ANTITRUST ANALYSIS

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ANTITRUST ANALYSIS

Problems, Text, and Cases

Eighth Edition

PHILLIP AREEDA

Late Langdell Professor of Law
Harvard University

LOUIS KAPLOW

Finn M. W. Caspersen and Household
International Professor of Law and Economics
Harvard University

AARON EDLIN

Richard W. Jennings Professor of Law
Professor of Economics
University of California at Berkeley

C. SCOTT HEMPHILL

Moses H. Grossman Professor of Law
New York University School of Law

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Preface to the Eighth Edition

The most important development in antitrust doctrine over the past fifty years is the increasingly central role of economic analysis. Modern precedent is permeated with economic reasoning, including the proved, possible, or assumed competitive effects of particular practices. Equally important, the day-to-day work of antitrust lawyers in private practice and at government agencies is steeped in economics, as are trials and judicial opinions that must wrestle with complex and conflicting testimony of economic experts. Although policy makers and commentators continue to debate the proper role and utility of economic analysis in applying the antitrust laws, it seems likely that economics will have a substantial role for the foreseeable future.

A student therefore must understand both the teachings of economic theory and how actual markets work. Our goal is to enable students without previous training in economics to apply and critique this body of law and to build the skills needed to function in a domain in which economic analysis looms large, whether as an antitrust practitioner or lawyer in related fields. Great care has been taken to convey economic learning to students in plain language with a minimum of technical apparatus.

To that end, this edition adds a third author, who (like L.K. and A.E.) holds a law degree and a doctorate in economics, and who also has substantial experience as an antitrust enforcer. At the same time, this edition continues along the path set by Phillip Areeda in 1967. (The preface to the first edition, which states what continue to be the pedagogical premises underlying this book, follows.) Our basic approach is agnostic on controversial questions, and as in previous editions, we present contrasting perspectives to the problems at hand.

Since the last edition, antitrust enforcers and courts have struggled to grapple with the rising importance of platforms in our increasingly digital economy. This effort is reflected, among other places, in the Supreme Court's decision in *Ohio v. American Express*, new Vertical Merger Guidelines, and major enforcement actions against Apple, Facebook, and Google. This eighth edition incorporates these and other recent developments. In addition, much of the introductory material in Chapter 1 has been rewritten or streamlined. As in previous editions, the book pays special attention to the intersection of antitrust and intellectual property law.

We are grateful to our many colleagues around the world who have contributed to our understanding of industrial organization and antitrust. We also thank research assistants who made significant contributions to the current edition: Yuqing Cui, Jack Derewicz, Isaac Kirschner, Matt Rosenthal, Catalina Villalobos, Jeffrey Waldron, Elan Weinberger, and Linda Yao. Finally, and most of all, we wish to thank our wives, Jody, Jenn, and Laura; our children Leah, Irene, Cole, Adam, Mia, and Thomas; and the rest of our families for all their love.

L.K., A.E., and C.S.H.

July 2021

Disclaimers: The authors occasionally consult on antitrust matters for government agencies and private parties. Louis Kaplow's wife is in the legal department of a financial services firm.

Preface to the First Edition*

Although this book may have some usefulness elsewhere, it was prepared to meet the threefold needs of antitrust classes for problems, text, and cases. The cases have been edited and organized for maximum ease of comprehension. But an improved casebook was never the primary object. The distinguishing features of this book lie in its text and in its extensive questions and problems.

Text. I am convinced that a contemporary antitrust course requires a judicious use of text to meet several clear needs. The relevance of economics to antitrust law is unquestioned. Although students need study economic theory and behavior only as useful to the law, they must know about market power, justifications for cartelization, price behavior in markets with few firms, basing point pricing, the economic rationale of the patent system, manufacturer interests in resale prices, the objects of tying and exclusive dealing arrangements, the competitive significance of large firms and of mergers, and various aspects of price discrimination. These are all subjects of textual discussion in this book, and in addition there is a summary exposition of the competitive system in Chapter 1A. The utility of such material is quite clear. As one example, consider the economics of vertical restraints. The cases are hardly illuminating, and, in prior years, neither lecture nor class discussion produced anything beyond confusion for most students. By contrast, my class has understood the essentials presented in text. The greater efficiency and effectiveness of economics text is manifest in two respects. First, limited class time is not used for conveying information that is more easily grasped when read and studied. Second, discussion may give the appearance that some members of the class comprehend the economics at hand, but the instructor may be quite uncertain as to how many of the class have mastered the economic argument. To reap these advantages fully, the text is sometimes made more elaborate than would on first consideration seem necessary for law students in order to meet complications or confusions that in fact have developed in the classroom when a simpler treatment has been used.

A second variety of text is more "legal." Chapter 1 is entirely textual. In addition to the economics material already mentioned, and the historical background of the antitrust statutes, there is exposition of three matters that cannot receive full treatment in an antitrust course of usual length. Chapter 1C discusses procedures for enforcing the antitrust laws, Chapter 1D notes the statutes' "jurisdiction" over interstate and foreign commerce and the major exemptions from the antitrust laws, with special attention to developing doctrines on state action and preemption, and Chapter 1E describes the premises and operation of the patent system. These sections attempt to steer a delicate course between undue generality and excessive

*There have been slight modifications where appropriate.

detail. Text in other chapters has varying objectives. There is the brief exposition of noteworthy issues that can be efficiently developed in text and that do not warrant class time, the compact presentation of an issue analogous to one analyzed in detail through questions and problems, especially where the related issue lends itself to great compression, and a presentation of necessary technical details.

Third, there are occasional brief paragraphs of introduction, connection, or comment scattered through the book. Finally, there is material that is midway between text and question: Questions are sometimes put in a way that tends to suggest at least one possible line of answers. This device is used where authority is scant, issues are important but difficult, and conventional text might seem prematurely definitive.

Let me add that I fully appreciate the difficulties in preparing text that is clear, concise, accurate, and yet free of unnecessary detail. This book is, I hope, a useful step in that direction.

Questions and problems. The several hundred questions and problems—categories that I do not distinguish sharply—are the heart of this effort for my own classroom. They try to achieve the advantages and avoid the disadvantages of both case and problem approaches. Problems force students to manipulate and apply antitrust ideas to difficult issues extracted from complex facts with uncertain economic and legal implications. That process tests the usefulness of doctrine, often demonstrates its inadequacies, and helps students focus both on private planning and on "legislative" considerations.

Adequate problems, however, are sometimes overly complex for effective classroom use. The difficulties are several. Problem analysis and solution often demand prior mastery of numerous cases and concepts, but few students can or will attain that command of a topic at the outset of its consideration. When analysis and solution require so much preparation, many students will do little more than read the cases. More manageable questions will be more adequately prepared.

To discuss a complex problem, moreover, is necessarily to discuss the meaning and reasoning of the relevant cases. The appropriate questions can, of course, be posed orally in class, but I find several overwhelming advantages in providing questions in the coursebook. First, students can and do think about them before class. Second, printed questions eliminate some of the delay, confusion, or misunderstanding inevitable with oral questions. Third, the greater precision of a written question invites more precise responses. Fourth, the structure of questions approximates an outline of the class discussion and thus enhances student understanding and sometimes lessens the compulsion to take notes. The result is greater confidence and a more relaxed classroom attitude.

There is, of course, no single best way to treat an antitrust topic. The teacher must often choose among several historical and analytical avenues. And student confusion may result from opaque opinions, complex facts, elusive business context, and obscure economic implications. In striving for orderly development and maximum clarity, I have endeavored to present questions and problems that are highly structured. The questions and problems are designed to expose easier or basic ideas before complex ones. Where experience has shown that a complicating issue unduly obstructs progress toward "answering" a problem, the complicating factor has either been excluded from the problem or made the subject of a prior question that clears the way for a later inquiry. Although it is neither possible nor desirable to narrow questions and problems too finely, a conscious effort has been made to build from basic ideas to more elusive ones. Indeed, for this purpose, occasional elementary questions with clear-cut answers are scattered through the materials to emphasize fundamental points and remind students that some "answers" do exist. Other questions and problems vary in specificity, breadth, object, and student role. The statement of facts or of issues or both may be complete or require the student to supplement them. There may be subordinate questions to aid the analysis, or a complete fact statement may pose a variety of issues without further written guidance. The problem may call on the student to take the viewpoint of business manager, counselor, advocate, judge, or legislator, as well as to identify the legal issues, to use and distinguish cases after careful exegesis, to consider what data are available and how they can be used by either party or the judge, to understand the strengths and limits of the institutions that must decide, to explore the private and social interests at issue, and to resolve the issue within the limits imposed by the relevant institutions, doctrines, and interests.

