The background of the cover is a photograph of a modern university building with a courtyard. The building is a multi-story structure with a light-colored facade and large windows. In the foreground, there is a paved courtyard with several concrete benches and young trees, some of which are in bloom with pink flowers. The sky is clear and blue.

KRANNERT SCHOOL OF MANAGEMENT

Purdue University
West Lafayette, Indiana

Dispersion of Power as an Economic Goal of
Antitrust Policy

By

Stephen Martin

Paper No. 1285
Date: December 2016

Institute for Research in the
Behavioral, Economic, and
Management Sciences

Dispersion of Power as an Economic Goal of Antitrust Policy*

Stephen Martin
Purdue University

December 2016

Abstract

I survey the range of objectives ascribed to U.S. antitrust policy from its formative period through the early 1970s. I then discuss and reject Robert Bork's analysis of the legislative intent behind the Sherman Act, and consider the Kaldor-Hicks potential Pareto improvement principle, a central element of Bork's argument that the only admissible goal for antitrust policy is the maximization of net social welfare. An elementary model shows that social preferences about aspects of market performance not captured by consumer surplus or net social welfare can be included in standard economic models. I further argue that the role of economics as a science in analyzing market performance is limited to characterizing the costs and benefits of pursuing alternative policy objectives, and that economics as a science is agnostic concerning what policy goals should be.

JEL categories: L40, K21.

Keywords: antitrust policy objectives, market failure, power dispersion

Dispersion20160513.tex.

*I thank the University of Bologna for its hospitality during the sabbatical visit when this paper was written. I am grateful for comments received during seminar presentations at the University of Bologna, at the 14th annual meeting of the Italian Association for the History of Economic Thought, "Power in the History of Economic Thought," at the University of Salento, at the Centre for Competition Policy, University of East Anglia, from Nicola Giocoli and Herbert Hovenkamp. Responsibility for errors is my own.

Contents

1	Introduction	4
2	Related Literature	7
3	The Formative Era	8
3.1	Economic Changes	8
3.2	The Progressive Movement	10
4	From Adoption to Mid-Century	12
4.1	Promote Fairness of Market Processes	13
4.2	Maintain Competition	14
4.3	Prohibit Unreasonable Restraint of Trade	15
4.4	Prohibit All Restraints on Trade	16
4.5	Promote Dispersal of Power	16
4.6	Monopolization	17
4.6.1	<i>Corn Products Refining</i>	17
4.6.2	<i>Alcoa</i>	18
4.7	Résumé	20
5	Celler-Kefauver	20
6	Bork on Legislative Intent	22
7	Kaldor, Hicks, and Potential Pareto Improvements	26
8	Missing Markets and the Goals of Antitrust	30
8.1	Demand	31
8.1.1	No preferences about market structure	31
8.1.2	Preferences about market structure	31
8.2	Supply and Cournot Equilibrium	32
8.3	Minimum Number of Firms	33
8.4	Welfare	34
8.4.1	Preferences independent of market structure	35
8.4.2	Preferences dependent on market structure	35
9	Conclusion	36

10 Appendix: alternative specifications of preferences about market structure	38
10.1 First alternative	38
10.2 Second alternative	39
11 References	40
12 Cases	45

1 Introduction

The Sherman Antitrust Act was became part of U.S. law in 1890. It remains the basis of U.S. antitrust policy, and has influenced the development of competition policies around the world.

During the twenty years before passage of the Sherman Act, there was broad public debate in the United States about the rise of large business and the appropriate policy reaction to that rise. A wide range of views were expressed, and this range of views was reflected during Senate debate.

At first, the new law was ineffective, and public discussion of the trust issue continued as before. In 1914 the United States adopted two additional pieces of antitrust legislation, the Clayton Antitrust Act and the Federal Trade Commission Act, to complement the Sherman Act.

By the mid-1940s, a mainstream consensus had emerged that U.S. antitrust policy aimed to pursue both economic and social goals. Economic goals included competitive market performance, high rates of innovation, and productivity growth. Social goals included the dispersion of economic and other kinds of power and fairness in market processes. It was thought that these goals were mutually consistent, and that policies adopted to promote one of them would promote the others as well.

In its formative phase, U.S. antitrust pursued these goals by promoting competition. Section 1 of the Sherman Act promoted competition among active firms by prohibiting agreements not to compete. Section 2 of the Sherman Act promoted potential competition by prohibiting monopolization, which today an economist would describe as the erection of strategic barriers to entry to achieve or maintain monopoly¹ power. The antitrust laws did not object to monopoly that resulted from competition on the merits.² The antitrust laws set the ground rules for competitive behavior, and were prepared to accept the results, including the results for market structure, as long as rules for competitive behavior were adhered to.

¹Here and throughout the paper I use the word “monopoly” in the antitrust sense of having the power “to raise price and exclude competition” (*American Tobacco Co. et al. v. U.S.* 328 U.S. 781 (1946), at 811), not in the economic sense of “a single firm supplying a market into which entry is costly (limited monopoly) or impossible (complete monopoly).”

²For present purposes, we can define “competition on the merits” as profitable firm conduct that does not involve agreements with other firms (so it does not violate Section 1 of the Sherman Act), and does not depend for its profitability on denying actual or potential rivals the opportunity to compete (so it does not violate Section 2 of the Sherman Act).

The original Section 7 of the Clayton Act prohibited mergers carried out by acquisition of shares of stock, “where in any line of commerce . . . the effect of such acquisition may be substantially to lessen competition, or to tend to create a monopoly.” The legislation was aimed at “the development of holding companies and at the secret acquisition of competitors through the purchase of all or parts of such competitors’ stock.”³ The Congress that passed the Clayton Act in 1914 deliberately did not extend Section 7 to mergers carried out by acquisition of the assets of one company by another company. Such mergers would be public knowledge. As long as the fact of a merger was known, if it created profit opportunities for existing or potential rivals, competition from those rivals would get the best market performance possible. This passive publicity approach avoided any direct government control of market structure.

In 1950, the Celler-Kefauver amendment to Section 7 of the Clayton Act abandoned the passive approach and prohibited mergers carried out by asset acquisition, where “the effect of such acquisition may be substantially to lessen competition.” The extension of the coverage of Section 7 to asset acquisitions and the requirement to assess the future impact of a merger on competition made economics as a science⁴ central to the application of merger policy. With time the role of enhanced role of economics spread to other areas of antitrust.

In the interwar period, University of Chicago economists, like economists generally, supported antitrust policy as a bulwark against regulation. The 1950 transition from passive to active merger policy accelerated a change, underway since the late 1940s, in the views of Chicago economists toward antitrust policy. From the mid-1950s onward, lawyers and economists working in the Chicago tradition were harshly critical of received antitrust policy.

One element of this criticism was Robert Bork’s rereading and reinterpretation of congressional intent toward the Sherman Act. Bork’s conclusion (1966, p. 11) was that “since the legislative history of the Sherman Act shows consumer welfare to be the decisive value it should be treated by a court as the only value.” It is now understood that when Bork wrote of “consumer welfare,” what he meant was what economists call net social welfare, the sum

³Brown Shoe Co. v. U.S. 370 U.S. 294 (1962) at 313.

⁴Following Robbins (1981, p. 2): “[Economics] conforms fundamentally to our conception of science in general: that is to say the formation of hypotheses explaining and (possibly) predicting the outcome of the relationships concerned and the testing of such hypotheses by logic and by observation.”

of consumer surplus and producer surplus.

Bork's analysis of congressional intent is associated with the rise of the so-called "economic approach" to antitrust, which holds that antitrust policy should concern itself with and only with practices that reduce welfare in one or the other of the two meanings given to the term consumer welfare, and that other alleged purposes of antitrust policy are ruled out, on the ground that they are not "economic."⁵

But if aggregate welfare depends on market outcomes for which there are no markets, then an antitrust policy that maximizes consumer surplus or minimizes deadweight welfare loss is inefficient *in an economic sense*, because it ignores the economic consequences of missing markets. I show that social preferences about aspects of market performance not captured by consumer welfare or net social welfare can be included in standard economic models. I will use preferences about market structure as an example, but the point is general, and applies (for example) to preferences about net neutrality, about political contributions by businesses, about genetically modified organisms, about carbon emissions, and externalities resulting from market activities markets.

I further argue that the role of economics as a science in analyzing market performance is limited to characterizing the costs and benefits of pursuing alternative policy objectives, and that economics as a science is agnostic concerning what policy goals should be.

The paper is organized as follows. In Section 2 I discuss three papers in the vast literature on this topic that are most closely related to this one. Section 3 surveys the period from immediately before adoption of the Sherman Act through 1914. Section 4 discusses the range of objectives ascribed to antitrust policy through roughly the end of World War II. Section 5 covers the passage of the Celler-Kefauver amendment to Section 7 of the Clayton Act. Section 6 examines Robert Bork's analysis of the legislative intent behind the Sherman Act. Section 7 reviews the economic literature on a central element of Bork's argument, the Kaldor-Hicks potential Pareto improvement principle. Section 8 takes up the robustness of Bork's claim that the only admissible economic goal of antitrust policy is the maximization of what he called consumer welfare, in the case that markets are incomplete. Section 9

⁵"Economic approach" is a misnomer. Hovenkamp (1985, p. 218) notes that U.S. antitrust policy from the 1950s to the mid-1970s was fully informed by contemporary mainstream economics.

concludes.

