office from 1981, adopted Hayek’s arguments for the market and the public choice arguments against government intervention. The collapse of communism in 1989 seemed to set the seal on their economic philosophy. Soviet communism was revealed to have been an economic as well as a political and moral disaster. The fall of the Berlin Wall in 1989 underlined the point in a dramatic way: East Germans, free for the first time since the Second World War to cross the border to the west, came face-to-face with the reality that they were poorer, with less choice of shoddier products, than their compatriots in West Germany.

The 1990s and 2000s were decades of strong economic growth, technological innovation, and financial market booms. Some important low-income countries, above all China, embraced market economics and the philosophy of liberalization. This choice helped China achieve the biggest reduction in poverty the world has ever experienced. But the pendulum—in politics and in economic thinking—will swing again, and might already be doing so. The Great Financial Crisis of 2008 was not a good advertisement for the market. For one thing, real median personal income declined by about...
a tenth in the US during and after the crisis, the biggest proportionate fall since the 1970s crisis (figure 1.2). Incomes also stagnated or declined significantly in many other member countries of the Organization for Economic Cooperation and Development (OECD), including those affected by the subsequent Euro area crisis.

In recent years, attention has also focused on the dramatic increase in inequality since 1980; although the rise in inequality occurred mainly in the 1980s, the fact that living standards have not improved for many people in most Western countries since (at least) 2008 has done a lot to undermine support for “free markets” (in quotes because it is an abstraction that does not exist in reality). Chapter 6 returns to the question of distribution. The discontent being expressed in elections in many countries recently is prompting some politicians to think more favorably again about state involvement in the economy. Meanwhile, in economic thought the tide some time ago turned toward emphasizing the failures of the list of assumptions set out above, with much research now looking at externalities, information asymmetries, or “non-rational” decision-making.

The moral is that the boundary between state and market has constantly ebbed and flowed, with events, political trends, economic ideas, and policy choices inextricably linked, evolving together.
Externalities and Public Goods

The swing of the pendulum can be illustrated by looking at some of the most frequently encountered market failures: the existence of externalities (assumption A5 of the fundamental theorems in box 1.4 does not hold) and public goods (when A8 is not valid). Although the analysis seems straightforward, views about what policies best tackle these market failures can vary, and for illuminating reasons.

An externality exists when one person’s or firm’s choice affects others in such a way that private and social costs or benefits diverge. Examples include pollution or CO₂ emissions from a factory, affecting the air everyone breathes and the climate; my disturbing the neighbors by holding a noisy party; a radio station whose transmissions interfere with those of another station; learning a skill that makes it more likely employers who want to hire skilled workers will locate in town; getting your children vaccinated, increasing the likelihood of “herd immunity” in the area as well as improving their own resistance to disease; joining a social network so it becomes more interesting or useful to other members. The fact that we live in societies or communities, not as hermits, means that externalities are pervasive.

One way for the government to tackle externalities is to use taxes or subsidies to equalize the private and social costs and benefits. In figure 1.3, the supply curve shows the private marginal cost of a product. As mentioned earlier, Alfred Pigou introduced the idea of a lump-sum tax (the same amount per unit of output)—known as a Pigouvian tax—to increase the private cost to equal the social cost and reduce the amount of the good consumed. It is not straightforward to calculate what the best tax rate might be, but the principle applies to “sin taxes” on alcohol and tobacco, or to a carbon tax.

A public good is one whose consumption is non-rival (one person consuming it does not stop others doing so too) and also non-excludable (people cannot be prevented from consuming it) (figure 1.4). Examples of public goods include clean air, street lighting, national defense, the police and justice system, public parks, roads, and public transport. Some of these are non-excludable (street lighting and defense, for example). They are sometimes referred to as...
pure public goods. Others are excludable, although the providers might not bother to control access to them. For example, a park can be fenced in and an entry fee charged, but most towns and cities provide at least some free access to green spaces and playgrounds. Non-rival goods with limited access like this are sometimes called club goods: once you have paid a fee to join the club, consumption is non-rival (table 1.1). Conversely, although public goods are normally non-rival, they can become congested; roads are an example where for the most part nobody is excluded (toll roads excepted), but beyond a certain point the amount of traffic means my driving limits your ability to travel.

Public goods will be under-provided by the market: at any given quantity produced (where supply equals the first person’s demand,
in figure 1.4b), additional demand could be satisfied with no adverse effect on previous users or consumers. This non-rival character means it can be difficult to finance public goods (box 1.6). There is a great temptation to free ride, in other words, use them without paying for them. This is why many public goods are tax-financed or at least partly subsidized or provided by the state.

The idea that the government must provide all public goods, because otherwise the free riding problem will mean they are under-

Table 1.1. Types of Goods

<table>
<thead>
<tr>
<th>Rival</th>
<th>Non-rival</th>
</tr>
</thead>
<tbody>
<tr>
<td>Excludable</td>
<td>Private goods (e.g., clothes, food)</td>
</tr>
<tr>
<td>Non-excludable</td>
<td>Commons (e.g., fish in the sea)</td>
</tr>
</tbody>
</table>
supplied, has been challenged, however. There are examples of public goods being financed in different ways. Lighthouses were often used as an example of a pure public good because their warning light is visible to any passing ship. Historically, however, the payment of harbor dues often financed lighthouses. Although some ships were surely free riders, any whose captain wanted to put in at the nearby port would be contributing to the cost. Some pro-market economists argue this shows private funding of a public good is often possible; examples like these are considered club goods because they are financed by a subscription-type arrangement. What is notable about this example, however, is that local authorities or institutions arranged the financing of this non-rival good. It was not exactly a free market outcome, but rather a collective arrangement—just not one involving a decision by a government official and funded by general taxes. So the debate about whether public goods must be publicly provided, or whether instead the private sector can provide them, is partly a question of what “private” means.

Box 1.6 Public goods

Public goods are non-rival (zero marginal cost of additional consumption). There is a problem of “free riding”: people consuming for free the output others have paid for. Financing public goods is therefore often difficult. The classic policy is to pay for public goods from tax revenues. Textbooks often say public goods are also non-excludable—but this is misleading as excludability can take many forms, including legal enforcement. Many public goods are excludable, by various means—park gates, road tolls, license fees, spectrum licenses—and are then often called club goods. A lot of digital goods are (privately provided) public goods because of their zero marginal cost and non-rivalry, but can be excludable (passwords). If free riders are not excluded, their providers (for example, newspapers) face the problem of how to finance them now.
Another example of collective but not government provision of a non-rival good is the investment in Britain’s nineteenth-century road system. This public good was organized by “turnpike trusts”—bodies composed of local dignitaries who had the right to collect tolls and the responsibility to maintain stretches of road. These were privately organized entities but supported by the government in terms of their legal basis. In a way, they foreshadowed the public-private partnerships of the late twentieth and twenty-first century. The private provision of roads is more common in some countries than others (box 1.7). Chapter 4 looks more closely at collective institutions that are neither private nor public.

It is worth mentioning, too, some special cases of public goods, known as merit goods and experience goods. Rather than being under-supplied, these goods are under-demanded. Merit goods are those considered to be good for people although they do not realize it. Party political broadcasts (note that in countries other than the US paid political advertising on television is generally restricted or banned) are one example. Nobody wants to watch them, but it is good for voters to be informed about rival parties’ policies. Experience goods are those people do not know whether they will enjoy or benefit from until they try them—novels, movies, music, and other cultural experiences are obvious examples. Some such goods might require policies to encourage their use—for example, getting more reluctant people to try taking part in sports (to help tackle obesity), which leads them to discover they enjoy the activity.

There is less of a difference between public goods and externalities than it seems at first sight. To say goods are non-rival is equivalent to saying social benefits exceed private benefits. Public goods are a special case of externalities.