Antitrust cases offer a particular challenge to orderly development. Some difficulties have already been noted. In addition, litigants have not arranged their affairs nor have judges written with the needs of the classroom in mind. Yet, in an institutional system in which judges and commissioners have such vital roles in developing and applying antitrust policy, cases provide an object of analysis and discussion, show the tribunals struggling with our problems and creating antitrust law, and, it is hoped, illuminate the subject and the process. Before preparing these materials, I sometimes asked students to read all the reproduced cases on, say, boycotts or tying arrangements and then attempted to discuss the subject as a unit. The results were far less successful than when students read one case, pondered a few questions about it, read another case, then considered questions about both cases, and so on. That is often the pattern of these materials. The questions immediately after a case will not necessarily exhaust its implications. It sometimes happens that the case that opens a section may not be fully explored until the end of that section, or even later. The effort is to open a theme and then, in orderly stages, to elaborate on it with richness and variations of reality.

Spontaneity and flexibility. The virtues—if such they be—of this structured approach raise two questions. First, will the orderly development and detailed questions reduce classroom spontaneity? Experience has provided satisfactory answers. Detailed questions have not reduced classroom spontaneity. The channeling of energies has increased the relevance of student observations or challenges without diminishing their originality, variety, or intensity. For all their detail, moreover, many questions remain quite difficult. The questions seemed to aid all students to grasp the subject and yet tax many to dig deeper. In my own classes there has been a more rapid and more subtle response from more students when using these materials.

The other question about structured materials is this: Will other teachers find the structure congenial? The tested sequence of cases, questions, and problems will be useful to those teachers who have not had occasion to develop a different approach to antitrust pedagogy. Other teachers will, I hope, find at least some of the structure suitable for their tastes. But few teachers will use all these materials in the printed sequence. At least on occasion, other teachers will use cases and text without using the questions or will use the questions or problems in a different order. A teacher who wishes to vary the order of topics or their development will find that the book's system of numbered paragraphs will greatly facilitate the task of making up a syllabus or assignment list.

The questions and problems need not, of course, be used in their entirety. Teachers who prefer to concentrate on problems in class may wish to urge students to answer the nonproblem questions for themselves. Teachers who emphasize case-analysis questions may wish to encourage their students to solve the problems for themselves as an aid to study and review. Indeed, no course of conventional length will have time to consider all the questions, problems, or topics in class. Some selection is therefore inevitable in the use of these materials, which are somewhat more extensive than I can cover in a semester-long course of four hours per week.

The organization of topics is by no means inevitable. To emphasize the unity of subject matter, I have used only a few chapter divisions. They need not be treated in the order printed. The content and development of each chapter is not, in the main, dependent on the order of topics. There are standard progressions. Price fixing must precede most of the other horizontal issues. Vertical restraints should precede vertical mergers. But most topics need not be pursued in any particular order. The answers to be expected and the development of the discussion will, of course, vary according to what has gone before, but most questions can be usefully discussed regardless of the order of topics.

The questions within each topic need not always be treated in the order in which they are printed, and some omissions can usually be made. A topic may include several distinct subtopics. But even where the questions are cumulative, a different progression is usually possible. At only a few points is the solution of a question totally dependent on what has directly preceded it. Most questions can be discussed out of the printed order when the instructor considers some other sequence preferable.

Editorial matters. All paragraphs other than statutes or principal cases are numbered to facilitate assignment, cross-reference, and general use of the book. Paragraphs of text or case abstracts are identified by boldfaced headings. Paragraphs without headings are questions or problems. Problems should be regarded as entirely hypothetical, although they are sometimes based on the case, if any, cited to the problem. A citation to a problem may simply identify a fact situation, or it may identify a discussion of some aspect of the problem. More elaborate footnotes to many questions and problems will provide considerable information about the relevant cases.

Some of the principal cases have been edited severely, but omissions are indicated in the conventional way with these exceptions: omitted without further notation are repetitive statutory or code citations to the antitrust laws, repetitive reporter references within an opinion, cross-references within an opinion, citations for a court's references to a lower court decision in the same case, and excessive citations by a court to a case already cited. Where a court refers to important cases presented elsewhere in the book or already considered in the opinion, a short name for that case may be substituted for the full name and citation. Footnotes are frequently omitted from quoted material; reproduced footnotes retain their original numbers. Footnotes within a case are always those of the court unless a notation indicates otherwise. "Inc." has been omitted from case names. Finally, it should be noted that very occasional liberties have been taken with punctuation, capitalization, and paragraphing in the course of editing.

P.A.

January 1967

Acknowledgments

Robert E. Cushman, "The Problem of the Independent Regulatory Commissions" in *Report of United States President's Committee on Administrative Management in the Federal Government* (1937). Oxford University Press. Copyright © 1937.

Richard J. Hofstadter, "What Happened to the Antitrust Movement?" in *The Paranoid Style in American Politics and Other Essays* (1965). John Wiley & Sons. Copyright © 1965.

Hans B. Thorelli, *The Federal Antitrust Policy* (1956). Oxford University Press. Copyright © 1956.

ANTITRUST ANALYSIS

Chapter 1

The Setting for Antitrust Analysis

100. Prologue. This book is intended for the study of antitrust law. Text, cases, and problems are integrated to make it a useful tool for learning. Although questions and problems are usually placed after the cases to which they pertain, students might often find it useful to sample the questions and problems before reading the materials that precede them. This reverse order will sometimes permit a more perceptive reading. Indeed, it is the questions and problems that are the heart of the materials, because they provide the major focus for analysis and an invitation to understanding. Analysis is at the heart of antitrust law, because the broad principles cannot solve concrete cases without an analytical framework.

One important point about problem solving deserves emphatic mention here. Students often ask whether questions and problems should be answered according to what "the law is" or according to what it ought to be. Although the latter often determines the former, when they diverge the student must consider both. Many antitrust opinions are, to say the least, confused. Accordingly, the contemporary vitality of a precedent is often affected less by what it says than by present perceptions of the problem. To be sure, some things are settled, some approaches are relatively fixed, and precedent and doctrine do have force. But the fixed stars are relatively few; once past them, antitrust analysis must often be a three-step process: (1) What is the underlying social problem? What interests are affected and how? What is the possible benefit to a party? The possible harm to society? The alternatives? (2) How should the particular problem be solved by a legislature that appreciates the limitations of judicial and other relevant institutions, the need for general solutions, and the desire for sound doctrinal development? (3) Is such a solution available to the court, agency, or private planner in light of relevant precedents?

Before encountering the problems, this chapter presents some background text. First are some general comments about antitrust study; second, some basic reminders of economics and competition policy; third, a few historical notes; fourth, some essential procedural aspects of antitrust enforcement; fifth, some problems of antitrust coverage; and sixth, basic information about the patent system. At this point a special caveat is in order.

101. Organization; caveat. The notes are not always organized along conventional textbook lines; they are arranged for maximum ease of student reception. Similarly, the management of topics reflects the authors' views of orderly development of antitrust ideas. The order of discussion within each topic is determined by pedagogical convenience; a text would proceed in quite different ways.

Antitrust law is itself a "seamless web" that we must enter at some point and pursue with some semblance of order. For that reason, we cannot exhaust the approaches and implications of a topic when we first consider it. Later topics will give added meaning and understanding to earlier ones. Thus, the problems, questions, and cases will often mean more on review than when initially considered. And the course itself has much built-in review, for later topics often invite or even require renewed attention to earlier ones. Thinking about antitrust problems should not be compartmentalized by these classifications of convenience.

102. Bibliographic note. Although antitrust writings are numerous, the references contained in this book will be highly selective, with an emphasis on analytical works and certain articles that, apart from their analytical quality, conveniently collect useful citations. Cited at this point are general works and a few research aids in the antitrust field.