2 Related Literature

As will be apparent, this paper is related to a large body of work by legal and economic scholars. References to parts of that literature are given at appropriate points throughout the paper. Here I mention three papers that make contributions particularly related to the conclusions I draw.

Adams et. al. (1991) examine the efficiency of equilibrium outcomes in a two-good general equilibrium framework. If both sectors are perfectly competitive, the equilibrium outcome is Pareto optimal, and efficient in the Pareto sense.⁶ Pareto optimality fails if one or both markets is imperfectly competitive or in the presence of joint production by a firm with market power. Whether or not a merger that supports market power improves welfare depends on whether gains in production efficiency, if any, outweigh reductions in consumer welfare.⁷ They also make the point that a firm with market power may profitably choose not to produce some products that consumers would pay for, if they were available at competitive prices. This is a missing-market issue of the kind I take up in Section 8.

Brock and Obst (2009) incorporate preferences about market concentration in a general equilibrium model. I incorporate preferences about market concentration in a partial-equilibrium model (Section 8). A partial equilibrium version of their result (2009, p. 71) that a full welfare optimum requires equality between the marginal loss of utility due to reduced output and the marginal gain of utility from decreased concentration holds in my model as well.

Hovenkamp (1982) examines the argument that antitrust policy should have the maximization of efficiency as its unique goal, using three alternative efficiency standards (maximization of consumer welfare, Pareto optimality, and wealth maximization). His conclusion (1982, p. 30) that “Antitrust policy must come to grips with the fact that people may sometimes be willing

⁶As Arrow (1969, fn. 1) explains, “An allocation of resources through the workings of the economic system is said to be Pareto efficient if there is no other allocation which would make every individual in the economy better off.” He later remarks that (1969, pp. 49-50) “Of course, as Pareto already emphasized, the proposition provides no basis for accepting the results of the market in the absence of accepted levels of income equality.

⁷Williamson (1968) famously makes this point in a partial-equilibrium framework.

to pay higher consumer prices to realize certain values, and that these values cannot always be determined in the voluntary market” is an implication of the missing markets model I develop in Section 8. His view (1982, pp. 28-29) that economics can inform the law by determining the costs of alternative policies is much the same as the position I take in Section 9.

3 The Formative Era

3.1 Economic Changes

The United States’ economy was fundamentally transformed over the 25 years following the end of the American Civil War. Railroads, themselves the first firms to operate at national scale (Chandler, 1965), spanned the continent and made possible a single national market. In sectors of the economy that involved economies of large-scale production, markets came to be dominated by large firms that achieved low unit cost and used railroad transportation to supply vast geographic areas.⁸ Farmers, small firms that found themselves competing with large firms, and employees of railroads and large firms all took exception to the changes that followed.

Agricultural regions depended heavily on railroads, which were often local monopolists or duopolists, to ship grain and livestock to industrial food processors. Railroad rates were high in local monopoly markets, low in local oligopoly markets. Railroad collusion during economic downturns, imperfect though it may have been (Ellison, 1994), was bitterly resented by farmers. Farmers were hostile to railroad rate discrimination and supported state legislation to regulate railroad rates (Farmer, 1924; Miller, 1954).

Local businesses similarly resented competition from distant, lower-cost large-scale firms that could profitably undersell them in their home markets.⁹ They lobbied state governments for protection against out-of-state rivals, sometimes with success (Hollander, 1964; McCurdy, 1978). Had such laws not been invalidated by the U.S. Supreme Court, under the Commerce

⁸Chandler (1977) emphasizes three factors that combined to support enduring positions of market leadership by large firms: economies of continuous operation, as in distilling, flour milling, oil refining, sugar, and steel, backward and forward vertical integration, and effective management. See also Lamoreaux (1985).

⁹Thus farmers were aggrieved over their position as buyers in imperfectly competitive transportation markets, while local businesses were aggrieved by their position as suppliers in the larger and more competitive geographic product markets that railroads permitted.

Clause of the U.S. constitution, there would have been no national United States' economy, but rather a crazy-quilt of state markets. Local businesses that faced competition from large firms remained unhappy after protective legislation was struck down.

In industries supplied by large firms, workers found themselves on the supply side of monopsonistic markets for labor services. The post-Civil War period saw the rise of organized labor in the United States, a rise sometimes marked by civil unrest.

Thus the creation of a national U.S. market brought forth interest groups — agriculture, small business, and organized labor — that criticized “the trusts”. Segments of the general public looked askance at the development of private firms that were larger, in terms of employees or income, than some state governments. When state antitrust legislation proved ineffective, aggrieved parties turned to the national government for relief.

The topic of the rise of large business was never far from the public eye. Economists, political scientists, sociologists,¹⁰ lawyers, businessmen,¹¹ and reformers all contributed to the ongoing public dialogue about the rise of trusts and the widespread disruption of familiar economic structures that it engendered.¹² Discontent with the ramifications of large firms was widespread.¹³

All who recall the condition of the country in 1890 will remember that there was everywhere, among the people generally, a deep feeling of unrest. The Nation had been rid of human slavery — fortunately, as all now feel — but the conviction was universal that the country was in real danger from another kind of slavery sought to be fastened on the American people, namely, the slavery that would result from aggregations of capital in the hands of a few individuals and corporations controlling, for their own profit and advantage exclusively, the entire business of the country, including the production and sale of the necessaries of life.

¹⁰The boundaries between these disciplines were less distinct than is now the case.

¹¹On business sector intervention in this broad public debate, see Destler (1953).

¹²See U.S. Library of Congress (1907) for a bibliography of publications on the trust issue. See <http://www.krannert.purdue.edu/faculty/smartin/links/linkatlit.htm> for links to a sampling of this literature.

¹³Justice Harlan (*Standard Oil v. U.S.* 221 U.S. 1 (1911), at 83-84; concurring in part and dissenting in part).

Such a danger was thought to be then imminent, and all felt that it must be met firmly and by such statutory regulations as would adequately protect the people against oppression and wrong.

By no means can it be said that U.S. antitrust, in its formative period, pursued narrowly-defined economic goals.

3.2 The Progressive Movement

Enforcement of the Sherman Act ramped up slowly, and was hobbled by restrictive court interpretations.¹⁴ The national debate on trusts and their consequences went on, unabated.

Economists were active in this debate both before and after passage of the Sherman Act. They were not enthusiastic about *laissez-faire*. Nor were they enthusiastic about the prospect of widespread government intervention in the economy, preferring to rely on competition for industries of decreasing or constant returns to scale, and inclined toward what would now be called public utility regulation for industries of increasing returns to scale.¹⁵

A recurring element in the debate about trusts was the speed of entry. If the response to incumbents' economic profits was swift, large-scale entry, incumbent firms would not be able to exercise market power, and no an-

¹⁴Regarding Section 1, the appeal against the 1898 Circuit Court of Appeals decision in *Addyston Pipe & Steel*, origin of the *per se* rule, reached the Supreme Court in 1899, nine years after passage of the Sherman Act. As for Section 2, the 1895 *Sugar Trust* decision (U.S. v. E.C. Knight 156 U.S. 1; see McCurdy, 1979) relied on an existing distinction in the law between manufacture and commerce to conclude that the Sherman Act applied to interstate commerce but not to economic activity (manufacturing) that took place wholly within a state. Until this decision was overturned by the 1904 *Northern Securities* decision, Section 2 was regarded as having been judicially neutralized.

¹⁵The classification of industries according to the nature of returns to scale is due to Adams (1887, p. 55), and emerged during the national debate over trusts. (Williams (1990, pp. 94-96) notes that Adams elaborated on John Stuart Mill's concept of natural monopoly.) Letwin (1956, p. 239, footnotes omitted), quoting Adams (1887), writes "Adams maintained that the only question of policy was whether an industry of increasing returns should become an 'irresponsible, extra-legal monopoly, or a monopoly established by law and managed in the interest of the public.' The public interest could be protected only by government intervention, but he was not sure which particular method would be most effective, whether the work should be done 'through carefully guarded franchises, through official commissions, through competition of the state with private industries, or through direct government management.'"

titrust policy would be needed.¹⁶ John Bates Clark, one of the founders of the American Economic Association, came to view predatory price discrimination and restrictive manufacturer-distributor contracts as entry-detering strategies that could allow incumbent firms to exercise persistent monopoly power.¹⁷ Clark was one of four members of a public service committee that prepared a first draft of the 1914 Clayton Act.

Section 2 of the Clayton Act prohibited price discrimination, and Section 3 prohibited restrictive manufacturer-distributor contracts (in both cases, where the effect may be substantially to lessen competition or tend to create a monopoly). Both provisions followed Clark's views.

The provisions of the Clayton Act are highly specific. The Federal Trade Commission Act is general: it establishes the Federal Trade Commission as an independent agency within the executive branch, and it is operative provision, Section 5, prohibits unfair methods of competition.

The Sherman Act, the Clayton Act, and the Federal Trade Commission Act are the pillars upon which the superstructure of U.S. antitrust rests. There have been amendments to these "big three" laws, one of which discussed below, and specialized supplementary legislation. Some legislation exempts specific sectors (agricultural cooperatives, insurance) from the coverage of antitrust.¹⁸ Regulatory legislation sometimes assigns responsibility for matters usually thought of as falling in the antitrust sphere to regulatory commissions (such as the Federal Communications Commission). The Webb-Pomerene Act of 1918 and the Export Trading Act of 1982 allow firms to form joint-sales agencies — that is, to collude — for sales on foreign markets, provided there are no repercussions for competition on the U.S. market.