The same point could be made of natural monopoly industries (i.e., assumption A3 is not valid—see box 1.4), discussed further in chapter 3. Some products are referred to as natural monopolies, with increasing returns to scale due to high fixed costs (economies of scale in supply) or network externalities (economies of scale in demand), because there tends to be just one (or at most a small number) producing them. (Strictly, an industry is a natural monopoly when average cost declines over the entire range of output levels.
Box 1.7. Private road provision

There is great variation between countries in the private sector’s role in what could be seen as a classic public good, namely, major roads or highways. In Europe, thirteen nations (mainly small ones such as Estonia and Liechtenstein) have no toll roads, and eight charge only for crossing certain bridges or tunnels. (The latter group include the Netherlands and also Sweden, whose famous 8 km Oresund Bridge—state-owned—between Malmö and Copenhagen was featured in the TV series The Bridge.) Among those countries with tolls, the UK has very few—one motorway and a small number of ferry or bridge crossings)—while others such as France and Italy have extensive toll road networks. Across the Atlantic, the United States has many privately owned and run roads and bridges and has recently been privatizing state-owned and -run ones—to take one instance, the Indiana Toll Road is now operated by an Australian-Spanish consortium on a 75-year lease. Such roads can be run by the government or one of its agencies, or entirely by a private operator, or privately financed and operated with a government guarantee of minimum revenues, or in some form of public-private partnership. There is a trend at present toward public-private partnerships to share risks and also overcome tight government budgets.
One firm producing all output is the least-cost solution. If the government doesn’t provide these products itself (as many do with highways or water and sewage systems), it regulates them strictly (all utilities are regulated). Increasing returns to scale are also a special case of an externality, because when one firm increases its production other firms in the industry can benefit from the increased scale of the market.

Pigou and Coase

The “Pigouvian” way of thinking about social welfare involves the government identifying a market failure, such as the presence of externalities or public goods, and correcting it with a specific policy, such as a tax or subsidy. Other direct policy approaches to either correct externalities or provide public goods include allocating licenses (to control radio spectrum used for broadcasts and telephony, or to constrain individuals from flying drones near airports); government provision of services, such as health and education (to encourage take-up of vaccinations or other public health measures, or increase demand for educational qualifications to the benefit of employers and other workers); and regulation (to limit activities such as noisy late-night parties or dumping waste in rivers), enforced either through fines or legal action. This interventionist perspective on government actions to solve specified market failures held sway for much of the twentieth century, and of course all these types of policies are still widely deployed by many governments.

There is an influential alternative way of thinking about externalities in general and the special case of public goods in particular. This approach, associated with Ronald Coase, helped tilt policy in the direction of market solutions to market failures such as externalities and public goods.

Coase pointed out that in theory externalities are reciprocal. Take the noisy late-night party, a negative externality for the neighbors (presumed not to be invited). That could equally be seen as the stick-in-the-mud neighbors imposing their desire for quiet as an externality on people wanting to have a bit of fun. The example Coase gives in a famous 1960 paper is cattle straying onto the neighboring farm.
and eating the crop. The intuitive presumption is that the cattle rancher should be fined through police or courts, but this is because we are assuming the farmer has an inviolable property right to the fruits of his land. Coase asked, What if the benefit of fatter cows to the rancher outweighs the lost revenue from the corn? Why should the rancher and the farmer not privately negotiate a payment that would effectively mean the rancher renting the right for his cattle to eat corn? This could be a mutually beneficial deal. Similarly, if a factory pollutes a stream and kills the fish, we should ask whether the value of the dead fish is more or less than the cost of lost production if the factory has to stop polluting. There is theoretical symmetry in all externalities. They become asymmetric in practice when a property right is assigned to one party, and even then a private deal may be possible depending on the transaction costs of reaching the deal.

Coase therefore went on to say that if people could negotiate freely, and if transaction costs were not too high, they would sort out the allocation of the costs by themselves through market transactions, with no need for the government to step in and fix the “externality” with a Pigouvian tax or regulation. Many market-oriented economists took this to heart and have argued that there is far less of a case for government policy than implied by the assumption that market failures need fixing. Indeed, there are big variations between countries in the extent of taxes and subsidies on different products or the provision of public goods, so this is self-evidently a matter of debate.

However—as his Nobel Prize speech makes clear—Coase recognized that people would often not be able to negotiate, because the transaction costs of doing so are too high. What are the transaction costs? Essentially, the time and effort needed to find out the information for the transaction to go ahead. Is it easy to identify who the straying cows belong to (or which factory dumped the toxins in the river)? Could the corn farmer be lying about how much of his crop was damaged—is it easy to monitor what is happening? Are there few enough people involved that negotiation is feasible (since in life there are rarely just two parties)? It is also sometimes the case that property rights are unclear. When two airline passen-
gers fought over the use by one of a “knee defender,” preventing the other from tilting his seat backward, it might have been the case that the transaction costs of negotiating a fee with your neighbor for the right to recline—$5? $50?—are too high; but it is also surely the case that it is not clear who owns the right to the space in dispute. It is not clear, unfortunately, whether your ticket entitles you to the bit of space in front of you—which would justify your use of a knee defender—or the bit of space behind you—which would entitle you to recline your seat (although one imagines that the kind of person who would use a knee defender might imagine themselves entitled to both).

Nevertheless, the Coaseian approach has had great impact on some economists and underpins the school of economic thought emphasizing the role of the legal system in resolving externalities, or rather the disputes to which they give rise. Courts had long been the means of handling civil claims based on common law (economic torts), but the influential school of law and economics deriving from Coase’s arguments emphasizes the allocation of property rights (property law) and the efficient resolution of disputes (contract law).

Coase’s work underlines two key points, fundamental to public policy economics. One is the importance of the clear definition and assignment of property rights. In his example, the farmer has a property right to the land and its produce, although the rancher might be able to make him an offer that makes it worth letting the cattle eat the corn. Similarly, in the Vittel case in box 1.8, the property rights belonged to the landowners. In other circumstances, like the knee space in an airplane, a Coaseian negotiation might not be possible if it is not clear who owns the property in question.

Mostly, we take the prevailing assumptions about property rights as part of the natural order of things, yet they are entirely determined by the political and legal system, as well as by custom. For instance, when you buy a meal in a restaurant, you assume that you are buying the food, and renting the space to sit there for an hour or two, but not that you can walk out with the plates and glasses you use. The law enforces the norm, as the restaurant could call the police were you to do so. Technology often disrupts assumptions about property rights, however. The claims so often made in today’s
Box 1.8. A Coaseian bargain in practice

The mineral water Vittel is bottled from springs in the Vosges region of France. From the 1970s, farming in the region became more intense and the quality of the natural spring water started to deteriorate. The presence of nitrates in the water threatened the business, but Vittel’s owner, Nestlé, successfully negotiated with the forty farmers involved to pay them compensation to change their farming practices and limit the runoff that was threatening water quality. A study of the negotiation concluded that there were some important reasons for its success. There were relatively few farmers involved, and Vittel itself had bought some land upstream. Research had established that it would be more cost-effective for the company to improve upstream land management than to build a new filtration plant, so it was willing to compensate the farmers with income support, equipment subsidies, and technical training.


economy to “intellectual property” are always contentious (because, consisting of ideas, it is a public good, non-rival in consumption, costless to copy). Digital technology has made possible vast new swathes of intellectual property and a sort of gold rush to lay claim to it. Although it has sometimes been controversial, the law and economics approach inspired by Coase gives a useful perspective on the importance of intellectual property in increasingly intangible and digital modern economies, and the relative paucity of pre-existing norms and case law about ownership of intellectual property. Chapter 4 returns to these questions.

Coaseian bargaining, solving through negotiation or legal action the problems created by externalities, also requires the transaction costs involved to be not too high. These include the time it takes to
negotiate with all the parties involved, and the difficulty of finding out all relevant information and monitoring everyone’s actions. In principle, people boarding a flight could negotiate with the people in front of and behind them to figure out who values the space more, but in practice the hassle would be too great. In his Nobel Prize lecture, Coase himself said he thought the transaction costs would often be prohibitive. He added, though: “If we move from a regime of zero transaction costs to one of positive transaction costs, what becomes immediately clear is the crucial importance of the legal system.”