The most comprehensive legal analysis is the multivolume treatise by Areeda and Hovenkamp.[1] The Antitrust Section of the American Bar Association publishes *Antitrust Law Developments*, a useful two-volume treatise.[2] Many notable books specifically address antitrust policy,[3] as do several edited volumes that collect analyses of multiple antitrust cases.[4] A number of specialized periodicals concentrate on antitrust.[5] It is also valuable to consult economics texts that focus on antitrust and regulation or industrial organization more broadly.[6] Finally, the Antitrust Division of the Department of Justice (DOJ) and the Federal Trade Commission (FTC) maintain web sites containing case filings, enforcement guidelines, reports, and statistics, among other useful materials.[7]

1. P. Areeda & H. Hovenkamp, *Antitrust Law* (21 vols., 4th ed. 2013-2019, 5th ed. 2020-present). Volume 2A of the treatise has, as additional coauthors, Roger Blair and Christine Durrance. Citations to relevant portions of this treatise appear throughout this book.

2. Section of Antitrust Law, American Bar Association, *Antitrust Law Developments* (2 vols., 8th ed. 2017).

3. *E.g.*, R. Bork, *The Antitrust Paradox: A Policy at War with Itself* (rev. ed. 1993); H. Hovenkamp, *The Antitrust Enterprise: Principle and Execution* (2005); R. Posner, *Antitrust Law* (2d ed. 2001).

4. Economic analyses of recent cases are collected in *The Antitrust Revolution: Economics, Competition, and Policy* (J. Kwoka & L. White eds., 7th ed. 2018). The chapters are typically written by economic experts involved in the litigation, and earlier editions of this text cover different cases. *Antitrust Stories* (E. Fox & D. Crane eds., 2007) provides historical context for important cases.

5. These include the Antitrust Law Journal, Antitrust Magazine, Antitrust Source, Antitrust Bulletin, the CPI Antitrust Chronicle, and the Journal of Competition Law and Economics.

6. *E.g.*, F.M. Scherer & D. Ross, *Industrial Market Structure and Economic Performance* (3d ed. 1990); W.K. Viscusi, J. Harrington & D. Sappington, *Economics of Regulation and Antitrust* (5th ed. 2018); D. Carlton & J. Perloff, *Modern Industrial Organization* (4th ed. 2004). For surveys of relevant economics literature, *see Handbook of Industrial Organization* (3 vols., M. Armstrong, R. Porter, R. Schmalensee & R. Willig eds., 1989, 2007).

7. *See* www.justice.gov/atr; www.ftc.gov.

Antitrust Study, Generally

103. Economic power. These materials are concerned with the control of private economic power through the antitrust laws. They focus on that area within which competition—in contrast to extensive regulation or government-owned enterprise—is the accepted technique of social control. Although these materials deal with the Sherman Act, Clayton Act, FTC Act, and Robinson-Patman Act, the student should realize that the protection of competition is also the object of other federal statutes, state statutes, and the common law, which, for example, touches false advertising and unfair competition. Federal antitrust law is but one of the legal forces directed to regulating economic behavior.

104. The antitrust laws. (a) *Nature of the statutes.* The federal antitrust laws are generally brief and imprecise, more like the U.S. Constitution than commercial codes or tax statutes. The basic statute, the Sherman Act, simply condemns (1) contracts, combinations, and conspiracies in restraint of trade, and (2) monopolization, combinations and conspiracies to monopolize, and attempts to monopolize. Although this is a statutory subject and we are concerned with statutory interpretation, the prohibition of trade restraints and monopolization in the Sherman Act is extremely vague and general. Indeed, the Act may be little more than a legislative command that the judiciary develop a common law of antitrust. Thus, although the judicial application of nearly every statute involves judicial lawmaking, such "judicial legislation" is particularly significant when the statute is as general as the Sherman Act. Although some later enactments, as we shall see, more specifically address particular practices, the proscriptions remain uncertain.

The antitrust laws intrude very deeply into U.S. business. The statutes apply to interstate commerce, and very little commerce falls outside the "interstate" definition of contemporary constitutional doctrine. The judicial notions of what constitutes a "restraint of trade" have become increasingly sophisticated. In short, the broad definition of conduct subject to antitrust scrutiny together with the broad reach of the federal commerce power have greatly expanded the coverage of the antitrust laws.

(b) *Legislative history; congressional role.* Antitrust study will occasion some close acquaintance with the use and abuse of legislative history. Committee reports are often no more precise than the statute itself. Comments made on the floor of the House or Senate might be even less useful: Debates often resemble discussions of motherhood or sin—one is either for or against; there are no subtle gradations of opinion. Although such discussions may be useful to indicate congressional feeling or mood, condemning sin in the abstract and in gross gives little guidance with respect to conduct that is arguably not sinful at all.

When situation, statute, and legislative history are all unclear, should the courts avoid controversial innovations until Congress legislates with greater clarity? Unfortunately, clear standards are often difficult to formulate. Perhaps we cannot decide very precisely how, in general and for all cases, to balance our desire for efficient business, which sometimes might be large, with our Jeffersonian wish to preserve small businesses. And even if more definite standards are intellectually possible, Congress might nevertheless be incapable of enacting them. The balance of political forces will often prevent significant precision in legislation. Once a statute is enacted, change may be impracticable. In short, the wisdom, energy, and consensus necessary to produce legislation solving these problems are hard to come by. Finally, neither courts nor commentators uniformly adhere to the view that legislative understandings of the economy from decades or over a century ago should govern contemporary controversies.

105. Economic theory, uncertainty, and the judicial role. Because these far-reaching statutes are rooted in notions of "competition," antitrust study requires an appreciation of the structure of the U.S. economy and some acquaintance with economics. Fortunately, the economics background needed for a basic understanding of most antitrust issues seldom requires detailed mastery of technical refinements. Although some of the economic materials might seem complex at the outset, experience amply demonstrates that students without prior exposure do successfully master the necessities. Students should not feel troubled or overwhelmed by occasional economics notes.

Although economic theory is indispensable to our task, clear-cut answers are often impossible. The complexities of economic life may outrun theoretical tools and empirical knowledge. We often will remain uncertain about the economic results of the particular practice or market structure under examination. Nor can we always predict the consequences of prohibiting some particular behavior. Thus, we shall time and again meet this question: How far must we search for economic truth in a particular case when the economic facts may be obscure at best, when the relevant economic understandings may be controversial or indefinite, and when the statute does not give us a clear-cut value choice?

1A. THE ROLE OF COMPETITION: ANALYTIC MODEL AND USEFUL TENDENCY

The Value of Perfect Competition

106. Perfect competition defined. A market economy will be perfectly competitive if the following conditions hold:

(1) Sellers and buyers are so numerous that no one's actions can have a perceptible impact on the market price,[8] and there is no collusion among buyers or sellers.

8. To satisfy this condition in each market, the products of each seller must be homogeneous. This means that each seller's product has perfect substitutes in the products of numerous other sellers. In addition, this condition would fail if substantial economies result from large-scale production or distribution. In that event, only a small number of firms could survive in equilibrium.

(2) Consumers register their subjective preferences among various goods and services[9] through market transactions at fully known market prices.

(3) All relevant prices are known to each producer, who also knows of all input combinations technically capable of producing any specific combination of outputs and who makes input–output decisions solely to maximize profits.[10]

(4) Every producer has equal access to all input markets, and there are no artificial barriers to the production of any product.

107. Competition and efficiency. In equilibrium,[11] the allocation of inputs and the production and distribution of outputs in a perfectly competitive economy will be *efficient* in the following, very specific sense: No rearrangement of inputs, outputs, and distribution is possible that would make someone better off without making someone else worse off—where well-being is measured in terms of consumers' own preferences. This formulation is called Pareto efficiency. It roughly corresponds to the condition that there be no waste of resources in the production of goods and services and that the mix of goods and services produced and their allocation among consumers be in accordance with individuals' preferences.[12] The efficiency concept is at once powerful and weak: powerful because it is arguably the minimum necessary condition of any ideal economic system's equilibrium, weak because it is not the only value considered important by our society.

Competitive forces generate efficiency in two ways. Productive efficiency occurs as low-cost producers undersell and thereby displace the less efficient. Allocative efficiency occurs as exchanges in the marketplace direct production away from goods and services that consumers value less and toward those they value more, as we now describe.