For present purposes, namely examination of the range of goals ascribed to the antitrust laws, the Robinson-Patman Act of 1936 must be mentioned. It amended the Section 2 Clayton Act prohibition against price discrimination with the aim of protecting small grocery stores from the competition

¹⁶C. F. Adams (1897); Giddings (1897); Gunton (1888). Seventy-five years later, rapid entry was the economic mechanism underlying the theory of contestable markets.

¹⁷Clark (1900a, p. 407, two paragraphs in the original): "[I]t is potential competition that is the power that holds trusts in check. The competition that is now latent, but is ready to spring into activity if very high prices are exacted, is even now efficient in preventing high prices. It is to be the permanent policy of wise and successful peoples to utilize this natural economic force for all that it is worth. At present it is not an adequate regulator. The potential competitor encounters unnecessary obstacles when he tries to become an active competitor."

¹⁸Tradition, idiosyncratically, exempts organized baseball from antitrust rules.

of national chains. The legislation was drafted by a lawyer for the United States Wholesale Grocers' Association (Kintner, 1978, p. 2895).

In its 1948 *Morton Salt* decision, the Supreme Court majority wrote that (FTC *v.* Morton Salt Co. 334 U.S. 3 at 43)

The legislative history of the Robinson-Patman Act makes it abundantly clear that Congress considered it to be an evil that a large buyer could secure a competitive advantage over a small buyer solely because of the large buyer's quantity purchasing ability.

In its 1951 *Standard Oil of Indiana* decision, the Supreme Court wrote (340 U.S. 231 at 248-249, internal citations omitted, emphasis added)

The heart of our national economic policy long has been faith in the value of competition. In the Sherman and Clayton Acts, as well as in the Robinson-Patman Act, "Congress was dealing with competition, which it sought to protect, and monopoly, which it sought to prevent." . . . We need not now reconcile, in its entirety, the economic theory which underlies the Robinson-Patman Act with that of the Sherman and Clayton Acts. It is enough to say that *Congress did not seek by the Robinson-Patman Act either to abolish competition or so radically to curtail it that a seller would have no substantial right of self-defense against a price raid by a competitor.*

In an accompanying footnote, the Supreme Court noted that "It has been suggested that, in theory, the Robinson-Patman Act as a whole is inconsistent with the Sherman and Clayton Acts." The footnote is more to the point than the text of the opinion, and the frankly protectionist intent with which the Robinson-Patman Act was adopted cannot be reconciled with an efficiency-oriented antitrust policy.

4 From Adoption to Mid-Century

The Sherman Act and the Federal Trade Commission Act are written in terms of broad generality. The operative provisions of the Clayton Act are more specific, but still leave substantial margin for interpretation. Congress

delegated to courts the task of fleshing out the framework it had established in adopting the three basic antitrust laws. In the words of Senator Sherman during Senate debate (21 Cong. Rec. 2460 (1890)):¹⁹

I admit that it is difficult to define in legal language the precise line between lawful and unlawful combinations. This must be left for the courts to determine in each particular case. All that we, as lawmakers, can do is to declare general principles, and we can be assured that the courts will apply them so as to carry out the meaning of the law, as the courts of England and the United States have done for centuries.

Courts have accepted this mandate, and in rendering decisions, have expressed a range of views on the goals of the antitrust laws.²⁰

4.1 Promote Fairness of Market Processes

In its 1897 decision finding the *Trans-Missouri Freight Association* in violation of Section 1 of the Sherman Act, the Supreme Court recognized that market processes could disrupt established economic relationships, creating winners and losers and severe hardship for the latter (166 U.S. 290 (1897) at 323):

In any great and extended change in the manner or method of doing business it seems to be an inevitable necessity that distress

¹⁹Similarly, before passage of the FTC Act, a Report of the U.S. Committee on Interstate Commerce wrote (quoted by D. D. Martin, 1959, p. 55): “It is believed that the term ‘unfair competition’ has a legal significance which can be enforced by the commission and the courts, and that it is no more difficult to determine what is unfair competition than it is to determine what is a reasonable rate or what is an unjust discrimination.” See *FTC v. Motion Picture Adv. Co.*, 344 U.S. 392 (1953) at 394-395, internal citations omitted: “The ‘unfair methods of competition,’ which are condemned by § 5 (a) of the Act, are not confined to those that were illegal at common law or that were condemned by the Sherman Act. Congress advisedly left the concept flexible to be defined with particularity by the myriad of cases from the field of business. It is also clear that the Federal Trade Commission Act was designed to supplement and bolster the Sherman Act and the Clayton Act — to stop in their incipiency acts and practices which, when full blown, would violate those Acts.”

²⁰Crane (2015) points out that these objectives were all manifest during debates on the Sherman Act and the Clayton/FTC Acts. I am indebted to Nicola Giocoli for this reference.

and, perhaps, ruin shall be its accompaniment in regard to some of those who were engaged in the old methods. A change from stage coaches and canal boats to railroads threw at once a large number of men out of employment; changes from hand labor to that of machinery, and from operating machinery by hand to the application of steam for such purpose, leave behind them for the time a number of men who must seek other avenues of livelihood. These are misfortunes which seem to be the necessary accompaniment of all great industrial changes. It takes time to effect a readjustment of industrial life so that those who are thrown out of their old employment, by reason of such changes . . . may find opportunities for labor in other departments than those to which they have been accustomed. It is a misfortune, but yet in such cases it seems to be the inevitable accompaniment of change and improvement.

The social decision to use free markets to allocate resources dictates that such disruptions be accepted, *when they result from competition in free markets*. There is no such presumption if disruption is the result of artificial aggregations of economic power (166 U.S. 290 (1897) at 323–324):

It is wholly different, however, when such changes are effected by combinations of capital, whose purpose in combining is to control the production or manufacture of any particular article in the market, and by such control dictate the price at which the article shall be sold, the effect being to drive out of business all the small dealers in the commodity and to render the public subject to the decision of the combination as to what price shall be paid for the article.

In this view, the Sherman Act seeks to maintain fairness in market processes in order to maintain public support for a market system of resource allocation.

4.2 Maintain Competition

In 1927, in its opinion involving a challenge to a trade-association-mentored cartel, the Supreme Court wrote that the purpose of the Sherman Act was

to maintain competition (U.S. v. Trenton Potteries 273 U.S. 392 at 397):²¹

Whether this type of restraint is reasonable or not must be judged in part at least in the light of its effect on competition, for whatever difference of opinion there may be among economists as to the social and economic desirability of an unrestrained competitive system, it cannot be doubted that the Sherman Law and the judicial decisions interpreting it are based upon the assumption that the public interest is best protected from the evils of monopoly and price control by the maintenance of competition.

4.3 Prohibit Unreasonable Restraint of Trade

In the 1933 *Appalachian Coals* decision concerning a proposed joint sales agreement, the Supreme Court ruled that the Sherman Act prohibited only undue restraints of trade (288 U.S. 344 at 359-360, emphasis added):

The purpose of the Sherman Anti-Trust Act is to prevent undue restraints of interstate commerce, to maintain its appropriate freedom in the public interest, to afford protection from the subversive or coercive influences of monopolistic endeavor. . . .

In applying this test, a close and objective scrutiny of particular conditions and purposes is necessary in each case. Realities must dominate the judgment. *The mere fact that the parties to an agreement eliminate competition between themselves is not enough to condemn it.*

It is often said that this decision was an aberration, reflecting the severe economic conditions of the Great Depression. Yet the decision is cited by subsequent Courts, when they find it convenient to do so.

²¹The Supreme Court expressed much the same view in 1958, linking pursuit of good market performance and support for political institutions (*Northern Pacific Railway*, 356 U.S. 1 at 4): “The Sherman Act was designed to be a comprehensive charter of economic liberty aimed at preserving free and unfettered competition as the rule of trade. It rests on the premise that the unrestrained interaction of competitive forces will yield the best allocation of our economic resources, the lowest prices, the highest quality and the greatest material progress, while at the same time providing an environment conducive to the preservation of our democratic political and social institutions.” But see *Maple Flooring Manufacturers Assn.*, 268 U.S. 563 (1925).

4.4 Prohibit All Restraints on Trade

The 1940 *Socony-Vacuum* case involved collusion in the U.S. oil refining industry. The force of the resulting Supreme Court decision is that the Sherman Act rules out *any* agreement on prices (310 U.S. 150 at 221):

But the thrust of the [*per se*] rule is deeper and reaches more than monopoly power. Any combination which tampers with price structures is engaged in an unlawful activity. Even though the members of the price-fixing group were in no position to control the market, to the extent that they raised, lowered, or stabilized prices they would be directly interfering with the free play of market forces. The Act places all such schemes beyond the pale and protects that vital part of our economy against any degree of interference.