The presence of transaction costs is thus key in determining what arrangements a society makes for producing goods and services, and allocating resources to different uses. For instance, as discussed in chapter 7, it is relevant to the question of whether the public sector should undertake an activity or contract it out to private providers (or for that matter whether a private business should keep an activity in house or contract it out to a supplier). Is it possible to spell out in a contract or service agreement exactly what a private provider has to deliver, and monitor whether or not the contract is being fulfilled? For some activities—such as payroll, or waste collection—this is straightforward. It is hard for others, especially where there are information asymmetries—for example, it is difficult to monitor the quality of many services, such as health provision or social care, and the temptation for the supplier to cut costs (having bid for a competitive contract) will be strong.

Thinking about transaction costs also underlines that the world is not neatly and comprehensively divided into markets and government. Indeed, the idea of a “market” is somewhat ill defined in economic theory (never mind a “free” one). Microeconomic theory concerns individual consumers and producers. Yet there are plenty of organizations that are neither a private profit-making business nor a government entity. Unions, mutuels, collectives and cooperatives, parent-teacher associations, voluntary groups, non-profit corporations—all engage in some economic activities, often alongside either government bodies or private firms, or both. There is a rich array of organizations involved in collective economic outcomes, and all need to be taken into account in public policy. Much of the insight
in economics into why activities are organized in one way rather than another depends on transaction costs and asymmetries of information. In another classic paper, Coase used the transaction cost approach (rather than assuming all the activities occur through market exchange) to explain why firms exist; this approach has formed the basis for much subsequent work looking at the organization of businesses and industries, and also at economic institutions in general.

**Conclusion**

This chapter has described the approach economics takes to assessing public policies: Do they contribute to social welfare (in the very specific sense used in economics, encompassing Pareto efficiency)? Despite the word *efficiency* and despite putting to one side distributional considerations as well as other ethical criteria, such as freedom or national pride, this is a normative standard. It takes preference satisfaction, or individual utility, aggregated in some way, as the criterion for assessing social welfare. No economist takes the standard welfare economic theorems as a realistic description, and yet this framework has set the benchmark of a competitive market as the way to think about government and market interaction. Even so, there has been considerable debate ever since Adam Smith as to the shape and scope of public policies. The next chapter looks in more detail at the government-market relationship and in particular the balance between competition and government regulation.

**Annex to Chapter 1**

There is a vast specialist literature on welfare economics and social choice. For those interested in how economic thought in this area has changed, Roger Backhouse surveys the evolution of welfare economics in a recent paper, “The Origins of the New Welfare Economics” (http://www.ier.hit-u.ac.jp/extra/10.Backhouse.pdf).

Here, consider a simple Robinson Crusoe economy, where the producers and consumers are the same two individuals, Robinson and Friday; there are two production factors, land and labor, and two products, coconuts and pineapples. Starting with production, isoquants are curves describing the mix of land and labor needed, given the production technology, to produce each output. Figure 1.5 shows the isoquant for coconuts, and there is a similar one for pineapples. Isoquants are assumed to have nice mathematical properties and are drawn as smooth curves.

Productive efficiency requires the rate land and labor substitute for each other in production be equal for both coconuts and pineapples. Otherwise more of at least one of the crops could be produced by changing the mix of inputs. This rate (known as the marginal rate of technical substitution, MRTS) is equal to relative factor prices, or the price of land relative to labor. The Edgeworth box diagram draws the two sets of isoquants with origins in opposite corners from each other (figure 1.6).
Chapter 1

The curves represent isoquants showing a constant level of output of coconuts (origin at the bottom left corner) and pineapples (origin at top right corner), respectively, for varying combinations of land and labor. Productive efficiency occurs when the two sets of isoquants are tangent to each other and the tangent is equal to the marginal rate of technical substitution (and to the factor price ratio). Otherwise it would be possible to produce more of at least one output for given levels of land and labor. The line joining the points of tangency is known as the contract curve. Suppose the economy is starting at a point off the contract curve, such as h, which represents an initial combination of land and labor use. Any move from h toward the heavily shaded segment of the contract curve (known as the core) is more efficient—a Pareto improvement.

An analogous story can be told for consumption (figure 1.7). The preferences of Robinson and Friday can each be represented by indifference curves, tracing the mixes of coconuts and pineapples that deliver them a constant level of utility.

There is also an analogous Edgeworth box diagram representing allocative efficiency (figure 1.8). For any initial level and distribution of the products, the two individuals can increase their utility by

Figure 1.6. Productive efficiency.
trading with each other, exchanging coconuts for pineapples, to the point where the marginal rate of substitution (MRS)—the number of pineapples per coconut they will trade—is equal for both of them.

In figure 1.8 the curves represent indifference curves showing a constant level of utility for Friday (origin at the bottom left corner) and Robinson (origin at top right corner), respectively, for varying combinations of coconuts and pineapples. Allocative

Figure 1.7. Consumption: Friday’s indifference curves.

Figure 1.8. Allocative efficiency.
efficiency occurs when the two sets of indifference curves are tangent to each other and the tangent is equal to the marginal rate of substitution (and to the relative price of pineapples and coconuts). Otherwise it would be possible increase at least one person’s utility given the output of the two foods by exchanging coconuts for pineapples. Suppose the initial endowment of coconuts and pineapples is point h. Then at least one of them can be made better off by trading coconuts for pineapples until a point on the core is reached, the part of the contract curve lying between the two people’s initial indifference curves. At a Pareto efficient point, this also equals the marginal rate of technological substitution of coconuts for pineapples in production.

Finally, the product mix efficiency requirement says that the rate at which coconuts can be turned into pineapples (the marginal rate of transformation, or slope of the production possibility frontier) must also equal the marginal rate of substitution in consumption.

This chapter also touched on the question of how to aggregate from individual outcomes to social outcomes. Arrow’s impossibility theorem establishes that for any general possible sets of preferences, there is no way of aggregating individual utilities into social welfare while satisfying all of the following assumptions:

- Pareto efficiency—nobody can be made better off without at least one other becoming worse off
- Independence of irrelevant alternatives—an individual’s preference between alternatives A and B is not affected by the introduction of C (so if I prefer apples to coconuts, introducing grapes does not make me prefer coconuts to apples)
- Non-dictatorship—if people in the society have different preferences, there is no individual whose preferences always prevail
- Unrestricted domain or universality—individuals’ preferences can be specified over all the goods available

A large technical literature on social choice has probed the theorem, and a comprehensive presentation of the results is the expanded (2017) edition of Amartya Sen’s classic, Collective Choice and Social Welfare. Sen argues in particular that aggregation can be sensibly achieved if the aggregate social welfare function does not need to
rank comprehensively *all possible* collections of individual preferences, but can confine its attention to specific issues.

Public policy economics assumes a social welfare function does exist, often implicitly and usually a variation of utilitarianism. However, different perspectives on equity can be represented by different *social welfare functions*. For example:

- **Rawlsian maximin SWF** = \( \min (u_1, u_2, \ldots, u_n) \)

- **Strict utilitarian SWF** = \( \sum (u_1, u_2, \ldots, u_n) \)

- **Moderate egalitarian SWF** = \( \sum (u_1, u_2, \ldots, u_n) - \lambda \sum [(u_1, u_2, \ldots, u_n) - \min (u_1, u_2, \ldots, u_n)] \)

These could be represented on a social indifference map; for instance, figure 1.9 shows the strict utilitarian set of social indifference curves.

As pointed out earlier, the often complicated theoretical apparatus of welfare economics does not stop public policy economists from a pragmatic, more or less utilitarian, approach to social welfare in their empirical work.

---

**Figure 1.9.** Strict utilitarian social welfare. In strict utilitarianism, people’s incomes are perfect substitutes: more A is better than less B no matter what the distributional implications.
Further Reading

Technical Follow-Up


Classics

On the Scale of Government Intervention in the Economy


On Welfare Economics


On Historical and Political Forces


On Externalities and Public Goods

INDEX

Page numbers in italics refer to figures and tables.