108. The dynamic adjustment process. In a perfectly competitive economy that is in equilibrium, profit rates (adjusted for differences in risk) in all productive activities are equal—which can be seen from the following description of how equilibrium is reached. Suppose that consumers' preferences change so that more is demanded of one product than is being

9. Factors of production owned by consumers, including their own labor, are treated similarly. For example, it is assumed that consumers reveal their preferences between labor and leisure by their sales of labor in the marketplace. It is also assumed that consumer satisfaction does not depend on the choices of other persons.

10. It is also assumed that inputs not purchased in the market do not affect production—that is, that there are no "externalities." *See* ¶110b.

11. Equilibrium is simply the state of economy that results from the adjustment process discussed in ¶108. An actual economy might never reach equilibrium in the sense that it is fully at rest. There is one equilibrium for every set of tastes, technologies, and distribution of ownership of scarce inputs. Changes in these underlying economic data force the system to adjust toward a new equilibrium. Because tastes, technologies, and scarcities are continually changing, the system is constantly being buffeted in new directions.

12. To illustrate the latter, an economy that produced many canoes and few bicycles (where each takes the same amount of resources) but where most consumers prefer bicycles to canoes would violate this condition. In addition, the condition requires that the bicycles be allocated to cyclists and canoes to those fond of canoe trips rather than vice versa.

produced at the prevailing price. Consumers would bid its price up and thus generate more profits for its producers. In the opposite situation of decreased demand, producer profits would decline with the fall in the price of goods in excess supply. At that point, production of the undersupplied product will exhibit a higher profit rate than production elsewhere in the economy. Production of the oversupplied products will exhibit a lower profit rate.

This differential in profit rates will induce a compensating flow of resources. Firms and individuals will devote more of their resources to the production of the undersupplied good. They will devote less to the production of the oversupplied goods. These resource flows will tend to depress the prices and profits of firms originally producing the undersupplied good (they face new competition) and elevate the prices and profits of firms still producing the oversupplied products (some of their former competition has withdrawn to produce the undersupplied good). The economy will eventually reach a new equilibrium in which profit rates in all activities will again be equal—because as long as profits are unequal, firms earning lower profits will be induced to shift to production of high-profit goods. This equal profit condition characterizes both the old equilibrium and the new. The difference is that production of the once undersupplied good will have been increased and production of the once oversupplied goods will have decreased.

The market system, even if imperfect, organizes a vast quantity of information about consumer desires.

> [It] is a social order, and one of unfathomable complexity, yet constructed and operated without social planning or direction, through selfish individual thought and motivation alone. . . . [I]n a fairly tolerable way, "it works," and grows and changes. We have an amazingly elaborate division of labor, yet each person finds his own place in the scheme; we use a highly involved technology with minute specialization of industrial equipment, but this too is created, placed and directed by individuals, for individual ends, with little thought of larger social relations or any general social objective. Innumerable conflicts of interest are constantly resolved, and the bulk of the working population kept generally occupied, each person ministering to the wants of an unknown multitude and having his own wants satisfied by another multitude equally vast and unknown—not perfectly indeed, but tolerable on the whole . . . .[13]

This is the so-called invisible hand of classical laissez-faire economics, and it is today the primary organizational instrument of our economy—within, of course, a framework defined by an array of property rights and government institutions, including matters as simple as who owns particular objects and as complex as the government's macroeconomic and foreign policies.

109. Consumer decisions as the basis for market choice. (a) *Consumer preferences weighted by wealth.* Perfect competition efficiently caters to consumer tastes. But whose tastes count? The market counts preferences backed by dollars spent. The market thus weights preferences according to the amounts available for spending. The latter depends on the ownership

13. F. Knight, *The Economic Organization* 31-32 (1951). The adjustment process is described graphically in note 28.

of inputs. Individuals who own more or "better" inputs—surgeons, movie stars, large stockholders or landholders, and the like—receive more of the final outputs than do individuals who own less, and therefore they exercise a greater influence over market inputs and outputs. Initial input ownership is thus closely linked to the division of final output. For each initial distribution of input ownership there is a corresponding equilibrium set of inputs, outputs, and distribution in a perfectly competitive economy.

Legal rules defining ownership of "property" and specifying taxes and government expenditures determine an income distribution while leaving the market free to achieve an efficient equilibrium for the resulting set of consumer decisions then reflected in market demand. Because of the variety and flexibility of available policy instruments, significant discretion over the choice of income distribution is possible—at least in a society with the wealth of the United States—while still leaving many economic decisions to the marketplace.[14]

(b) *Consumer choice "mistaken."* The decisions of consumers reflect not only their income, but also their preferences. Those who doubt the wisdom or propriety of consumer tastes will have reason to question and perhaps to alter the perfectly competitive result. They might seek to have government restrict or tax individual or business choices when existing consumers have "insufficient" regard for future generations or when the "wrong" kinds of commodities are purchased. They might want government to subsidize certain goods and services that they feel individuals and firms undervalue. Finally, they might ask government to affect consumer choice through education and persuasion.

In each instance, consumer tastes are the underlying problem. By efficiently catering to them, perfect competition only compounds the situation. But in some instances—to which we now turn—markets fail to implement unquestioned consumer tastes efficiently.

110. Market failures. (a) *Market power.* Real-world markets fail to reach efficient outcomes for various reasons. The failure of primary interest for antitrust policy is market power. Firms with significant market power are in a position to restrict output and raise prices above the competitive level.

Market power can arise for various reasons. For example, production at least cost will sometimes be possible only at a scale of production where a few firms or even a single firm can satisfy the entire demand. Where such economies of scale are important, the market is unlikely to support the large number of producers needed for perfect competition.[15] Restoring pricing

14. The difficulties are substantial. There is disagreement about the appropriate extent of income inequality. Moreover, taxes introduce some inefficiency into the system. They involve administrative costs. More important, they distort individuals' choices. For example, a tax on labor income causes an employee to place less value on an extra hour of work than the value of what is produced because a portion of wages must be shared with the government. Similar distortions attend the imposition of virtually any tax or transfer scheme. *See Handbook of Public Economics* (5 vols., A. Auerbach, R. Chetty, M. Feldstein & E. Saez eds., 1985, 1987, 2002, 2013); L. Kaplow, *The Theory of Taxation and Public Economics* (2008). Other programs oriented toward income distribution, like agricultural price supports, typically create more serious distortions.

15. Note that the price charged by a low-cost monopolist might be lower than that charged by intensively competing but high-cost firms. A possible example is Standard Oil,

efficiency in the face of economies of scale is one reason for government regulation of public utilities.[16] Market power can also result when the value of a product increases as more buyers use it, as with a telephone system or a social network. Economists call this phenomenon a network effect. Innovation may also create market power, particularly when it is protected by patents.

Firms may also seek to create or enhance their own market power by acting strategically. For example, a firm might make its product incompatible with other firms' products so that it alone can enjoy network effects. Likewise, a firm might try to create strategic barriers to entry—for example, by signing exclusive contracts with existing distributors and thereby forcing competitors to build their own costly distribution channel.

(b) *Externalities.* Externalities refer to costs that one economic actor imposes on another (or benefits that one receives from another) without paying in the market for doing so. A familiar example is the firm that discharges pollution into the environment without paying the cost of the harm it causes. Because the market overlooks that genuine cost, neither the profit-maximizing firm nor its customers take it into account. Thus, more of the product will be produced and purchased than if its true costs (including the externality) were reflected in its price. Such uncompensated social costs spoil the efficiency of a competitive equilibrium, bringing about results that do not accord with true consumer preferences.[17]

A different sort of example is that real-world consumers might worry about "keeping up with the Joneses." These individuals pick jobs on the basis of their position relative to that of other individuals.[18] Thus, whether intentionally or not, the "Joneses" impose on their imitators costs that do not pass through the marketplace. These interactions are assumed away by the perfectly competitive model that postulates that consumer preferences are independently rather than enviously determined.