4.5 Promote Dispersal of Power

For Justice Douglas, dissenting in the 1948 *Columbia Steel* merger case, the Sherman Act aimed to disperse power, for economic and for political purposes (334 U.S. 495 at 536):²²

In final analysis, size in steel is the measure of the power of a handful of men over our economy. That power can be utilized with lightning speed. It can be benign or it can be dangerous. The philosophy of the Sherman Act is that it should not exist. For all power tends to develop into a government in itself. Power that controls the economy should be in the hands of elected representatives of the people, not in the hands of an industrial oligarchy. Industrial power should be decentralized. It should be scattered into many hands so that the fortunes of the people will not be dependent on the whim or caprice, the political prejudices, the emotional stability of a few self-appointed men. The fact that they are not vicious men but respectable and social-minded is irrelevant. That is the philosophy and the command of the Sherman Act. It is founded on a theory of hostility to the concentration in private hands of power so great that only a government of the people should have it.

²²See Fox (1981, fn. 72) for references.

4.6 Monopolization

Two opinions by Judge Learned Hand, issued almost 30 years apart, bracket the range of interpretations given to the Sherman Act Section 2 prohibition of monopolization.

4.6.1 *Corn Products Refining*

The Corn Products Refining Co. was a dominant firm, formed by merger, that used deferred loyalty rebates, bogus independents, and below-cost pricing to maintain its market position.²³ Judge Learned Hand’s 1916 opinion in a U.S. government monopolization case made clear that the Sherman Act had no objection to monopoly obtained by competition on the merits (U.S. *v. Corn Products Refining Co. et al.* 234 F. 964 at 1015):²⁴

The national will has not declared against elimination of competitors when they fail from their inherent industrial weakness. On the contrary, it has declared with great emphasis against any methods by which such weaknesses might be concealed; in so doing it has assumed a positive purpose toward industry, has established a norm to which competition must conform. This purpose the Corn Products Refining Company has persistently and ingeniously endeavored to thwart from the outset. Its constant effort has been to prevent competitors from that test which would in the long run discover whether they could manufacture as well and as cheaply as itself.

In the words of John Bates Clark (1900b, p. 195) “Make the independent competitor safe and let prices be gauged by the cost of the goods that are made in his well-equipped establishment. Let him make a fair living; and if the trust, by real economy, makes a better living, no one will complain.”

²³For a contrary view, see Peckham (1983).

²⁴This interpretation closely tracks a well-known portion of Senate debate before passage of the Sherman Act, in which Senator Kenna asked if Section 2 would condemn a firm that had a monopoly because it was able to undersell all rivals, and Senator Edmunds replied that Section 2 would not apply to such a case (21 Cong. Rec. 3151).

4.6.2 *Alcoa*

Judge Hand's 1945 opinion in the *Alcoa* monopolization case was found both economic and social goals behind the antitrust laws.²⁵ The economic goals related to the good market performance expected to result from the stimulus of actual competition or the threat of potential competition (148 F.2d 416 at 427):

Many people believe that possession of unchallenged economic power deadens initiative, discourages thrift and depresses energy; that immunity from competition is a narcotic, and rivalry is a stimulant, to industrial progress; that the spur of constant stress is necessary to counteract an inevitable disposition to let well enough alone. Such people believe that competitors, versed in the craft as no consumer can be, will be quick to detect opportunities for saving and new shifts in production, and be eager to profit by them. In any event the mere fact that a producer, having command of the domestic market, has not been able to make more than a 'fair' profit, is no evidence that a 'fair' profit could not have been made at lower prices.

Judge Hand also found broader social purposes in the Sherman Act (148 F.2d 416 at 428-429; footnote omitted; not set off as a list in the original):

- We have been speaking only of the economic reasons which forbid monopoly; but, as we have already implied, there are others, based upon the belief that great industrial consolidations are inherently undesirable, regardless of their economic results. In the debates in Congress Senator Sherman himself . . . showed that among the purposes of Congress in 1890 was a desire to put an end to great aggregations of capital because of the helplessness of the individual before them.
- That Congress is still of the same mind appears in the Surplus Property Act of 1944 . . . and the Small Business Mobilization Act . . . Not only does § 2(d) of the first declare it to be one aim of that statute to 'preserve the competitive position of small business concerns,' but § 18 is given over to directions designed to 'preserve and strengthen' their position. . . .

²⁵Judge Hand's opinion was later endorsed by the Supreme Court (*American Tobacco Co. et al. v. U.S.* 328 at U.S. 781 (1946) at 812-815).

- Throughout the history of these statutes it has been constantly assumed that one of their purposes was to perpetuate and preserve, for its own sake and in spite of possible cost, an organization of industry in small units which can effectively compete with each other.

Regarding the first bullet point, the remarks of Senator Sherman to which Judge Hand refers deal among other matters with public concern about inequality in the distribution of wealth that was thought to follow on the heels of trusts (21 Cong. Rec. 2460):

The popular mind is agitated with problems that may disturb social order, and among them all none is more threatening than the inequality of condition, of wealth, and opportunity that has grown within a single generation out of the concentration of capital into vast combinations to control production and trade and to break down competition. These combinations already defy or control powerful transportation corporations and reach state authorities. They reach out their Briarean arms to every part of our country. They are imported from abroad. Congress alone can deal with them, and if we are unwilling or there will soon be a trust for every production and a master to fix the price for every necessity of life.

In the second bullet point, Judge Hand notes that the Congress of 1944 was concerned to promote small business.²⁶ In the third bullet point he recognizes the implication of similar sentiments expressed in Sherman Act debate in 1890. Those legislative sentiments are inconsistent with the view expressed in *Corn Products Refining* (and in Senate debate before passage of the Sherman Act) that U.S. antitrust does not object to dominant market positions based on competition on the merits. They cannot be reconciled with the hypothesis that Congress conceived of the goals of antitrust policy exclusively in terms of the maximization of consumer surplus or the minimization of deadweight loss.

²⁶ *Alcoa* charged the Aluminum Company of America with monopolization in violation of the Sherman Act. The Surplus Property Act of 1944 set conditions for the federal government to dispose of aluminum plants it had constructed as part of the war effort.

4.7 Résumé

Courts, following the congressional mandate to “carry out the law,” have imputed a variety of purposes to the Sherman Act and companion legislation. Writing after this period, Phillip Areeda described the possible goals of antitrust policy (1983, p. 534):

Let me begin by stating summarily the other possible goals of antitrust beyond maximizing consumer welfare. They include the political and social values of dispersed control over economic resources, multiple choices for producers and consumers free of the arbitrary dictates of monopolies or cartels, equal opportunity, equitable income distribution, and “fairness” in economic dealings. As a general proposition, such goals are attractive to many citizens and perhaps most of them.

It should also be obvious, however, that these very goals are widely served by that effective competition which maximizes consumer welfare.

5 Celler-Kefauver²⁷

The shift from the passive, publicity approach to merger control of the original Section 7 of the Clayton Act to the active antimerger policy of the 1950 Celler-Kefauver Act was motivated by concern about the social and political consequences of the rise of large firms, not its economic causes or effects:²⁸

The control of American business is steadily being transferred . . . from local communities to a few large cities in which central managers decide the policies and the fate of the far-flung enterprises they control. . . . Through monopolistic mergers the people are losing power to direct their own economic welfare. When they lose the power to direct their economic welfare they also lose the means to direct their political future.

²⁷David Dale Martin (1959) and Bok (1960) discuss the legislative history of the Celler-Kefauver Act.

²⁸Senator Kefauver, 96 Cong. Rec. 16452, 1950.

In his next remarks, Senator Kefauver invoked the lessons of recent history, that the concentration of economic power in the hands of the few led to either Fascism or Socialism. In the words of Bok (1960, pp. 236-237):

To anyone used to the preoccupation of professors and administrators with the economic consequences of monopoly power, the curious aspect of the debates is the paucity of remarks having to do with the effects of concentration on prices, innovation, distribution, and efficiency. To be sure, there were allusions to the need for preserving competition. But competition appeared to possess a strong socio-political connotation which centered on the virtues of the small entrepreneur to an extent seldom duplicated in economic literature.

In its first opinion applying the amended Section 7, the Supreme Court summarized as follows congressional intent in amending Section 7 (370 U.S. 294 (1962) at 315, footnotes omitted):

The dominant theme pervading congressional consideration of the 1950 amendments was a fear of what was considered to be a rising tide of economic concentration in the American economy. . . . Other considerations cited in support of the bill were the desirability of retaining “local control” over industry and the protection of small businesses. Throughout the recorded discussion may be found examples of Congress’ fear not only of accelerated concentration of economic power on economic grounds, but also of the threat to other values a trend toward concentration was thought to pose.

The Supreme Court noted the explicit statement in a Senate Report that the amendment aimed to give antitrust a tool to stop a trend to increased concentration before it became irreversible (370 U.S. 294 (1962) at 317-318, emphasis added): “The intent here . . . is to cope with monopolistic tendencies *in their incipiency* and well before they have attained such effects as would justify a Sherman Act proceeding.” If a merger would not worsen market performance, but could be expected to be the first of a series of mergers that would, in total, worsen market performance, congressional intent was to block the merger.

6 Bork on Legislative Intent

From the early post-World War II period, University of Chicago economists developed views inimical to what they sometimes referred to as “collectivism” (Brown *et al.*, 1955).²⁹ This included a reversal of Chicago economists’ interwar support for antitrust policy.^{30,31} One element of this program was Robert Bork’s analysis (1966, 1967, 1978) of congressional intent behind the Sherman Act, based on the debates reported in the Congressional Record.³² Bork quotes extensively from congressional debates. He gives 21 instances in which senators or representatives referred to the trust problem as one of raising price to the consumer, advancing cost to the consumer, and the like,

²⁹Curiously, speakers in congressional debate before passage of the Celler-Kefauver Act explicitly referred to the amendment as a device to avoid collectivism. See Bok (1960, fn. 51) for references.