A/B testing, 189, 331
Ackerman, Bruce, 269
adverse selection, 74–75, 245–46, 251, 291
advertising, 29, 94, 124, 152, 174, 181–82, 197
aerospace industry, 108, 130, 157
Affordable Care Act (2010), 210, 250
agent-based modeling, 293
aging, 129, 233, 246, 248, 250, 252–53
AGR (advanced gas-cooled reactor), 130
Airbnb, 81, 168
Airbus, 108
air conditioning, 86, 88
aircraft industry, 102
airlines, 62–63, 106, 167
airports, 56, 114, 276, 278
Akerlof, George, 73
alcohol taxes, 19, 25, 137, 152, 228, 272
allocation, as government policy, 6, 20. See also redistribution
allocative efficiency (consumption efficiency; exchange efficiency), 10
altruism, 321
Amazon, 94, 124, 150, 240
American Economic Association, 329
Amtrak, 100, 118
anchoring, in decision-making, 173, 181, 190
Android (operating system), 94
anemia, 330
The Antitrust Paradox (Bork), 50
Apple Computer, 94, 124, 132
appraisal, 302–4; elements of, 303; evaluation distinguished from, 299; tools of, 297
Archer Daniels Midland (ADM), 57
Army Corps of Engineers, 304–5
Arnault, Bernard, 231
Arrow, Kenneth, 15, 40, 305
artificial intelligence (AI), 129
asymmetric information, 24, 36, 44, 101, 289, 293, 303; competition vs. regulation and, 64, 68, 72, 73–75, 76, 95, 113, 174, 266; contracting out and, 278–79, 285; in expert services, 210, 284–85; industrial policy and, 128, 134; insurance complicated by, 209, 291; monitoring complicated by, 35, 146, 285; signaling theory and, 164
Australia, 88, 94, 141, 173, 185, 217, 276–78
Austrian School, 51
automation, 207, 226, 227, 236
automobile industry, 106, 130
autonomous vehicles, 129
Autor, David, 222
averting (defensive) expenditures, 320
background checks, 67
Back to the Future (film), 130
bailouts, 106
banking. See financial services
barbed wire, 141, 142
Bazalgette, Joseph, 308
BBC (British Broadcasting Corporation), 328
Beatles, 3, 228
behavioral economics, 72, 172–201; biases and, 172, 176–85, 320–21; critiques of, 195–99; framing and anchoring in, 180–82; growing importance of, 172; in practice, 185–89; questions raised by, 172–73, 189–95; randomized control trials and, 331; rationality assumptions vs., 176–79; risk and, 179–80
behavioral sociology, 173
Bell Labs, 108
benefit-cost ratio (BCR), 310
benefit transfer, 324–25
Benn, Anthony, 107
bequest value, 321
Berlin Wall, 23

For general queries contact webmaster@press.princeton.edu.
Beveridge, William, 205, 233, 235–36, 246
biases, 172, 176–85, 320–21
biological market theory, 175
Bismarck, Otto von, 203
Black, Duncan, 261
black market, 167
blood donation, 196
“Blowin’ in the Wind” (song), 62
bootlegging, 269
Bork, Robert, 50, 95
bounded rationality, 176
Bretton Woods agreement, 100
British Airways, 119, 120
British Energy (Nuclear Electric), 87
British Leyland, 22, 102, 109
British Steel, 103, 110, 119
British Telecom (BT), 109, 112, 119–21, 188
British Telecommunications Act (1981), 120
Buchanan, James, 23, 260–61
budget deficits, 2, 110
Bull (French computer company), 107
bundling, 93, 94
Burroughs, Edgar Rice, 62
business cycle, 21, 209
Cable & Wireless, 119
The Calculus of Consent (Buchanan and Tullock), 260–61
California, 86, 151; electricity deregulation in, 88–89; nutrition in, 198; water management in, 143–44
Canada, 144, 217, 268
Capital in the 21st Century (Piketty), 216–17, 223, 226
Capitalism, Socialism and Democracy (Schumpeter), 20
Caplan, Byron, 164
cartels, 55, 56–57, 60
The Case against Education (Caplan), 164
“Cash for Clunkers” (Car Allowance Rebate program), 4–5
causality, 301
Central Electricity Generating Board, 87
CFCs (chlorofluorocarbons), 270
Chicago School, 95
China, 141, 157, 196; in digital market, 91, 128; economic growth in, 23, 217, 222; industrial policy in, 126, 127, 128; as trading partner, 220, 222
choice architecture, 189–94
choice experiments, 323–24
Christie, Agatha, 62
Chrome (browser), 91, 94
Churchill, Winston, 205
Clark, Colin, 21
class actions, 65
Clean Air Act (1970), 269
Clean Air, Dirty Coal (Ackerman and Hassler), 269
Clearances, in Scotland, 166
climate change, 126, 148, 313–15
car goods (toll goods), 26, 28, 142
can, 86, 269–70
Coase, Ronald, 31–35, 140, 144
Coca-Cola, 167
Cochrane reviews, 332
codifiable knowledge, 157
collective action problems, 256, 267, 294, 303
Collective Choice and Social Welfare (Sen), 40–41
commitment devices, 184–85
Common Agricultural Policy, 267, 268
communications, 21–22
communism, 23
compensating variation, 339–41
competition: behavioral remedies and, 187–89; inquiries into, 57–60; “for the market” vs. “in the market,” 59, 92; policy on, 3, 44, 49–50, 52, 55–57, 60–64; productivity linked to, 46–47, 53, 110–11, 122; regulation vs., 44, 46, 64, 68, 69, 72–73, 95, 241, 265–66; spectrum of, 49; in UK financial services, 69
Competition and Markets Authority (CMA), 87–88, 189
competitive equilibrium, 47
computer industry, 106, 107–8
concentration ratios, 55
Concorde (airliner), 108
conduct regulation, 70
Conrail, 100
consequentialism, 16
conspicuous consumption, 161
consumer protection, 55, 65, 263
consumer surplus, 47–49, 339
consumer welfare, 50
consumption efficiency (allocative efficiency; exchange efficiency), 10
contestability, 59, 257, 281, 286–89