(c) *Public goods.* For some goods and services, the efficient price is literally zero. There is no extra cost in use by an additional individual. Both national defense and knowledge have this quality—more for one person does not mean less for others. No private firm could afford to produce a pure public

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which brought down the cost and price of kerosene refining through increased scale. *See* A. Chandler, Jr., *Scale and Scope: The Dynamics of Industrial Capitalism* 24-25 (1990); E. Granitz & B. Klein, *Monopolization by "Raising Rivals' Costs": The Standard Oil Case*, 39 J.L. & Econ. 1, 29, 40 (1996).

16. Where unit costs are constantly declining, the "efficient" price, which equals marginal (*see* ¶112) or incremental cost, is always below average unit costs. And there are other situations where the efficient price will not permit the supplier to break even. Once a subway or bridge is built, for example, the social or resource cost of using it is simply the incremental or marginal cost of additional persons riding or crossing it. Fares or tolls at that level, however, would never finance the construction of the subway or bridge. Accordingly, society must either permit inefficient above-marginal-cost pricing (restricting use of the bridge unnecessarily but confining its financial support to those who use it) or subsidize construction of the facility out of general tax revenues.

17. Efficiency also requires that producers be compensated for their beneficial externalities. The orchard farmer should pay the neighboring beekeeper for the assistance the bees provide in pollinating the farmer's orchard. Similarly, all citizens should, and do, pay the public schools to educate children who are not their own. Presumably, everybody benefits from a more educated citizenry.

18. An interesting study of these and related issues is R. Frank, *Choosing the Right Pond: Human Behavior and the Quest for Status* (1985).

good at the efficient price. Production, if it is to occur, must be financed by the government. But private firms may be able to afford production of goods with a partially "public" character at the efficient price. For example, private colleges produce knowledge for the public as well as education for their tuition-paying students. The efficient price for the public part of their output could be difficult to determine. Consumers have strong incentives to misspecify their preferences for a public good. Once it has been produced, each consumer receives its benefit whether paying for it or not. Before it is produced, strategic considerations lead consumers to misstate their willingness to pay for its production.[19] As a result, private firms are not likely to produce the socially optimal amount of partially public goods. The "publicness" of goods, therefore, is another cause of the inefficiency of actual markets.

(d) *Imperfect information.* Buyers have imperfect knowledge of the products available to them and sellers have imperfect knowledge of the input–output combinations available to them. For example, if sellers have more information about product quality than buyers, they selectively choose transactions that benefit them at the expense of the uninformed buyers. Recognizing this risk of "adverse selection" at their expense, the buyers withdraw from trade rather than make bad deals. One consequence of hidden information is that the market "unravels," reducing the volume of trade to an inefficiently low level.[20] Similar problems can result when one party is able to take hidden actions that are unobservable to a contractual counterparty.

These four categories of market failure do not exhaust the ways in which competition can go wrong. For example, producers do not single-mindedly pursue profit maximization, and consumers might not always make rational decisions. Moreover, inertia, ignorance, and artificial barriers restrict the mobility and reallocation of labor, capital, and other resources to their most productive use.

111. The value of perfect competition and the role of antitrust policy. The perfect competition model has been used to perpetuate laissez-faire policies in the face of reform demands. Because everything worked out "for the best" in the model, it was asserted that government intervention, regardless of good intentions, would upset the economy's autonomous tendency toward a beneficial equilibrium. To accept abuse, injustice, and avoidable human misery for that reason was not only callous, but it was also illogical on two grounds: (1) In practice, the economy fails to satisfy a number of critical assumptions of the perfect competition model. As a result, actual markets do not generally cater efficiently to consumer tastes. (2) Even if the price system were efficient, the result would not reflect all important social and economic values. Laissez-faire in these circumstances represents neither a devotion to perfect competition nor an exercise of social wisdom, although it will sometimes be preferable to ill-conceived or poorly executed government correctives.

19. Two examples: If the consumer is one among many favoring provision of a public good (such as knowledge produced at private universities) to be financed by individual contribution, the incentive is to understate one's willingness to pay, hoping the others have pledged enough to ensure provision. If the good is to be financed by tax funds to which one contributes less than proportionately to one's relative use, the temptation is to overstate the value one attaches to the project.

20. For a seminal analysis of adverse selection, *see* G. Akerlof, *The Market for "Lemons": Quality Uncertainty and the Market Mechanism*, 84 Q.J. Econ. 488 (1970). For an application to antitrust policy, *see California Dental*, Ch. 2B.

Wise government intervention through varied and mixed devices may be appropriate. The nature and extent of this intervention depend on the type of market failure to be remedied as well as the values to be promoted. Adjusting taxes and transfers may improve income distributions that are deemed to be unsatisfactory. Other market failures may demand regulation, complete control, or a combination of taxes and subsidies. Still other market failures are the domain of antitrust policy.

Antitrust law implicitly but clearly takes a particular stance toward the economic problems to which it applies. On one hand, its very enactment indicates that Congress rejected the belief that market forces are sufficiently strong, self-correcting, and well-directed to guarantee the results that perfect competition would bring. On the other hand, antitrust's domain is intrinsically limited. Antitrust is not the nationalization of industry, which would reflect a decision that only direct government operation can provide the desired result. Antitrust also is not direct, extensive regulation of industry, an alternative that has been enacted for some public utilities. Rather, antitrust supplements or, perhaps, defines the rules of the game by which competition takes place. It thus assumes that market forces—guided by the limitations imposed by antitrust law—will produce good results or at least better results than any of the alternatives that largely abandon reliance on market forces. Therefore, the perfect competition model can be viewed as a central target, the results of which antitrust seeks, but the conditions for which antitrust does not take for granted. Antitrust thus looks to perfect competition for guidance, but the analysis inevitably emphasizes the myriad and complex imperfections of actual markets.

The economic model of competition also provides antitrust with a major value: efficiency. Other values impinge, however, to strengthen or retard the force of the unqualified competitive criteria. The task of antitrust, accordingly, is much more complex than simply moving the economy toward more nearly perfect competition. Let us begin our analysis of this task with a brief look at the targets of antitrust—monopolists and oligopolists.

Perfect and Imperfect Competition Compared[21]

112. Price and output decisions. (a) *Monopoly.* A profit-maximizing monopolist will take account of two phenomena in deciding how much to produce. On the revenue side, it knows that consumers ordinarily will not purchase more of its product except at a lower price and that they will purchase less at a higher price.[22] To sell another unit, the monopolist must

21. For a more extensive discussion, *see* N. Mankiw, *Principles of Economics*, chs. 14-17 (8th ed. 2018); A. Goolsbee, S. Levitt & C. Syverson, *Microeconomics*, chs. 8-11 (3d ed. 2020); P. Samuelson & W. Nordhaus, *Economics*, chs. 8-10, 16 (19th ed. 2010), or any other basic microeconomics text.

22. Economists use the term "elasticity" to describe consumers' responsiveness to price changes. When small percentage changes in price produce great percentage changes in volume, demand is said to be very elastic. When large percentage changes in price produce little change in volume, demand is said to be very inelastic. The demand curve facing the imperfectly competitive firm is not completely elastic; price increases do not eliminate all sales. This is explored further in ¶¶348c, 350, 352c.

reduce the price not only for that unit but for all other units sold; ordinarily, a seller cannot effectively discriminate among buyers to lower the price only for the last unit sold.[23] The necessity of reducing price to all buyers in order to expand sales means that the monopolist receives less incremental revenue from each successive sale. Thus, the extra (or "marginal") revenue it receives from producing an additional unit falls as it produces and sells more.[24] A similar phenomenon governs every producer's cost calculations. Typically, it cannot squeeze more output from its existing scale of plant and equipment in the short run without eventually incurring increasing incremental costs. Thus, in the short run, the marginal cost of an extra unit of output will eventually increase as output is increased.[25] Short of that point, marginal costs may remain roughly constant over a considerable output range.

The monopolist is thus concerned with its costs and revenues "at the margin." It will increase output as long as the marginal revenue exceeds the marginal cost.[26] At some point, its marginal cost will just equal its falling

23. *See* ¶293a.

24. Eventually, the revenue lost by lowering price on all units will exceed the revenue gained from selling an additional unit—that is, marginal revenue would be negative. The monopolist obviously will stop somewhere short of this point.

25. Although this is a common case, the price setting mechanism about to be described also applies when marginal costs are constant or even falling.

26. The following example illustrates the cost and revenue constraints facing a monopolist (presented graphically in note 28).