³⁰Fetter (1932) published a statement of support signed by 127 economists that saw the antitrust laws as an alternative to more invasive approaches, “preserving the policy of free markets for industrial products whereby individual and small corporate enterprise may be assured unhindered opportunity to demonstrate through efficiency, service and low prices to the public, its right to survival in business” and opposing “widening and extension of the realm of public price fixing in industry and commerce [which] must impose an impossible burden upon governmental agencies of control and irreparable injury to the political and social, as well as economic, interests of the whole people.” Seven of the signatories (Paul H. Douglas, S. E. Leland, H. A. Millis, S. H. Nerlove, Henry Schultz, Jacob Viner, and Chester W. Wright) were affiliated with the University of Chicago.

³¹On the change in attitude of Chicago economists toward antitrust, see Martin (2008, 39, 43-49). On the central role of Aaron Director, see Bork (1993, p. 12). On the Second Chicago School generally, see Reder (1982), Kitch (1983), Van Horn *et al.* (2011).

³²Bork (1966, p. 44, in footnote 106) dismissed examination of the intellectual soup within which Senate debate took place: “I have not thought it worthwhile to consider in the text the often-heard statement that the Act must be construed in the light of the forces of Populism and agrarian discontent which are said to have provided much of the pressure for its passage. Not too much attention should be paid to such statements because they are essentially meaningless. Populism and the agrarian movements had not focussed on the general problem dealt with by the Sherman Act sufficiently to develop principles that a judge could apply predictably.” Justice Peckham, in contrast, took a cautious view toward the determination of legislative intent by examination of the legislative record (*U.S. v. Trans-Missouri Freight Association* 166 U.S. 290 (1897) at 318-319: “The reason is that it is impossible to determine with certainty what construction was put upon an act by the members of a legislative body that passed it by resorting to the speeches of individual members thereof. Those who did not speak may not have agreed with those who did; and those who spoke might differ from each other; the result being that the only proper way to construe a legislative act is from the language used in the act, and, upon occasion, by a resort to the history of the times when it was passed.”

which suggests speakers' concern with the impact of monopoly pricing on purchasers. He gives 8 instances in which speakers referred to restraint of trade or the like, which to a modern economist might suggest an interest in minimizing deadweight loss.

Much of Bork's discussion makes sense only if "consumer welfare" is taken to mean "the welfare of purchasers." To give one example of what could be many, writing of an antitrust rule against mergers leading to monopoly, Bork makes a clear distinction between consumer welfare and producer welfare, and argued that Congress gave priority to consumer welfare over producer welfare (1966, p. 11, emphasis added):

The argument for this rule in Congress, however, shows that it derived in large measure from a desire *to protect consumers from monopoly extortion*. Insofar as other classes, such as small producers who sold to or bought from monopolists, were to be benefited, that benefit was not seen as conflicting with the consumer-welfare rationale but rather as reinforcing it. Where producer and consumer welfare might come into conflict ... Congress chose consumer welfare as decisive.

If "consumer welfare" means "protecting purchasers from monopoly extortion," it does not include the welfare of the owners of firms that exact monopoly prices.

The only hint that what Bork intends by the term "consumer welfare" is the combined welfare of consumers and producers is an oblique turn of phrase in his introduction (Bork, 1966, p. 7, emphasis added):

My conclusion, drawn from the evidence in the Congressional Record, is that Congress intended the courts to implement (that is, to take into account in the decision of cases) only that value we would today call consumer welfare. To put it another way, the policy the courts were intended to apply is the *maximization of wealth* or consumer want satisfaction.

Bork (1967, p. 242) is more explicit: "My thesis is that existing statutes can be legitimately interpreted only according to the canons of consumer welfare, defined as minimizing restrictions of output and permitting efficiency, however gained, to have its way." In *The Antitrust Paradox*, after defending

a consumer welfare goal for antitrust for 110 pages, Bork explains that the welfare that purchasers lose by paying high prices is not a loss of consumer welfare, but an income transfer (1978, p. 110):

Those who continue to buy after a monopoly is formed pay more for the same output, and that shifts income from them to the monopoly and its owners, who are also consumers.

Bork's turn of phrase has hopelessly muddled these waters, with courts citing Bork in support of the position that antitrust policy aims to maximize consumer welfare, then making arguments that conceive of harm to market performance in terms of the welfare of purchasers, not net social welfare.

Nor have legal scholars found Bork's argument convincing; law journals are strewn with alternative interpretations of the goals of U.S. antitrust policy.

Fox writes (1981, p. 1154) that "[T]he claim that efficiency has been the goal and the fulcrum of antitrust is weak at best. The values other than efficiency that underlie the commitment to power dispersion, economic opportunity, and competition as market governor demand equal attention." For Lande (1982, p. 150) "Each antitrust law grew in part out of a desire to define and protect consumers' property rights, an antipathy toward corporate aggregations of economic, social, and political power, and a concern for small entrepreneurs." Rowe (1984, p. 1560, in footnote 295) observes that "Not unexpectedly, the 1890 debates reveal a mix of social, economic, and political concerns."

Brodley regards the economic and noneconomic goals of antitrust as mutually compatible (1987, p. 1022, footnote omitted):

[T]here is a unity between the pragmatic substance of antitrust — its economic goals — and the law's animating spirit — its social and political foundations. Thus, the pursuit of the correctly defined economic goals of antitrust will generally advance the social and political objectives of the law as well.

Posner (1987, pp. 209-210, footnotes omitted, emphasis added) denies Bork's principle conclusion:

The legislative history makes clear that the [Sherman] Act was aimed at the great trusts (cartels and monopolies) of the time,

but is not single-minded concerning what aspect of the trusts was reprobated. Some members of Congress wanted to punish the trusts because the trusts restricted output and raised price, and thus hurt consumers. Others believed that the trusts, whether through economies of scale or other efficiencies, produced a greater output at lower price, thus helping consumers (in both the short and long run) but hurting inefficient competitors. Still other members of Congress relied on both reasons for supporting the Act, believing that it would both help consumers and help the trust's competitors. The modern economic analysis of monopoly has made the inconsistency of these two reasons transparent. *But no one in 1890 understood the economic concept of efficiency; it hadn't been developed yet.*

Adams and Brock regard the economic goals of antitrust as subsidiary to its political goal, maintenance of a free society (1987, p. 1116).³³

The primary purpose of antitrust is to perpetuate and preserve a system of governance for a competitive, free enterprise economy. Efficiency and consumer welfare constitute ancillary benefits that are expected to flow from a system of economic freedom. . . . Antitrust calls for a dispersion of power, buttressed by built-in checks and balances, to guard against the abuse of power and to preserve not only individual freedom, but also more importantly, a free system. Antitrust is founded on a theory of hostility toward private concentration of power. . . .

Hovenkamp writes of Bork's work (1989, p. 22, footnotes omitted)

[Bork] concluded all too quickly that because some members of Congress knew that demand curves slope downward (i.e., that output is reduced as prices rise), that they also had a modern conception of allocative efficiency and the social cost of monopoly. Not a single statement in the legislative history comes close to stating the conclusions that Bork drew.

In sum, we can agree with Ginsburg (2014, p. 947) that Bork's analysis of the legislative intent underlying the Sherman Act has been rejected by the Academy.

³³The same position was taken by the German Ordoliberal School.

7 Kaldor, Hicks, and Potential Pareto Improvements

It is in the nine pages of Chapter 5 of Bork (1978) that Bork explains his expansive use of the term “consumer welfare.” The issues involved in that usage are the subject of a large economics literature, to which Bork does not refer, and can be presented with reference to Figure 1.