For general queries contact webmaster@press.princeton.edu.
contingent valuation (stated preference), 305, 318–25, 326
contract curve, 38, 40
contracting out, 100–101, 108–9, 124, 247, 278–80, 281, 283–86
contracts: enforceability of, 45; incomplete, 285
cooperatives, 35
copyright, 61, 62, 80–81, 150–52
Corus Group, 119
Costa Rica, 141
cost-benefit analysis (CBA), 16, 271, 298, 333; discounting formula used in, 183–84, 315–17; discount rate used in, 309–15; in environmental policy, 297, 305–9, 314, 317, 318, 325; formulas for, 309–10; nonlinearities in, 317; origins of, 304; revealed preference vs. stated preference in, 318–25; public value form of, 327–29; setting the scope of, 306–9; steps in, 305–6; value of a statistical life in, 325–27
cost-effectiveness, 325
cost of capital, 310
cost overruns, 276–77
Craigslist, 168
crash of 1929, 20
creative destruction, 51, 126
credit card fees, 273
crime, 153–54, 158
custom, 33
Czechia, 116
Damon, Matt, 57
Dangerous Dogs Act (1991), 273
Danone, 56
DARPA (Defense Advanced Research Projects Agency), 127
Dasgupta, Partha, 314–15
deadweight loss, 47–48
default options, 182, 185, 187, 189, 191, 194, 195
defense research, 127, 131
defensive (averting) expenditures, 320
defered matching rule, 81–82
DeLorean, John, 130
DeMille, Cecil B., 62
Denmark, 85, 264
Depardieu, Gérard, 231
development programs, 186–87, 329, 330
Diamond, Peter, 324
digital commons, 149–52
Digital Millennium Copyright Act (DMCA, 1998), 150
digital sector, 54, 105; entry barriers in, 59, 81; intellectual property and, 34; as natural monopoly, 46, 60, 91–93, 124, 128; network externalities in, 52, 124
disability payments, 223
disclosure, 189
discounting formula, 183–84, 315–17
discount rate, 309–15
discrimination, in employment, 3, 330–31
Disney Company, 62
dispute resolution, 33
dispute resolution, 33
distribution. See redistribution
Dorn, David, 222
Downs, Anthony, 260, 261
drought, 144, 146
Dupuit, Jules, 304
Duveen, Joseph, 162
Earned Income Tax Credit, 236
The Economics of Climate Change, 314
Economics of Welfare (Pigou), 19
An Economic Theory of Democracy (Downs), 260
economies of scale: anticompetitive, 50; in electric industry, 83–84; monopolistic, 45, 59, 104; network externalities as, 92; in supply vs. demand, 29; technology-enabled, 52
Ecuador, 140
EdChoice, 287
Edgeworth box, 38–39
education: “arms race” in, 164; contestability in, 287–89; contracting out in, 284; funding of, 2, 21, 31, 202, 206, 208, 245, 288, 289; industrial policy and, 129, 134; in Japan, 185; in labor market, 220, 223, 227, 239, 242–43; public vs. private benefits of, 211; randomized control trials in, 330; redistributive effects of, 8, 243, 251; in United Kingdom, 101
EE Limited, 121
efficiency, 6, 9, 36, 79, 302–3; competitive market and, 11–13; equity vs., 7–8, 137, 197, 202, 228; inequality vs., 225; productive vs. allocative, 10, 11, 37–40, 44, 46, 48, 50, 110–11; of public health care, 247; static vs. dynamic, 50–51
Eichenwald, Kurt, 57
elasticity of demand, 19, 47, 79, 152
electric industry, 46, 108; employment decline in, 116; features of, 84; as natural monopoly, 45, 55, 56, 61, 83–91, 104; pricing in, 79, 119; profit regulation of, 113–14; regulatory capture by, 68; vertical integration of, 85, 87
electronics industry, 157
email, 105, 323
emergency medical technicians (EMTs), 70
employment: discrimination in, 3, 330–31; government policy on, 6; laws governing, 3, 65–66
Enclosure Movement, 141, 147
encryption, 142, 152
endangered species, 322
energy: coal, 269–70; hydropower, 86, 141; licenses for exploring, 61; lobbying and, 264; as natural monopoly, 104; nuclear, 84, 86, 87, 88, 108, 130; price of, 23, 85, 87, 89, 100; renewable, 86–87, 88, 90; volatile demand for, 85–86, 89.
See also electric industry
England, 282, 284, 290
Enron Corporation, 158
entry barriers, 59, 68, 93, 105, 226, 241
envelopment, 93
environmental policy, 70, 263, 269–70, 271; cost-benefit analysis in, 297, 305–9, 314, 317, 318, 325
equity. See fairness
equivalent variation, 339–41
equivalization, 212–13
Essays: Moral, Political and Literary (Hume), 262
estate taxes, 231, 232
Estonia, 264
European Commission, 55–56, 93, 94
European Timber Regulation (2010), 270
European Union (EU), 49, 50, 133
evaluation: appraisal distinguished from, 299; econometric, 300–31; rarity of, 297; research on, 298, 300
exchange efficiency (allocative efficiency; consumption efficiency), 10
executive compensation, 223, 225, 240–41
existence (intrinsic) value, 321
exit, voice, and loyalty, 138, 159–61, 168
experience goods, 29, 76, 211
exponential discounting, 183, 315
externalities, 1, 8, 174, 209, 293, 303; in electric industry, 84; environmental, 13, 25, 80, 126; in health care, 211; Pigouvian taxes to correct, 25, 26, 31, 32, 141, 165, 252; prices distorted by, 291; public goods as, 29; in production vs. consumption, 161, 168; research on, 24; responses to, 18–19, 31–32; symmetrical vs. asymmetrical, 31–32
Exxon Valdez oil spill, 305, 319–20
Facebook, 52, 59, 91, 94, 124, 197
fairness (equity), 6, 168, 303; efficiency vs., 7–8, 137, 197, 202, 228; inequality and, 224; through rationing, 167
false positives, false negatives, 302
farm subsidies, 267, 268
fascism, 20
fashion industry, 163
fast thinking, 176, 179
Federal Navigation Act (1936), 304
Federal Trade Commission, 55
The Fifth Risk (Lewis), 303
Financial Conduct Authority (FCA), 69, 187, 189
financial crisis of 2008. See Great Financial Crisis
financial services: competition in, 56; industrial policy and, 130; privatization of, 114; regulation of, 3, 67–68, 69, 130, 264; wages in, 220
Finland, 2, 114, 284; universal basic income in, 237, 238
Firefox, 91
fiscal policy, 6
fishing, 139, 143, 147, 148–49
fixed costs, 104
“flagship” industries, 106
floods, 209
food safety, 67
food stamps, 198, 234
Foundations for Evidence-Based Policy-Making Act (2019), 300
fracking, 86
framing bias, 173, 180–81, 186, 189, 190, 191, 199, 320
France: blood donation in, 196; competition policy in, 56, 63, 94; cost-benefit analysis in, 313; economic planning and industrial policy in, 21, 100, 130–31; electric industry in, 87; health care
in, 250; inequality in, 217, 219; nationalization in, 107; privatization in, 114–15, 130; productivity in, 116; randomized control trials in, 329; regulatory burden in, 66; ride sharing in, 78; taxation in, 231; welfare state in, 205

franchising, 168

freedom, 7, 197, 226, 245

free riding, 27–28, 128, 137, 142, 152, 155, 169, 267

Friedman, Milton, 225–26, 236, 287

Frisch, Ragnar, 21

Fukushima nuclear disaster, 86

Funding Circle, 81

gambling, 114

gas and electricity, 22, 45, 46

Gates Foundation, 329

General Motors, 151

The General Theory of Employment, Interest and Money (Keynes), 21, 99

genetics, 131

Germany: blood donation in, 196; competition policy in, 94; health care in, 250; industrial policy in, 126; nuclear power in, 86; privatization in, 114, 115; productivity in, 116, 118; social insurance in, 203

gift relationship, 196

Gigerenzer, Gerd, 174

Gilded Age, 217

Gini coefficient, 215, 217, 224

GiveDirectly, 238

globalization, 207, 217, 220, 258

global positioning system (GPS), 132

gold plating (over-investment), 113

Goodhart’s law, 283

goodwill, 158, 159

Google, 52, 59, 91, 93, 94, 104, 124

government failure, ix, 1, 4–5, 14, 17, 22, 146, 197, 256–94; market failure and, 16–18, 293–94, 302–3

government spending, 2

Governing the Commons (Ostrom), 145

Granovetter, Mark, 157

Great Depression, viii, 20, 99, 100, 204, 206, 257

Great Financial Crisis (2008), 23–24, 207, 258; banks nationalized during, 100, 103; changes wrought by, viii, 67–68;

confidence shattered by, 158; inequality stalled by, 217

The Great Gatsby (Fitzgerald), 217

Great Stink (1858), 308

Greece, 115

greenhouse gases, 84, 85, 140, 315

Grove, Andy, 46

Hahn, Robert, 300

Hanson, Gordon, 222

harbor authorities, 28, 142, 144

Hardin, Garrett, 137–43, 147, 165, 166

Hassler, William, 269

Hausman, Jerry, 324

Hayek, Friedrich, 20–21, 22, 23, 99, 291

health care, 2, 8, 21, 31, 126, 202, 204, 206, 208, 243; contestability in, 287; in developing countries, 186; inequality and, 245–51; in Japan, 185; monitoring of, 35; “nudge” policies in, 189; in United Kingdom, 101, 246–49, see also National Health Service (NHS); in United States, 210, 249–51