Q	*TC*	*AC*	*MC*	*P*	*TR*	*MR*	*π*
1	10	10.0	10	20	20	20	10
2	15	7.5	5	19	38	18	23
3	18	6.0	3	18	54	16	36
4	20	5.0	2	17	68	14	48
5	21	4.2	1	16	80	12	59
6	22	3.7	1	15	90	10	68
7	23	3.3	1	14	98	8	75
8	24	3.0	1	13	104	6	80
9	26	2.9	2	12	108	4	82
10	30	3.0	4	11	110	2	80
11	36	3.3	6	10	110	0	74
12	44	3.7	8	9	108	–2	64
13	54	4.2	10	8	104	–4	60
14	66	4.7	12	7	98	–6	32
15	80	5.3	14	6	90	–8	10

Q: quantity produced and sold.
TC: total cost.
AC: average cost = TC/Q.
MC: marginal cost (change in TC resulting from an increase of 1 unit in Q).
P: price = TR/Q = average revenue.
TR: total revenue = P × Q.
MR: marginal revenue (change in TR resulting from an increase of 1 unit in Q).
π: profit = total revenue less total cost = TR - TC.

marginal revenue, which is where it will stop.[27] Beyond this point, incremental output would add less to revenue than to costs and thus would be unprofitable. The monopolist therefore maximizes profits by selling that output at which its marginal revenue just matches its marginal cost. The monopolist, of course, is free to produce less than this and, accordingly, to charge higher prices, but doing so will forgo sales that would have yielded more revenue than the cost incurred and thus forgo extra profit.

(b) *Perfect competition compared.* Paragraph 106 indicated that perfect competition assumes that no one competitor's actions have a perceptible impact on the market price. The perfect competitor's output is so small relative to total demand that its output variations cannot affect market price; its marginal revenue from additional output, therefore, will simply equal the market price. Accordingly, it takes price as given in deciding how much to produce. It has no reason to charge less, and charging more will drive all its customers to competitors.

Because its marginal revenue is the market price, the perfect competitor adds to its profits by increasing its output until the marginal cost of producing the last unit just equals the market price at which it can sell all its output. Additional output would earn less than it cost and would therefore be unprofitable. Like a monopolist, the perfect competitor equates marginal cost with marginal revenue, but the practical results are quite different. Unlike a perfect competitor whose individual output is too small to affect price, a monopolist affects price and can sell more only by reducing price. Accordingly, the monopolist's marginal revenue is always less than price. It follows that any given level of marginal costs will bump against the profitable ceiling of marginal revenue sooner—that is, at smaller levels of output—for a monopolist than for perfect competitors.[28] (Of course, if the many small producers banded together and made their output decisions collectively, the cartel would view marginal revenue in the same way as a monopolist.) This means that output will be less in the monopoly case and that the monopolist will command a correspondingly higher price.

27. Of course, neither the monopolist nor the perfect competitor will produce at all unless revenues cover all variable (out-of-pocket) costs. (Marginal costs will be lower than average variable costs when the latter are declining.) Variable costs are costs that vary with output, unlike the fixed costs that the firm bears whether it produces a lot, a little, or even nothing at all. Variable costs plus fixed costs equal total costs. (When total costs exceed total revenues, a firm would nevertheless minimize its losses by continuing to operate as long as it recovers its variable costs.)

28. The discussion to this point can be summarized graphically. In Figure 1, D is the monopolist's demand curve. For each quantity of output, it indicates the highest price at which it can sell all of its output. The monopolist's marginal revenue curve (MR) and its average (AC) and marginal cost (MC) curves are also shown. All the curves are based on the table in note 26. The monopolist will produce where $MC = MR$, at $Q_m = 9.5$. At this point, its price is indicated by the demand curve as $P_m = 11.5$. (Note: The revenue and cost curves are independent of each other. It is fortuitous that MR intersects MC close to the minimum point of the AC curve in this diagram.)

If the monopolist were broken up into 100 identical competing firms, this demand curve would not change. Consumers are assumed to be indifferent to the number of producers of a given good. If there were no economies of scale in production, the industry cost curves would not change either. One hundred firms would produce Q_m at the same unit cost as the monopolist. Accordingly, the monopolist's demand curve is the competitive industry's demand curve, and the monopolist's marginal cost curve is the competitive industry's supply curve. The competitive industry will always produce where its demand curve crosses its marginal cost curve, here at $Q_c = 12.25$ and $P_c = 8.75$.

For efficient allocation, the monopolist should produce more until marginal cost equals price. The perfect competitor produces at this point of equality between marginal cost and price. It throws all of its resources into production until its incremental costs rise to meet the market price. The monopolist, in contrast, contrives a scarcity of its product. It "withholds" some output from consumers to raise its price and thereby maximize its personal gain at the expense of society. It thus affects both the distribution of income and the efficiency of the economy, as discussed in ¶¶113, 117a. Before that discussion, we preview Chapter 2C with a brief word about oligopoly.

(c) *Oligopoly*. The term "oligopoly" describes a market populated by a small number of producers. Behavior and performance in an oligopolistic industry fall between that of monopoly and perfect competition.[29] Some firms in an oligopolistic industry may be sufficiently large as to be able to profitably restrict output and increase price on their own, much as a single-firm monopolist does.

Each individual firm in the industry will take this competitive market price as given. Its demand curve will thus be completely elastic—a horizontal line at $P_c = 8.75$, represented by $D'D'$ in Figure 2. By our assumption of no economies of scale in production, each firm will incur the same costs as the monopolist at one hundredth the output level, hence the *MC* and AC curves of Figure 2. The individual competitive firm will produce where $P_c = MC$, at $Q'_c = 0.1225$.

Observe that P_c is greater than *AC* at Q'_c. Suppose that *AC* here includes the profits this firm would earn in a competitive equilibrium. These profits represent the return necessary to induce investment in a competitive industry. Here, however, the firm earns an excess return. These surplus profits mean that the industry is not in a long-run competitive equilibrium. Producers have not completely adjusted to a shift in consumer tastes, for example. Further adjustment will occur as long as firms in the industry earn surplus profits. New firms will enter the industry, shifting the industry supply curve of Figure 1 (the monopolist's *MC* curve) to the right. The individual firm's demand curve, $D'D'$ of Figure 2, will also shift downward. The new entrants compete with the firms already in the industry to satisfy an unchanged consumer demand. Each firm's share of the total drops, and so its demand curve falls. Thus, the effect of firms entering an industry is to shift the industry supply curve to the right and to push each firm's demand curve downward. Both changes reduce the prevailing market price P_c and individual firm surplus profits, the excess of $P_c \times Q'_c$ over $AC \times Q'_c$. New entry will cease when individual firm surplus profits are driven to zero. When this equilibrium is reached, each firm's demand curve will cross its *MC* and *AC* curves at their point of intersection. If this process were to overshoot the equilibrium (or, alternatively, if one started in the opposite situation), firms would suffer losses, inducing exit until equilibrium was restored.

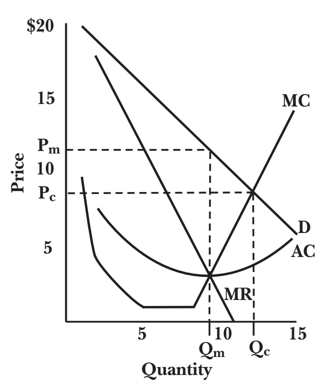

Figure 1

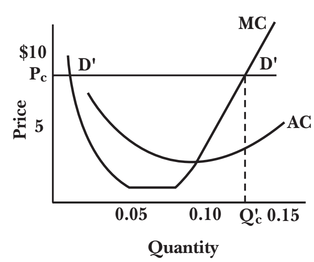

Figure 2

29. Economists use the term "competition" in a sense that differs in some respects from the usage of business competitors. Competition in the business world is a conscious striving

Moreover, economic results could depend on firms' aggregate behavior. When the number of firms is small, each will be conscious of the others' actions and will take them into account in determining its own behavior. The strength of this "interdependence," rather than the exact size of each firm or the total number, is the critical determinant of such oligopolistic behavior. Each oligopolist is acutely aware that it may reap large gains if it can initiate a profitable move that its competitors cannot match, at least for a time. But every oligopolist also knows that most of its profitable moves will be matched quickly and that most of its disastrous projects will be completed without companionship. While a perfect competitor would expand output without concern about its impact on rivals, an oligopolist knows that it is large enough to affect market price and that its output expansion and price reduction would probably invite imitation by its rivals. Thus, if price is somehow above the competitive level, it may remain there in an oligopoly. Similarly, an oligopolistic price leader among them may raise prices toward the monopoly level with the expectation that rivals will follow because they will know that the leader will retract an unfollowed price increase. By contrast, where there are many firms in the market, some of them are likely to defect from supracompetitive prices, hoping that rivals will not notice or react, or in any event hoping to profit from increased sales in the interim. Here, as with many other endeavors, cooperation and joint action are often more feasible when numbers are smaller.[30]

Oligopoly is a central antitrust problem. Many proscriptions are intended to prevent markets from becoming oligopolistic in the first place or to obstruct the ability of oligopolists to coordinate their behavior.