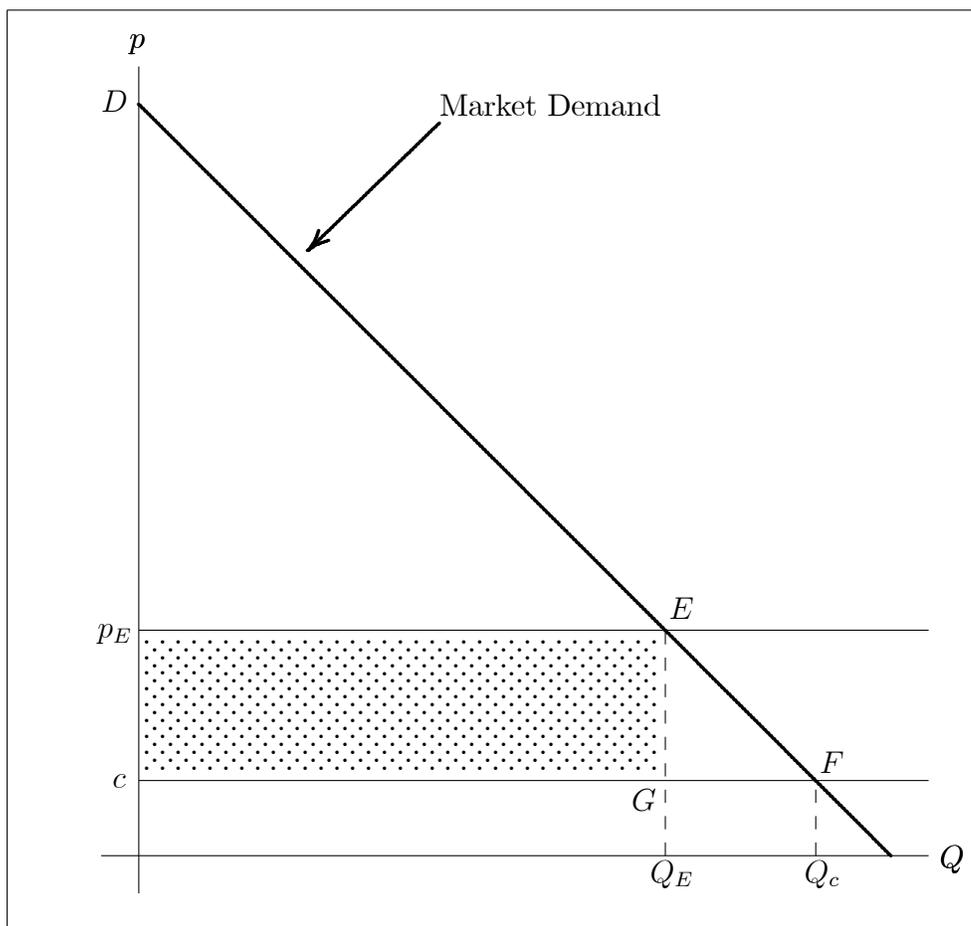


Figure 1: Consumer Surplus vs. Net Social Welfare (constant marginal cost c , entry-inducing price p_E).

It depicts a market supplied by a single firm, a monopolist in the antitrust sense, that can set a price p_E that is greater than its marginal cost c without

inducing entry by higher-cost potential competitors.

If the market were perfectly competitive, price would equal marginal cost c . Output would be Q_c . The area of the triangle cDF is *consumer surplus* under perfect competition. Like Hicks (1942, p. 126), Bork follows Marshall's (1920, p. 125) definition of consumers' surplus as "The excess of the price which [consumers] would be willing to pay rather than go without the thing."³⁴ Thus consumers' surplus is a monetary amount, not a measure of utility. $\Delta\pi$ is not a measure of the utility the owners of the firm gain when they spend their additional income in other markets. ΔCS is not a measure of the utility consumers lose when they reduce spending in other industries.³⁵

If the market is supplied by a single firm that sells Q_E units of output at price p_E , the firm earns an economic profit in the amount of the shaded rectangle cP_EEG . Relative to perfect competition, this economic profit is a transfer of purchasing power from the consumers who purchase the good at the price p_E to the owners of the firm. It is also a monetary amount.

Consumers' surplus at price p_E is the area of the triangle $p_ED E$. Consumer surplus under monopoly is reduced by an amount equal to the area cp_EEF . If the increase in owners' income is set against the lost consumers' surplus, what is left, the area of the triangle EFG , is the deadweight loss due to monopoly power.

Consumers who remain in the market under monopoly reduce spending in other markets by an amount equal to the area of the rectangle cP_EEG . The owners of the firm increase spending in all markets in which they buy by an identical amount. That the changes in income of the two groups are of the same monetary amounts does not imply that the changes in satisfaction of the two groups are the same. What one can say from Figure 1 is that consumers would spend less for the privilege of being able to continue to buy Q_E units than they would be willing to spend to buy Q_C units of output, and that the owners of firms have economic profit $(p_E - c)Q_E$ to spend under

³⁴The concept of consumer surplus is itself open to question. For it to be valid requires that the marginal utility of money be constant, an assumption Marshall made for his discussion of consumer surplus. Samuelson (1942; see also 1990) shows that for the marginal utility of money to be constant requires quite restrictive assumptions about the nature of individual preferences. A literature that can be traced to Hicks' work in the 1940s (for example, Hicks (1945-6)) explores generalized monetary compensation measures.

³⁵The force of this observation is not vitiated by the counterfactual assumption that there is one perfectly competitive industry (possibly a composite Hicksian "all other goods").

monopoly that they would not have under competition. The figure tells us nothing about the implied changes in satisfaction.

We are thus led to the issue of interpersonal welfare comparisons, as were Robbins (1938), Kaldor (1939), and Hicks (1939). Robbins entered into a discussion of the welfare consequences of relaxing 19th-century restrictions on the importation of corn into England. The resulting lower price of corn would make consumers better off and farmers worse off, just as the price increase shown in Figure 1 would make consumers worse off and the owners of the firm better off. Robbins' view was that it was not possible to measure the net welfare impact of the change without making the assumption that consumers and farmers had "equal capacity for satisfaction." He argued that there was no basis in economic science for making such an assumption.

In the analysis of the welfare impact of monopoly power, if lost consumers' surplus and increased economic profit represent comparable units of satisfaction, then deadweight loss represents the net welfare loss due to monopoly power. But, Robbins' position implies, there is nothing in economics as a science that allows us to say that changes in identical monetary amounts of income represent identical changes in satisfaction.

Kaldor (1939), seconded by Hicks (1939), responded with what is now called the Kaldor-Hicks *potential Pareto improvement* welfare criterion. A reallocation of income is a Pareto improvement if it makes some individuals better off and no individuals worse off. A reduction in the tariff on corn is not a Pareto-improving policy change: it makes consumers better off and farmers worse off. If, however, the government were to levy lump-sum taxes on consumers and make lump-sum distributions to farmers in an amount just sufficient to compensate farmers for lost income, and consumers were still better off with a lower price of food, that would be a Pareto improvement.³⁶

Kaldor proposes to look at what the net welfare impact of a policy change would be *if* these kinds of lump-sum transfers from winners to losers were made, whether or not the transfers actually are made; whether compensation should be given or not (1939, p. 550) "is a political question on which the economist, *qua* economist, could hardly pronounce an opinion.

With this approach, Kaldor sought to avoid interpersonal comparisons of satisfaction (1939, p. 551, footnote 1). The consensus of the literature is

³⁶ "Lump sum" means that taxes are levied and subsidies granted in ways that do not alter individual behavior other than through the implied change in income. As a practical matter, it is impossible to implement lump-sum transfers.

that this does not work (Winch, 1965, p. 406):³⁷

The original version of the compensation principle, now generally referred to as the Kaldor-Hicks criterion . . . , under the assumption that full compensation will in fact be made, is uniquely free from either interpersonal comparison or value judgment. . . . Under the assumption that all changes will be offset, the only question is whether the amount of money collected from gainers will be enough to compensate losers; all comparisons are in hard, homogeneous dollars. It is only when the possibility, or desirability, of compensation is questioned that problems arise. Then some people might be worse off, and it becomes necessary to compare changes in satisfaction.

In the context of the income transfer impact of monopoly power, we can write a weighted sum of economic profit and lost consumer surplus as

$$\theta_1 \Delta \pi + \theta_2 \Delta CS. \tag{1}$$

In a move from competition to monopoly, the change in profit $\Delta \pi$ is positive, the change in consumer surplus ΔCS is negative. If $\theta_1 = \theta_2 = 1$, (1) becomes deadweight loss, the statistic implied by the Kaldor-Hicks potential Pareto improvement criterion and championed by Bork under another name. If $\theta_1 = 0$, $\theta_2 = 1$, (1) becomes lost consumer surplus, which is what is relevant under a consumer welfare standard. But there are no theorems in economics that tells us what the weights should be. Weighting changes in income equally, $\theta_1 = \theta_2 = 1$, does not avoid interpersonal comparisons: it is simply one of many possible choices about the way the income changes of the two groups might be summarized in a single statistic.

Stigler's reaction to the potential Pareto improvement principle was that whatever weightings are used should be indicated up front (1943, p. 359): "There is grave danger in leaving the value judgments unspecified except by implication. . . ." ³⁸ After a careful review of the economics literature on the topic, Chipman and Moore agree (1978, p. 581):³⁹

³⁷Winch comments on welfare measurement using the compensating variation, an alternative to consumer surplus due to Hicks.

³⁸See similarly Slesnick (1998).

³⁹Hovenkamp (2011) describes the consumer welfare vs. net social welfare debate as

After 35 years of technical discussions, we are forced to come back to Robbins' 1932 position. We cannot make policy recommendations except on the basis of value judgments, and these value judgments should be made explicit.

8 Missing Markets and the Goals of Antitrust

Under stringent assumptions that include existence of a complete set of competitive markets, the First Theorem of Welfare Economics tells us that equilibrium is Pareto optimal (Koopmans, 1957, Essay 1). This result fails if some markets are not competitive. It fails if some goods are public goods. And it fails if there are missing markets (Newbery, 1989).⁴⁰

There are many consequences of market activities for which there are no markets. In some such cases, as for example carbon emissions, governments may attempt to create a market that would not otherwise exist. But there may be preferences about other consequences of economic activity for which this is impossible. Individuals may prefer net neutrality over differential pricing for internet service/product suppliers. Individuals may prefer that there be information sources expressing a range of viewpoints, even though they disagree with some of those viewpoints. Individuals may prefer that the corporations should not be able to make unlimited political contributions, or have preferences about absolute firm size. Individuals may prefer that markets be less concentrated rather than more concentrated, even markets for products they do not buy, because they object to the consequences of the rent-seeking expenditures they expect to occur in concentrated markets. It is straightforward to include preferences about the outcomes of market activity for which there are no markets in standard economic models. I illustrate this by comparing two models of a market with linear demand, one in which there are no preferences about market structure, one in which there are preferences

trivial, noting the (1011, p. 9) "Few if any decisions have turned on the difference." From the practitioner's point of view, this observation has some merit. But the way the impact of monopoly power is measured has implications for the need for an antitrust policy at all: if the incidence of market power in the economy as a whole is measured by adding up deadweight loss triangles, industry by industry, then some would conclude that we might just as well treat the economy as if it were competitive (Harberger, 1954, p. 87), "for in fact it is awfully close to being so."