health insurance, 75, 203–4, 209–10, 250

hedonic valuation, 319, 326, 333

herd immunity, 25

Herfindahl-Hirschman Index (HHI), 58

heuristics, 173, 174, 176

Hicks, John, 14

Hirsch, Fred, 161

Hirschman, Albert, 138, 159–60

Hirst, Damien, 162

Hitler, Adolf, 205

Hollande, François, 231

homo economicus, 173

Hotelling, Harold, 261

housing prices, 319

human life valuation, 325–27

Hume, David, 262

Hungary, 198

Hutterites, 147

hydropower, 86, 141

hyperbolic discounting (present bias), 183–85, 190, 316

hypothetical bias, 321

IBM, 93

Iceland, 140

ICL (International Computers Limited), 107, 109

immigration, 207, 251
import quotas, 263
impossibility theorem, 15, 40
incentive compatibility, 323
increasing returns to scale, 29, 31, 44, 46, 64, 95, 104, 124, 293–94
India, 126, 217, 238, 292–93, 329, 330
indifference curve, 10, 39–40, 339–40
industrial policy, 98–99, 101, 103, 125–27; aims of, 128–34; tools of, 129; in United Kingdom, 106–7
Industrial Revolution, 18, 157
inequality, 24, 207–8, 251–53; causes of, 217, 220, 223; definitions of, 216; of income vs. wealth, 215; international vs. intranational, 218; policies to reduce, 231–45; as political issue, 223–27; trends in, 217–23; in United Kingdom, 217, 221, 241; in United States, 219, 223–24, 240, 242; welfare benefits to reduce, 231–36. See also redistribution
inertia, 182, 188, 190, 199
infectious diseases, 211
inflation, 6, 258
The Informant (film), 57
information bias, 321
infrastructure, 88, 114, 259; aging of, 308; cost-benefit analysis and, 317, 325; expertise and, 276; financing of, 2, 3, 148, 245, 278–80; industrial policy and, 129, 130, 134; natural monopoly and, 45, 104, 103, 122; new vs. existing, 106
inheritance taxes, 231, 232
innovation rents, 51–53
Instagram, 91
instrumental variables (IV), 301
See also health insurance; life insurance; unemployment insurance
integrated assessment methods, 315
intellectual property, 34, 61, 149–52
interest rates, 2
internal rate of return (IRR), 310
International Monetary Fund, 115
Internet Explorer, 91, 93
internet service providers, 81
intrinsic motivation, 194–95, 289
intrinsic (existence) value, 321
invisible hand, 18, 22
iPhone, 133
Ireland, 2, 5, 77
irrigation, 148
isoquants, 37–38
“Is Some Number Better Than No Number?” (Diamond and Hausman), 324
Italy, 20, 85, 107, 114, 115
Japan, 116, 198, 203; behavioral policy unit in, 173, 185; economic planning and industrial policy in, 21, 131–32; irrigation management in, 148; nuclear energy disaster in, 86; postwar reconstruction of, 99; value of a statistical life in, 326
job market, 163
John Deere, 150–51
Kahneman, Daniel, 173, 179, 195
Kaldor, Nicholas, 14, 181
Kaldor-Hicks compensation, 14–15
Kay, John, 120, 124
Kazakhstan, 116
Keillor, Garrison, 182
Kenya, 238, 330
Keynes, John Maynard, 21, 99, 333
Kindle (e-reader), 150
Klinenberg, Eric, 156–57
Kuznets, Simon, 21
labor unions, 22, 35, 110, 118, 121, 220, 223
Laffer, Arthur, 230
Laffer curve, 230
Lake Wobegon effect, 182
Lamont, Norman, 165
Lancaster, Kelvin, 13
land reform, 166
law and economics movement, 33
Lawrence of Arabia (film), 62
Lawson, Nigel, 110
legitimacy, 145
Lewis, Michael, 303
libraries, 243
licensing, 2, 3, 31, 61, 67, 168, 241, 262; for fishing, 149; occupational, 70, 71, 263; of utilities, 103
life insurance, 203
lighthouses, 28, 142
light water reactor, 130
limited-profit corporations, 113
Lipsey, Richard, 13
Littlechild, Stephen, 122
Index

lobbying, 49, 56, 62, 68, 80, 241–42, 256, 263–71
logging, 138, 270, 322
The Logic of Collective Action (Olson), 267
London Underground, 278, 308
Lorenz curve, 215
loss aversion, 173, 181, 199
luxury goods, 163, 165, 248
Lyft, 78–80, 263
Macmillan, Harold, 119
macroeconomic policy, 6, 21
malaria, 329
Manchester, England, 157
Mankiw, Greg, 231
marginal costs, 104
marginal effective tax rate, 234, 235, 236–37, 239
marginal rate of substitution (MRS), 39
marginal rate of technical substitution (MRTS), 37, 40
market definition, 57–58
market design, 81
market distribution, 239, 251
market failure, 1, 8, 13; conditions conducive to, 146; efficiency and, 44; in electric industry, 85; externalities as, 25; in health care, 245; industrial policy justified by, 128; government failure and, 16–18, 293–94, 302–3; Pigouvian response to, 31, 211; price of exit and, 160–61; regulation justified by, 72, 98–99
“market for lemons,” 73–74, 209
market research, 189
Marshall, Alfred, 157, 304
Marshall Plan, 21, 100
Massachusetts, 151
Matthew effect, 318
Mazzucato, Mariana, 132
McCloskey, Deirdre, 301
means testing, 206, 233–34, 235, 237, 252
Medicaid, 210, 249–50
Medicare, 210, 249, 250
mergers, 52, 55, 58, 59–60, 121
merit goods, 29
meta-analysis, 332
Metcalf’s law, 92
Mexico, 198
micromort, 326–27
microlife, 326–27
Microsoft, 91, 93, 94, 124
Milanovic, Branko, 218
minimum wages, 206, 220, 236, 239–40
Ministry of International Trade and Industry (MITI, Japan), 131
missing markets, 101, 128, 209
Mitterrand, François, 102, 107
monetary policy, 56
monitoring, 65, 94, 113, 145; of agents by principals, 284–85; asymmetric information and, 35, 146, 285; in cartels, 57; in competition policy, 55; cost of, 303; of free riding, 155; in markets, 32, 35, 291
monopoly, 13, 47–49, 51, 57–58, 174. See also natural monopoly
monopoly rents, 77, 80, 209, 223, 226, 262
moral hazard, 13–14, 210, 245–46, 250, 274, 291
multi-sided markets, 92
mutual societies, 203
MySpace, 59, 91–92, 124
national accounting, 21
National Economic Development Office (“Neddy”), 107
National Grid Company, 87
National Health Service (NHS), 205, 326; contracting out by, 247, 284; founding of, 99, 101–2, 246–47; outlook for, 248–49; pharmaceuticals and, 129; public support for, 247, 258, 284; queuing and, 140, 167; successes and failures of, 247, 276; targets set for, 282
National Institute for Health and Care Excellence (NICE), 326
National Institutes of Health (NIH), 132
nationalization, 21, 22, 98–102; failures of, 109–10
National Oceanic and Atmospheric Administration (NOAA), 305, 320
National Power, 87
National Science Foundation (NSF), 131
national security, 56
natural gas, 86
natural monopoly, 8, 18–19, 29, 44; competition policy and, 45, 61, 72, 98–99, 135; consumer choice and, 188; defined, 104; digital platforms as, 46, 60, 91–95, 124, 128; dilemmas of, 111, 122–24; electric industry as, 83–91, 98; features of, 105; nationalization justified by, 103; price of exit and, 160–61