113. Allocative efficiency. If a perfectly competitive industry were monopolized, the amount produced would shrink and the price at which it was offered for sale would rise. Monopoly pricing might result, for example, from government grants of exclusive privilege or from a cartel agreement among competitors. Both situations have produced startling price increases. A cartel of oil producing countries raised oil prices nearly 1,000 percent from 1970 to 1981.[31] An international quinine cartel formed in the early 1960s raised the price of quinine on the world market nearly six-fold. Classic cartels and single-firm monopolies are uncommon; more numerous are industries dominated by oligopolists, who also tend to raise prices.[32]

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for profits, typically at the expense of a limited number of readily identifiable rivals. This jockeying for mutually incompatible positions may take the form of lowering production costs. Very often it appears as changes in product design or advertising. Such rivalry is the dominant mode of behavior in oligopolies in consumer products. Firms in an industry populated by a few sellers accordingly will often describe their market conditions as wearingly competitive. The economist, however, would reserve the term for industries approaching the conditions described in ¶106, where firms pay little heed to their fellow producers. Their only goal is to produce as cheaply as possible and select the appropriate output, given price. This section and others like it later in the book speak of competition in the economist's sense, unless the context indicates otherwise.

30. For a more complete description of informal coordination among oligopolists, *see* ¶¶231-233.

31. *See* ¶156e.

32. *See* ¶235.

These excessive prices upset the efficiency of the economy. When the price of a good exceeds its marginal cost, it will be denied to those consumers who are willing and able to pay its real cost of production but not as much as the price being charged. For example, when production costs (including a competitive return on investment) are $100 per unit and the monopoly or cartel price is $150, customers valuing the product at $125 would be dissuaded from purchasing the product, which would have been sold to them under perfect competition at $100. Instead they spend their funds elsewhere, and thus induce increased production of other commodities—commodities that such consumers would not want under competitive pricing conditions. Imperfect competition thus diverts productive energies to less-valued undertakings, preventing the economy from efficiently catering to consumer tastes.[33]

114. Barriers to entry. The market power of imperfect competitors to restrict output, raise prices, and earn monopoly profits may not be permanent. Other firms may penetrate their markets, wrest sales away from them, and force more competitive performance. Whether encroaching firms can do this depends on the height of barriers to entry. Before considering particular barriers and their significance, a number of points concerning the concept should be noted.

First, barriers are not an all-or-nothing phenomenon. Barriers that bar some firms may not bar others. Many barriers may be overcome if profits greatly exceed the competitive level but not if the monopoly overcharge is more modest. And barriers often slow entry rather than make it impossible. Even so, entry may be insufficient to prevent some degree of supracompetitive pricing for some period of time.

Second, the height of entry barriers depends not merely on objective factors but also on the anticipated reactions of incumbent firms. Thus, modest excess profits may induce entry where prospective entrants expect such profits to continue after entry, while larger profits would not do so where entrants expect intense price competition to result from their entry, thereby leaving insufficient profits to recover their investment.

Third, entry barriers may obstruct not only the entry of new firms, but also the expansion of smaller incumbents. For example, when challenging Coke and Pepsi, a regional soft drink producer might face barriers similar to those facing a new entrant.[34]

Barriers to entry arise from four main sources:

(1) *Blocked access*: Established firms might control the supply of essential raw materials, necessary patents, distribution channels, or other strategic factors and thus make new entry either impossible or impractical because of a relative cost disadvantage. And in some industries, regulation limits entry.

(2) *Scale economies*: The minimum size of an efficient firm may be so large with respect to total consumer demand that entry at an efficient scale would depress prices so severely as to be unprofitable.

33. It is difficult to assess quantitatively the importance of this inefficiency. Scherer & Ross, note 6, at 661-667, survey the literature and conclude that the welfare loss due to monopolistic resource misallocation is between 0.5 and 2 percent of gross national product. They also discuss, but do not quantify, other inefficiencies. *See id.* at 667-679.

34. R. Caves & M. Porter, *From Entry Barriers to Mobility Barriers*, 91 Q.J. Econ. 241 (1977).

(3) *Capital requirements*: Efficient entry might require the construction of so large a plant, the entry into so many related fields, the expense of such prolonged start-up costs, and the prospect of such slow acceptance by customers that a vast initial outlay of capital would be needed. Capital requirements would not necessarily impede entry whenever suppliers of capital share the entrepreneur's vision of the likelihood of success. But the likelihood of obtaining the needed capital at costs comparable to those of established producers may diminish with increases in the volume of capital necessary to support efficient entry.

(4) *Product differentiation*: Established producers of consumer goods will often enjoy the benefit of accumulated goodwill. The new entrant will often have to bear a higher promotional cost or suffer a lower selling price than do existing firms, to counteract their consumer loyalty. It has been suggested that such entrenched goodwill should not be considered an entry barrier any more than existing plants. In both cases, the newcomer must simply do for itself what the established firms have already done for themselves. Nevertheless, brand loyalty must be overcome, and the necessity of overcoming it makes entry more risky and costly—and thus less likely—than it would otherwise be.[35]

The possibility that product differentiation may be an important barrier to entry has been elaborated by Professor Sutton.[36] His argument begins with the intuition that advertising, by creating product differentiation and brand image, can effectively raise the price that consumers are willing to pay for a firm's product. He further observes that although per-customer advertising (e.g., door-to-door sales, in-store sales assistance) is usually analyzed as a variable cost, rising as firm output rises, advertising in the mass media may be analyzed as a separate fixed cost, substantially independent of output or sales. (For example, the cost of a television ad does not depend on sales, and there are also economies of scale in producing such ads in that the cost of creation need only be incurred once, regardless of how many times an ad is used.) Thus, larger industries and industries in which advertising is particularly influential should tend to be more concentrated. This may explain why specific industries in different countries often tend to have similar levels of concentration. Moreover, industries characterized by such advertising-induced product differentiation may tend to remain concentrated even in the long run.

When barriers to entry are extremely low, established firms must set prices near competitive levels. In the absence of governmental obstacles, for example, the sole trucking firm operating between two points could probably not charge freight rates above competitive levels without leading shippers to seek service from other truck owners, who could quickly shift their extremely mobile resources to serve those shippers. Although entry is seldom this easy, there are many situations in which the barriers to entry are sufficiently modest to be of little practical significance. When barriers to entry are relatively high, but still surmountable, established firms have a choice. They might set

35. Product differentiation might sometimes facilitate entry by an established firm with a respected name that can be transferred to a new product or market.

36. J. Sutton, *Sunk Costs and Market Structure: Price Competition, Advertising, and the Evolution of Concentration* (1991).

a price that maximizes their short-run profits but induces entry and lower long-run profits. Or they might sacrifice immediate profits by setting a so-called limit price that is above competitive levels but low enough to discourage future entry. Their profit rate is less attractive, and their output at the limit price may occupy so much of the market as to leave little for new entry at an efficient scale.[37] In any case, high entry barriers protect the exercise of market power over time. Low entry barriers, in contrast, circumscribe the exercise of market power.

Entry barriers are generally low in industries, such as construction and most service industries, where atomistic competition is the rule. Various analysts have found, as one might expect, that high barriers to entry are conducive to high concentration; that among highly concentrated industries, higher entry barriers produce higher profits; and that low concentration generally occurs with low barriers to entry and competitive rates of return on invested capital.