⁴⁰Hart (1975) examines the welfare properties of general equilibrium if some futures markets do not exist.

about market structure. In the second model welfare is reduced if market concentration, an indicator of market and other dimensions of power, exceeds a threshold level.

8.1 Demand

8.1.1 No preferences about market structure

As is well known, a linear demand curve can be derived from a micro-level model of N individuals, each purchasing 1 or 0 units of the homogeneous good, and each with a reservation price that is uniformly distributed on the interval $[0, a]$. With such a specification, individual utility in the market for the homogeneous good is

$$u_i = \begin{cases} x_i - p & x_i \geq p \\ 0 & x_i < p \end{cases}, \quad (2)$$

where the individual reservation price x_i is uniformly distributed on the interval $[0, a]$. The implied inverse demand equation is⁴¹

$$p = a - bQ. \quad (3)$$

As is also well known, the inverse demand equation (3) can also be derived from a quadratic aggregate welfare function for the good in question,

$$U(Q) = aQ - \frac{1}{2}bQ^2. \quad (4)$$

8.1.2 Preferences about market structure

A specification of individual utility in the market for the homogeneous good if individuals have preferences about market structure is

$$u_i = h_i(y_i - p) + \begin{cases} x_i - p & x_i \geq p \\ 0 & x_i < p \end{cases} - \begin{cases} \frac{1}{2}\beta(m_D - m)^2 & m < m_D \\ 0 & m \geq m_D \end{cases}, \quad (5)$$

where where m is the number of firms in the market, m_D is the individual's preferred number of firms, and $\beta > 0$ is a parameter that determines the strength of preferences about market structure.

⁴¹In (3), $b = a/N$.

The assumptions made below about the supply side of the market imply that firms produce identical amounts in equilibrium. The number of firms m is then a complete description of equilibrium market structure: the smaller is m , the more concentrated is the market.⁴² Preferences of the form (5) then imply that if the market is more concentrated than an individual prefers, $m < m_D$, individual utility is reduced.

If the market is less concentrated than the individual prefers, $m \geq m_D$, individual utility is determined as in (2).

For simplicity, I suppose all individuals have the same preferred number of firms. This is not essential for the results that follow.⁴³

This specification implies that individual welfare falls as the number of firms falls short of the preferred number of firms.

The implied aggregate welfare function is

$$U(Q, m_D, m) = aQ - \frac{1}{2}bQ^2 - N \begin{cases} \frac{1}{2}\beta(m_D - m)^2 & m < m_D \\ 0 & m \geq m_D \end{cases}. \quad (6)$$

In this specification, individuals have preferences over market structure, but there is no market for market structure. Inverse demand in the market for Q is again given by (3).

8.2 Supply and Cournot Equilibrium

Since the alternative specifications of individual utility yield the same aggregate demand, Cournot equilibrium values are the same for preferences of both types.

There are m firms. Let constant marginal cost c and fixed cost F be the same for all firms, so the firm cost function is

$$C(q_i) = cq_i + F. \quad (7)$$

In this linear inverse demand constant marginal cost model, firm i 's objective function is

$$\pi_i = (a - c - bQ)q_i - F. \quad (8)$$

⁴² m is the inverse of the Herfindhal index, perhaps the most common measure of supply-side concentration.

⁴³I briefly discuss two alternative specifications of individual utility in the Appendix.

Cournot equilibrium output per firm is

$$q(m) = \frac{1}{m+1} \frac{a-c}{b}. \quad (9)$$

Equilibrium price is

$$p(m) = c + \frac{a-c}{m+1}, \quad (10)$$

and equilibrium profit per firm is

$$\pi(m) = \frac{1}{b} \left(\frac{a-c}{m+1} \right)^2 - F. \quad (11)$$

We follow common practice and treat the number of firms as a continuous variable. Then the equilibrium number of firms m_{LR} makes profit per firm equal to 0:

$$m_{LR} = \frac{a-c}{\sqrt{bF}} - 1. \quad (12)$$

If we substitute (12) into (9) and (10), we get the corresponding long-run expressions:

$$q_{LR} = \sqrt{\frac{F}{b}} \quad (13)$$

$$p_{LR} = c + \sqrt{bF}. \quad (14)$$

8.3 Minimum Number of Firms

Suppose the government specifies a minimum price,⁴⁴

$$p_\mu = c + \frac{1}{2}(a-c) - \frac{1}{2}\sqrt{(a-c)^2 - 4\mu bF}, \quad (15)$$

where

$$\mu > m_{LR}$$

is a target number of firms.

Profit per firm is

$$\pi_i = \frac{1}{2} \left[a - c - \sqrt{(a-c)^2 - 4\mu bF} \right] q_i - F.$$

⁴⁴A consistency condition is that the discriminant on the right be nonnegative. This implies an upper bound on μ , $\mu \leq \frac{(a-c)^2}{4bF}$.

If there is free entry, the number of firms adjusts until $\pi_i = 0$. Then output per firm is

$$q_\mu = \frac{2F}{(a-c) - \sqrt{(a-c)^2 - 4\mu bF}} = \frac{1}{2} \frac{1}{\mu b} \left[a - c + \sqrt{(a-c)^2 - 4\mu bF} \right].$$

Total output is μq_i , the market-clearing price for which is

$$a - b\mu q_\mu = p_\mu.$$

Thus with free entry, the market is supplied by $\mu > m_{LR}$ firms at a price $p_\mu > p_{LR}$. p_μ is below the monopoly price. It rises as μ rises. The difference

$$p_\mu - p_{LR}$$

is the cost to purchasers, per unit of output, of having a less concentrated market structure.

8.4 Welfare

In this section, I use a numerical example to illustrate the welfare consequences of a minimum-number-of-firms policy.⁴⁵

Let $a = 10000$, $b = 1$, and $c = 0$. Then the inverse demand equation is

$$p = 10000 - Q.$$

If $F = 4000000$, the long-run Cournot number of firms m_{LR} is 4, each producing output $q_{LR} = 2000$. The market-clearing price is $p_{LR} = 2000$.

If there is a minimum price $p_\mu = 4000$, then with free entry the market is supplied by $\mu = 6$ firms, each producing $q_\mu = 1000$ units of output.

The welfare consequences of a minimum-number-of-firms policy depend on the structure of preferences.

⁴⁵It may be that the comparison between long-run Cournot equilibrium and minimum number of firms equilibrium is not the relevant comparison. It might be that with m_{LR} firms, tacit collusion is an equilibrium, either in a repeated game or as in Selten's (1973) static collusion model. If a deconcentration policy destabilizes tacit collusion, it can increase welfare even if the population is indifferent toward market structure. See footnote 46.

8.4.1 Preferences independent of market structure

If preferences are independent of market structure, the subaggregate welfare function is

$$\widehat{U}(Q) = 10000Q - \frac{1}{2}Q^2. \quad (16)$$

In Cournot equilibrium, firms break even. Since profit per firm is zero, aggregate welfare is simply consumer surplus,

$$CS_{LR} = \frac{1}{2}Q_{LR}^2 = 32,000,000. \quad (17)$$

If government sets price $p_\mu = 4000$ and there is free entry, consumer surplus is reduced:

$$CS_\mu = 18,000,000. \quad (18)$$

Increasing the number of firms in the market reduces welfare if the population is indifferent toward the number of firms that supply the market.⁴⁶

8.4.2 Preferences dependent on market structure

Alternatively, let preferences depend on the number of firms in the market,

$$\widehat{U}(Q, m_D, m) = 10000Q - \frac{1}{2}Q^2 - N \begin{cases} \frac{1}{2}\beta(m_D - m)^2 & m < m_D \\ 0 & m \geq m_D \end{cases}, \quad (19)$$

and let $\beta = 700$.

For the example, consider the case that $m < m_D$. Then

$$\widehat{U}(Q, m_D, m) = 10000Q - \frac{1}{2}Q^2 - 3500000(m_D - m)^2. \quad (20)$$

using $a/N = b = 1$ to get $N = 10000$.

The long-run Cournot equilibrium values are as before, $m = m_{LR} = 4$, $p_{LR} = 2000$, $q_{LR} = 2000$.

If $m_D = 6$, Cournot equilibrium aggregate welfare is

$$\widehat{U}(Q, 6, 4) = 18,000,000.$$

⁴⁶If tacit collusion on monopoly output is sustainable with four firms, consumer surplus (per period) is 12,500,000. If tacit collusion on monopoly output is not sustainable with six firms, a minimum-number-of-firms policy improves market performance even if there are no preferences about market structure.