For general queries contact webmaster@press.princeton.edu.
negative income tax, 236, 237
Nepal, 144
Netflix, 94
Netherlands, 21, 30, 100, 284
net present value (NPV), 306, 309–10
network externalities, 29, 32, 91, 92, 124, 167–68
neuromarketing, 181
New Deal, 100, 204
new public management, 280–81
New York City, 154–55
New Zealand, 187, 196, 198
1984 (Orwell), 150
non-practicing entities (NPEs), 151
non-profit corporations, 35
non-rational choices, 24, 72, 175–76
non-use value, 321
Nordhaus, William, 314
Northern Ireland, 282, 284, 290
Nuclear Electric (British Energy), 87
nuclear power, 84, 86, 87, 88, 108, 130
Nudge (Sunstein and Thaler), 173
nudging, 172, 173, 174, 176, 179, 185, 189, 190; critiques of, 195–99
nuisance, 25
Obama, Barack, 63
obesity, 197, 198
oil and gas. See energy
oligopoly, 47
Olivetti, 107
Olson, Mancur, 267
Only the Paranoid Survive (Grove), 46
OPEC (Organization of the Petroleum Exporting Countries), 23, 37, 100, 273
Openreach (broadband company), 120, 121
OpenTable, 168
opinion polls, 180–81
opportunity costs, 77, 303, 306
opting out vs. opting in, 185, 187, 194
option value, 321
Orange (telecommunications company), 121
Oresund Bridge, 30
organ donation, 197
Organization for Economic Cooperation and Development (OECD), 24, 290
Orwell, George, 150
Ostrom, Elinor, 138, 143–47, 152, 155, 165
Ostrom, Vincent, 143
output efficiency (product mix efficiency), 10, 40
over-confidence, 173, 182, 199
over-fishing, 139, 143
over-grazing, 138
over-investment (gold plating), 113
Pacific Gas and Electric, 89
Pareto, Vilfredo, 9
Pareto efficiency. See efficiency
Paris Metro, 308
partial equilibrium, 13, 47
patent box, 129–30
patents, 51, 61, 80
patent trolls, 151
paternalism, 172, 173, 195, 196–97
payday loans, 189
peak loading problem, 84
peer-to-peer lending, 81
Peltzman effect (risk compensation), 274, 275
pensions, 21, 186–87, 194, 202, 233, 251, 252
PepsiCo, 56
pharmaceuticals, 129–30, 247, 263
photovoltaics (PV), 126, 127
Pigou, Arthur, 19, 25
Piketty, Thomas, 216, 223, 226, 231
policing, 157
policy appraisal, 302–4; elements of, 303; evaluation distinguished from, 299; tools of, 297
policy evaluation: appraisal distinguished from, 299; econometric, 300–301; rarity of, 297; research on, 298, 300
political parties, 160
pollution, 13, 25, 32, 140, 147, 320
postal services, 21–22, 101, 104, 105
poverty, 203, 206; absolute vs. relative, 212, 213, 214
poverty gap, 213
poverty trap (welfare trap), 234, 236
power, in statistics, 301–2
PowerGen, 87
present bias (hyperbolic discounting), 183–85, 190, 316
present value, 183–84
price controls, 67, 112
price elasticity of demand, 19, 47, 79, 152
price fixing, 55
principal-agent problems, 284–86, 289
private roads, 29, 30
privatization, 69, 72, 280; of airlines, 106; defined, 108; impetus for, 109–11; mixed success of, 116–25; regulation following, 111–16; reversals of, 100–101, 103; in Turkey, 117; in United Kingdom, 87–88, 98, 100, 102–3, 114–22, 124–25, 258, 290
process innovation, 51
producer surplus, 47–49
product innovation, 51
production possibilities frontier, 10, 40
productivity: competition linked to, 46–47, 53, 110–11, 122; health linked to, 211; privatization and, 116–17, 121; of state-owned enterprises, 109
product mix efficiency (output efficiency), 10, 40
progressive taxation, 2, 7–8, 206, 208, 213, 223, 228–29, 232
Prohibition, 269
projection bias, 184
property rights, 33–34, 226, 291, 341; ambiguous, 148, 149; digital, 149, 150; over commons, 141, 145, 147, 165, 168; socially constructed, 152, 166
prospect theory, 178
PSA Peugeot Citroën, 63
public goods, 1, 8, 159, 174, 243–45; examples of, 25–26, 27; features of, 28; financing of, 27–28; private goods vs., 27; pure vs. excludable, 25–26; research as, 128–29, 134
public-private partnerships, 29, 30, 100, 108, 257
public transport, 22, 80, 105, 119, 243, 245, 251, 276, 318; in London, 278, 308
public value, 327–29
Putnam, Robert, 155
quasi-hyperbolic discounting, 183–84
queuing, 140, 167
radio spectrum, 25, 31, 61, 140
railroads, 278; employment declines in, 116; fares of, 119; nationalization of, 100, 104, 125; as natural monopoly, 45, 46, 55, 61, 91, 98, 123; safety compromised in, 118
rainforest, 141
Ramsey, Frank, 312
Ramsey rule, 312, 313
RAND Corporation, 108
randomized control trials (RCTs), 298, 329–32
rationing, 142, 166–67, 168, 247
Reagan, Ronald, 22, 23, 70, 100, 256, 258
recessions, 209, 251
redistribution, 6, 227; through education, 8, 243, 251; efficiency and, 11, 225, 251; lump-sum, 14; Pareto efficiency distinguished from, 11–12, 14; through public services, 8, 243–45, 247; rationale for, 202; through taxation, 2, 7–8, 206, 208, 213, 225, 228–29, 232. See also inequality
reference points, 178, 181, 190, 191
referenda, 181
regulation, 31, 55, 303; of cafés and restaurants in UK, 63; competition vs., 44, 46, 64, 68, 69, 72–73, 95, 241, 265–66; cost of, 274; cost-benefit analysis for, 305; counterproductive, 46, 95, 273–74; ebb and flow of, 99, 101–3, 134; of electric industry, 84, 113–14; as entry barrier, 63, 65–66; of financial sector, 3, 67–68, 69, 130, 264; of prices, 67, 112; of privatized industries, 11–16, 122; of profits, 113; of services, 64, 65, 67, 70; of trucking industry, 262; types of, 64, 67
regulatory arbitrage, 71
regulatory asset base (RAB), 114
regulatory capture, 68, 80, 256, 262–71
remedies, in competition policy, 60, 187–88
Renault, 63
renewable energy, 86–87, 88, 90
rent control, 67
rent seeking, 49, 226, 240–42, 262
Resolution Trust Corporation, 103
retirement, 21, 185, 186–87, 194, 206, 233, 252
revealed preference, 318–19
“right to repair” laws, 151
risk aversion, 178, 180, 181
risk compensation (Peltzman effect), 274, 275
risk homeostasis, 274
rival vs. non-rival goods, 12, 17, 25–29, 34, 142, 143, 149–50, 152
roads, 25, 26; financing of, 29, 278; private, 29, 30
robotics, 132
Rodrik, Dani, 126–27
Rolls Royce, 109
Roosevelt, Franklin D., 100, 204
Roosevelt, Theodore, 95
Rosen, Sherwin, 52
Roth, Al, 81–82
RPI-X formula, 112, 114, 121, 122
rules of the road, 292–93
Russia, 86, 196
safety standards, 45, 63, 65, 274, 325
Saint-Paul, Gilles, 197
sales taxes, 228
same-sex marriage, 153
Samuelson, Paul, 12
San Diego, 148–49
satisficing, 176
saving, 185, 187, 194, 210, 231, 233
scarcity, 161–62
Schelling, Thomas, 291–92
Schumpeter, Joseph, 20, 51, 126
Scotland, 166, 282, 284, 290
Seattle, 240
sea urchins, 148–49
second best theorem, 13–14, 19, 47, 303
Second World War, 21, 99, 107
Sen, Amartya, 40–41, 245
sensitivity analysis, 306
Sethi, Rajiv, 160–61
sewage, 22, 104
shaming, 147
shared space, 275
“shareholder value,” 223
Shenzhen, China, 157
shipbuilding, 102, 109
signaling, 163–64
Silicon Fen, 157
Silicon Valley, 157
Simon, Herbert, 176
Singapore, 278
“sin taxes,” 19, 25, 137, 152, 228, 272
skill premium, 220, 227
Skinner, B. F., 174
Skitovsky, Tibor, 15
slow thinking, 176, 179
smartphones, 81, 210
Smith, Adam, 18, 36, 138, 194, 280
Smith, Vernon, 175
smoking, 137, 152–53
social capital (trust), 137, 138, 147, 155–59, 168–69, 211
social cohesion, 7, 18
social comparison, 189, 190, 191, 195
social discount rate, 312–13
“socialist calculation” debate, 20
Social Insurance and Allied Services (Bev- eridge), 205
Social Limits to Growth (Hirsch), 161
social media, 51, 91–92, 93, 124, 323
social norms, 137, 138, 147, 152–55, 168–69, 220, 259, 293
social security, 202, 203, 206, 208, 212, 231, 237
social welfare. See welfare economics
solar energy, 86
Solow, Robert, 305
Sonny Bono Act (1998), 62
South Korea, 127, 198, 206, 326
Soviet Union, 20, 23, 281
Spain, 144
species protection, 321, 322
speed limits, 273
Spence Michael, 164
spotted owl, 322
SSNIP (small but significant non-transitory increase in price) test, 58
stabilization, as government policy, 6
standard of living, 46, 207, 208, 251
Standard Oil, 95
“state aid,” 55, 133
state capacity, 16–17, 20
stated preference (contingent valuation), 305, 318–25, 326
statistical significance, 301
steel industry, 100, 102, 103, 106, 110, 114, 116, 119–20
Stern Report, 314–15
Stigler, George, 262
strategic bias, 321
strikes, 23, 109
sugar taxes, 272
Sugden, Robert, 174
sunk costs, 105
Sunstein, Cass, 173
superstar effect, 52, 54, 227
surge pricing, 78, 79, 167
surveys, 180–81
Sweden, 30, 85, 102, 115, 217, 275, 284
Switzerland, 237, 239, 250
Sydney Opera House, 276–78
tacit knowledge, 157
target setting, 257, 281–83, 287, 289
tariffs, 263
TaskRabbit, 168
Tata (Indian conglomerate), 103, 119
taxes: on alcohol and tobacco, 19, 25, 137, 152, 228, 272; avoidance vs. evasion of, 271; behavioral motivation for, 198, 199; behavioral response to, 274; credits against, 236, 252, 287; inefficiencies created by, 252; on inheritances, 231, 232; marginal effective rate of, 234, 235, 236–37, 239; on mobile phones, 165; optimal, 229, 231; Pigouvian, 25, 26, 31, 32, 141, 165, 252; on plastic bags, 5; public goods financed by, 27, 202; redistributive, 2, 7–8, 206, 208, 213, 225, 228–29, 232; resentment of, 3, 232; user fees vs., 28, 278, 279–80; value-added, 228
tax farming, 61
taxicabs, 71, 75–80, 263
tax incentives, 101, 129–30, 131, 134
technological disruption, 71, 72, 75–82
Telecom Italia, 107
telecommunications, 56, 91, 105, 130; bundling in, 93; equipment for, 118–19; as natural monopoly, 104; privatization of, 45, 46, 114, 117, 121; regulatory capture and, 68; state-owned, 101, 109
temperance movement, 269, 271
The Ten Commandments (film), 62
terrorism, 209
Tetlock, Paul, 300
Thaler, Richard, 173
Thatcher, Margaret, 22, 23, 70, 100, 109–10, 118, 119, 256, 258
Theory of Moral Sentiments (Smith), 194
third best theorem, 14
Thomas Cook (travel agency), 110
Tinbergen, Jan, 21
Tinuss, Richard, 196
tobacco taxes, 25, 152, 228, 272
toll goods (club goods), 26, 28, 142
toll roads, 26, 29, 278
tort law, 33, 65
total surplus, 47, 48
Toulouse, France, 157
traffic management, 275, 278
tragedy of the commons, 137–42, 148, 161, 165
training, 48, 129, 134
transaction costs, 32, 34–36, 303
Treaty on the Functioning of the European Union, 56
trichloroethylene spill (1987), 320
Trump, Donald, 185
trust (social capital), 137, 138, 147, 155–59, 168–69, 211
“trust busting,” 95
Tullock, Gordon, 260–61
Turing, Alan, 107
Turkey, 116, 117
turnpike trusts, 29, 144
Tutte, Bill, 107
Tversky, Amos, 173
Uber, 78–80, 84, 93, 263
Ulvaes, Björn, 3
unemployment, 156–57, 212, 223; crime rate linked to, 154–55; in France, 78; policies to reduce, 205, 238; during recessions, 209, 251; among youth, 65–66
unemployment insurance, 202–6, 208, 209, 233, 251
unions, 22, 35, 110, 118, 121, 220, 223
United Kingdom, 3; alcohol consumption in, 19; automatic savings plan in, 187; behavioral policy unit in, 173, 185, 192; blood donation in, 196; competition policy in, 94; contracting out in, 284; cost–benefit analysis in, 305, 313; energy in, 86, 87–88, 89; health care in, 101, 246–49; see also National Health Service (NHS); industrial policy in, 106–7, 127, 129–30; inequality in, 217, 221, 241; minimum wage in, 240; mutual societies in, 203; nationalization in, 22, 101–2; policy evaluation in, 299; poverty in, 215; privatization in, 87–88, 98, 100, 102–3, 114–22, 124–25, 258, 290; public services in, 244, 281, 282–83, 290; road system in, 29, 292–93; taxation in, 198, 228, 232, 236, 252, 272; Universal Credit in, 234; value of a statistical life in, 326; welfare state in, 99; Winter of Discontent (1978–79) in, 23, 109
United States: automatic savings plan in, 185, 187; behavioral policy unit in, 173, 185; blood donation in, 196; competition policy in, 94–95; computer industry in, 107–8; contracting out in, 284, 285; cost-benefit analysis in, 305, 313; farm subsidies in, 267, 268; fracking in, 86; health care in, 210, 249–51; individualism in, 250, 251; industrial policy in, 125, 126–27, 131; inequality in, 217, 219, 223–24, 240, 242; labor force trends in, 221, 222; lobbying in, 265; municipal corporations in, 144; obesity in, 198; policy appraisal in, 300; power blackouts in, 83; social security in, 203; taxation in, 228, 232, 235, 236, 237; value of a statistical life in, 326; vouchers in, 287