Potential competition, then, like actual competition, exerts a restraining effect on prices and profits. Its influence, controlled by the various barriers to entry, has made competition more workable than it would otherwise be and more than concentration ratios alone would suggest. But imperfect competition on an extensive scale obviously persists. Barriers to entry account for this staying power.

115. Cost minimization. The survival of the perfect competitor depends, in the long run, on its use of the lowest-cost production and distribution techniques. Otherwise, firms using these techniques will enter its market at a lower price, making its continued operation unprofitable. Monopolists or oligopolists also maximize profits by minimizing their costs at each output level; however limited their output, a dollar saved in costs is a dollar more in profit. But unlike the perfectly competitive firm, monopolists or oligopolists may be less quickly or fatally penalized when they fail to minimize costs because they have excessive profits to begin with. They may tolerate obsolete technology and swollen bureaucracy and prove resistant to change. An example is IBM, which dominated the mainframe computer industry in the 1980s. IBM's success left it "bloated with excess bureaucracy and cost" and ill prepared to handle the later shift to networked microcomputers.[38] To the extent that freedom from competition has permitted many companies to pursue the quiet life, wasteful excesses have been the result. Moreover, bloated costs usually mean that price will be even higher and output even lower than with a cost-minimizing monopolist.[39]

37. Scherer & Ross, note 6, at 353. The rationale of limit pricing may not be immediately apparent and does not hold in all contexts. For example, one might ask why a monopolist might not prefer to charge the monopoly price, waiting to lower its price until the new entrant actually appears. One theory is that a higher price and profit rate itself will attract entry. Another is that the current price is evidence of how incumbents will price in response to entry. If the price already allows only modest room for profit, entrants might speculate that there will be less profit after their arrival than if current prices were higher.

38. D.Q. Mills, *The Decline and Rise of IBM*, MIT Sloan Mgmt. Rev., Summer 1996.

39. The extent of such excess-cost operations is unclear. For a survey, *see* Scherer & Ross, note 6, at 668-672. In addition to inefficient operation, firms with some market power may compete in services rather than price and thus drive costs up. *See* ¶233e. Beyond this, the effort

116. Promotion and product differentiation. (a) *Product identification.* The perfectly competitive firm is an anonymous producer. Purchasers of its output have no incentive to trace the product to its source. By definition, the product is identical in price and grade to those of all of its numerous competitors, and consumers are fully informed of its qualities. In many actual markets, however, products are identified with particular producers. Strengthening this identification can be very important in the case of consumer goods, especially when there is a handful of sellers who avoid price competition. Such a seller prefers to persuade buyers that its product differs from rival products because then it may charge higher prices without losing all its customers to the competition. It will emphasize brand names, media advertising, elaborate packaging, and other consumer-directed marketing efforts. The amounts involved in these efforts are enormous. Approximately $240 billion went into U.S. advertising in 2019, including $120 billion on Internet ads, $67 billion on television, and $27 billion on newspapers and magazines.[40]

Some of this advertising is largely informational, providing consumers with information about new products, where products are for sale, and prices. Advertising also often attempts to associate various images with particular products or producers. Relatedly, promotional efforts may enable consumers regularly and easily to associate the quality of goods they buy with particular producers. In some cases, consumers seem willing to pay for these advantages; many heavily promoted goods command a substantial price premium over unpromoted but physically identical products.

But by the very fact that advertising does persuade, this behavior does not represent desires wholly original to the consumer. Advertising also encourages "demonstration effects"—products are bought because peers have recently purchased similar items. The implications are not altogether clear because individual taste formation is inevitably a social process. Nevertheless, some part of product differentiation merely exploits consumer ignorance. Moreover, advertising may raise product differentiation barriers to entry. Finally, there is considerable theoretical and some empirical evidence that many oligopolists advertise more extensively than would be useful for the industry viewed collectively.[41] And their expenditures need not substantially affect the market share each would have obtained had none advertised. Much promotional expense is probably a waste of resources.

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to gain market power may itself induce higher costs for the actor, its rivals, and government institutions—such as the costs of lobbying, patenting, and antitrust litigation. *See* R. Posner, *The Social Costs of Monopoly and Regulation*, 83 J. Pol. Econ. 807 (1975); F.M. Scherer, Book Review, *The Posnerian Harvest: Separating Wheat from Chaff*, 86 Yale L.J. 974, 978-979 (1977).

40. Ad Age, Marketing Fact Pack 2020.

41. *See* K. Bagwell, The Economic Analysis of Advertising, in 3 *Handbook of Industrial Organization* (M. Armstrong & R. Porter eds., 2007). There are plausible incentives for this collectively irrational behavior. If advertising is relevant to sales, the individual oligopolist gains a significant advantage by advertising heavily when its rivals do not. When its rivals are advertising heavily, it must do the same to protect its relative position. Thus, the individual oligopolist will find it advantageous to advertise regardless of what its rivals do. Barring collusion among them, each will do the same, even if abandonment of advertising by all would

(b) *Product differentiation.* The oligopolist strengthens the consumer identification of its product by differentiating it slightly from that of its rivals. It may vary design, serviceability, terms of sale, or outlet location. By thus appealing to distinctive tastes, each seller attracts a more or less loyal band of buyers for its product. In effect, product differentiation enables a seller to decrease the elasticity of its demand curve and appropriate monopolistic gains for itself.[42]

One cost of product differentiation, then, is the bit of monopoly power it engenders. Because potential monopoly profits await successful product differentiation or those able to overcome the differentiation of competitors, additional costs are incurred. In addition, firms may be forced to produce at inefficiently small scales to satisfy their small but loyal clienteles. Thus, product changes are themselves expensive,[43] and differentiation may be the source of substantial barriers to entry.[44] But consumers genuinely enjoy a variety and diversity of products. In general, markets may produce too much or too little product variety, depending on subtle characteristics of consumer demand.[45]

117. Other values of competition. (a) *Income distribution.* In the long run, the perfect competitor will earn no profits above the return necessary to keep its productive resources employed. In the short run, it may temporarily earn profits in excess of that amount or it may earn less, but such differences will last only until existing firms expand or until new firms enter the market in response to high profits or contract and exit when profits are low.[46] The profit-maximizing monopolist will usually earn more profits

make them better off than continued advertising by all. Oligopolistic pricing presents a similar dilemma, but it is more easily resolved. *See* ¶233e.

42. The essence of perfect competition is that all sellers face perfectly elastic (flat) demand curves. Recall note 28. The standard economic measure of the market power of an imperfect competitor is the extent to which its demand curve departs from perfect elasticity. *See* ¶¶348c, 350a, 352c. The less elastic it is, the less a price increase will diminish sales, and the more monopoly profit it can appropriate. Of course, it has been argued that a willingness to pay the resulting price demonstrates consumer satisfaction with both the costs and the results of advertising; but willingness may also reflect ignorance that is exploited rather than remedied.

43. For example, automobile style changes between 1956 and 1960 cost an estimated $584 per car sold. *See* F. Fisher, Z. Griliches & C. Kaysen, *The Costs of Automobile Model Changes Since 1949*, 70 J. Pol. Econ. 433 (1962).

44. *See* W. Comanor & T. Wilson, *Advertising and Market Power* (1974); Y. Brozen, Entry Barriers, Advertising and Product Differentiation, in *Industrial Concentration: The New Learning* (H. Goldschmid, H. Mann & J. Weston eds., 1974); H. Mann, Advertising, Concentration, and Profitability: The State of Knowledge and Directions for Public Policy, in *id.*; Scherer & Ross, note 6, ch. 16.

45. *See, e.g.*, K. Lancaster, *Socially Optimal Product Differentiation and Market Structure*, 65 Am. Econ. Rev. 580 (1975); A.M. Spence, *Product Differentiation and Welfare*, 66 Am. Econ. Rev. 407 (1976); A.M. Spence, *Product Selection, Fixed Costs, and Monopolistic Competition*, 43 Rev. Econ. Stud. 217 (1976).

46. These temporary profits and losses are themselves valuable in the competitive system as incentives for resource shifts in response to changing tastes, technologies, and scarcities. *See* ¶108 and note 28. It should be realized, moreover, that economic profits are imperfectly measured by conventional accounting. Accordingly, statistical studies relating accounting or