U.S. Army Corps of Engineers, 304–5

U.S. Department of Justice, 55, 57

U.S. National Oceanic and Atmospheric Administration (NOAA), 305, 320

universal basic income (UBI), 208, 223, 236–39, 252

universal service, 61, 75, 103, 119, 120

Upstart, 81

user fees, 28, 278, 279–80

use value, 321

USSR, 20, 23, 281

utilitarianism, 15–16, 41

utilities, 45, 61, 103, 104, 112, 119, 125; privatization of, 114, 116, 123. See also electric industry; public transport; railroads; water supply

utility maximization, 178

vaccination, 25, 31, 329

value-added tax (VAT), 228

value judgments, 7, 11, 13; in social welfare function, 15

value of a statistical life (VSL), 325–27

Van Reenen, John, 54

Veblen, Thorstein, 161

vertical integration, 85, 87

Vickrey, William, 278

Vietnam, 141

Vittel (mineral water), 34

Vodaphone, 120

evoter turnout, 197

vouchers, 287

Wales, 282, 284, 290

Warhol, Andy, 162

warranties, 67, 74

Washington, D.C., 5

water supply, 22, 91, 104, 116, 123, 125, 143–44, 146–47

weak ties, 157

The Wealth of Nations (Smith), 18, 280

WeChat, 91

weighted average cost of capital, 310

weights and measures, 45, 63, 65

welfare economics, 8, 9, 15–16, 36; assumptions underlying, 12; defined, 1; fundamental theorems of, 11–13; literature on, 37; social welfare functions in, 41

welfare state, 21, 101–2, 202, 203–8, 209, 231–36

welfare trap (poverty trap), 234, 236

Whitacre, Mark, 57

Williamson, Oliver, 144

willingness to accept (WTA), 318, 320–21, 323, 339, 341

willingness to pay (WTP), 318, 320–21, 323–24, 325–26, 339, 341

wind energy, 86–87

winner’s curse, 280

winner-take-all economics, 52

Wodehouse, P. G., 62

World Bank, 115

World Health Organization (WHO), 196

World Values Survey, 155

World Wealth and Income Database (WWID), 216

x-inefficiency, 49

Yahoo, 124

YCombinator, 238

zero option, 275–76, 303

Ziliak, Stephen, 301

For general queries contact webmaster@press.princeton.edu.