If the government sets price $p_\mu = 2763.9$, then $\mu = 5$ with free entry. Each firm produces $q_\mu = 1447.2$ units of output, and aggregate welfare is

$$\widehat{U}(Q, 6, 5) = 22,680,340.$$

This is greater than net social welfare in long-run Cournot equilibrium. If preferences extend to market structure, then some reduction in concentration increases welfare.

9 Conclusion

From its inception, the mainstream view of U.S. antitrust was that it pursued a range of mutually consistent goals. Closer-to-competitive market performance, for example, promotes economic efficiency in the sense of minimizing cost and effectively allocating resources across markets. It also sustains public belief in the fairness of market processes and so maintains support for a market system of resource allocation, despite the fact that a dynamic market system creates winners and losers.

Not all the goals put forward for antitrust have been consistent. The aim of the Robinson-Patman Act to protect small firms without regard to productive efficiency is inconsistent with the Sherman Act Section 2 acceptance of dominant market positions that are due to productive efficiency.

From the post-World War II period onward, legal and economic scholars associated with the Chicago School of antitrust analysis⁴⁷ have sought, with much success, to narrow the focus of antitrust, arguing that it should promote allocative and productive efficiency, and that other possible goals are inadmissible because they are not “economic.”

My argument in this paper is that what is called an “economic” approach is no such thing, and by its nature, could not be. Economics does not teach that antitrust policy should seek to minimize deadweight loss due to monopoly power, or to maximize consumer surplus, or to protect small firms, or to reduce market or aggregate concentration, to the exclusion of other goals. Economics provides tools to measure the costs and benefits of such policies; the choice among them, if choice there must be, is outside the realm of economic science (Robbins, 1932, p. 129, footnote omitted):

⁴⁷I borrow the term from Posner (1979).

[T]here are no economic ends. There are only economical and uneconomical ways of achieving given ends. We cannot say that the pursuit of given ends is uneconomical because the ends are uneconomical; we can only say it is uneconomical if the ends are pursued with an unnecessary expenditure of means.

Bork, as Ginsburg (2014) says and as noted above, has been rejected by the Academy. But as he also notes (Ginsburg, 2014, p. 949), the Academy has failed to persuade the judiciary: landmark antitrust decisions often cite Bork in support of an “economic approach” that sees antitrust as maximizing net social welfare.⁴⁸ The continued adherence of U.S. courts to policy prescriptions for imperfectly competitive markets generated by a school of thought that insists most markets can be treated, most of the time, as if they were perfectly competitive (Reder, 1982) presents a challenge to mainstream economists. The adherence of the Supreme Court,⁴⁹ if in a unclear way, to a reading of legislative intent that antitrust scholars reject as indefensibly narrow creates a quandary for those scholars when they seek to formulate antitrust policy advice.⁵⁰

⁴⁸There is more than circumstantial evidence that parts of the judiciary have not grasped the meaning Bork gives to the phrase “consumer welfare.” Ginsburg (2014, p. 945) hails the Supreme Court’s *Reiter v. Sonotone* decision for its embrace of the consumer welfare standard. Yet in that decision the court views the antitrust treble damage provision as (442 U.S. 330 at 343) “a means of protecting consumers from overcharges resulting from price fixing,” which is a remark about the welfare of purchasers. In *Jefferson Parish Hospital*, the Supreme Court refers to increased monopoly profit due to price discrimination as a social cost of market power (466 U.S. 2 (1984) at 14–15). But under Bork’s net social welfare standard, price discrimination which tends to increase output improves market performance (Bork, 1978, pp. 394–398); increased monopoly profit is merely a transfer from purchasers to the producer.

⁴⁹See Ginsburg (2014, fn. 50) for citations to lower-court opinions that admit the possibility of a range of goals for the antitrust laws.

⁵⁰The divergence between antitrust economics and the retreat of antitrust that is justified in the name of antitrust economics has itself become a topic of scholarly research. Among the factors that Giocoli (2015) identifies as possible explanations for the enduring charm that Chicago antitrust economics holds for the judiciary are ideology, ease of administrability, and an awkward fit between courts’ requirements for scientific rigor and the approach of modern industrial economics to tailor theoretical and empirical models to specific markets.

As noted above, the late-1940s shift from the First Chicago School to the Second Chicago School was motivated in part, and perhaps a large part, by antipathy toward “collectivism.” Ideology certainly has had some role in the Second Chicago School. (The ac-

Bork himself, however, explained why it is worthwhile to put forward mainstream economic results (Bork, 1967, pp. 242-243):

Antitrust policy is determined, far more than most people realize, by the Supreme Court. Reform is as likely to come through change in the intellectual world which ultimately reaches the Court as by any other means.

10 Appendix: alternative specifications of preferences about market structure

For (5) I assumed all individuals have the same preferred number of firms. Here I briefly consider two alternative approaches. The essential insights of the model can be brought out without considering these alternative specifications.

If these alternative specifications are used instead of (6), details of the solution of the model differ, but qualitative results are unchanged.

10.1 First alternative

There are N individuals. Suppose $N_1 < N$ of these individuals are indifferent toward market structure. For the remaining $N - N_1$ individuals, let individual j 's preferred number of firms be m_j , and suppose m_j is uniformly distributed on the interval $[m_{LR}, km_{LR}]$, for $k > 1$. Assume further that

counts of Manne (2005) and Priest (2005) of the early development of law and economics are instructive in this regard.) Links to the judiciary may have been forged by law and economics “summer camps” for judges, the sources of funding for which had libertarian leanings (Meyer, 2016). Certainly a world-view that treats most markets as competitive, most of the time, will support easily administrable interpretations of the antitrust laws. This leads to the kind of policy that Henry Simons (1936, p. 72) called an “open season on consumers.” But it is easy to administer.

It is true that modern industrial economics is largely a library of industry-specific models. If it is the generality of Second Chicago School antitrust economics that explains its allure for U.S. courts, then it becomes difficult to explain the disenchantment of those courts with the Structure-Conduct-Performance framework, which itself offered a general framework. There are also instances in which private plaintiffs have suffered in U.S. courts because they did not provide sufficiently specific evidence; see *Virgin Atlantic v. British Airways plc* 69 F. Supp. 2d 571 (1999).

the distribution of preferences are the number of firms is independent of the distribution of reservation prices.

Individual utility is (2) for individuals who are indifferent toward market structure, and

$$u_i = \begin{cases} x_i - p & x_i \geq p \\ 0 & x_i < p \end{cases} - \begin{cases} \frac{1}{2}\beta(m_{Di} - m)^2 & m < m_{Di} \\ 0 & m \geq m_{Di} \end{cases} \quad (21)$$

for individuals who have preferences as regards markets structure.

The portion of aggregate welfare attributable to market structure is the negative of

$$N_1(0) + (N - N_1) \left(\frac{1}{2}\right) \beta \left(\frac{1}{km_{LR} - m_{LR}}\right) \int_{m_{LR}}^{km_{LR}} (m_{Di} - m_{LR})^2 dm_{Di}.$$

The first term is for individuals who are indifferent toward market structure. For individuals who have preferences about market structure, the second term, the welfare impact depends on individual preferred numbers of firms.

Evaluating the integral, aggregate welfare is (omitting functional dependence on some parameters for notational compactness)

$$U(H, Q, m_D, m_{LR}) = H + aQ - \frac{1}{2}bQ^2 - (N - N_1) \begin{cases} \frac{1}{6}\beta(k-1)m_{LR}^2 & m_{LR} < m_D \\ 0 & m_{LR} \geq m_D \end{cases}. \quad (22)$$

10.2 Second alternative

Return to the case that all individuals have the same preferred number of firms, m_D . Suppose there are $N_1 < N$ individuals who are indifferent to market structure; for these individuals, $\beta = 0$. For the remaining $N - N_1$ individuals, let β be uniformly distributed over the range $[0, \beta_{\max}]$, and let the distribution of β be independent of the distribution of reservation prices.

The portion of aggregate welfare attributable to market structure is the negative of

$$N_1(0) + (N - N_1) \left(\frac{1}{2}\right) \left(\frac{1}{\beta_{\max}}\right) \int_{\beta_i=0}^{\beta_{\max}} \beta_i d\beta_i,$$

and the interpretation of the two terms is similar to the first alternative specification.

Aggregate welfare is (omitting functional dependence on some parameters for notational compactness)

$$U(H, Q, m_{LR}, k) = H + aQ - \frac{1}{2}bQ^2 - \frac{1}{4}(N - N_1)\beta_{\max}. \quad (23)$$

11 References

Adams, Charles Francis (1897). “The Pace of Corporate Action in Our Civilization,” pp. 191-213 in Nathaniel Southgate Shaler, editor *The United States of America*, Volume II. New York: D. Appleton and Company.

Adams, Henry C. (1887). “Relation of the State to Industrial Action” *Publications of the American Economic Association* 1:471–549.

Adams, Walter and Brock, James W. (1987). “Antitrust and Efficiency: A Comment” *New York University Law Review* 61:1116-1124.

Adams, Walter, Brock, James W., and Obst, Norman P. (1991). “Pareto Optimality and Antitrust Policy: The Old Chicago and the New Learning” *Southern Economic Journal* 58:1-14.

Areeda, Phillip (1983). “Introduction to Antitrust Economics” *Antitrust Law Journal* 52:523-537.

Arrow, Kenneth J. (1969). “The organization of economic activity: issues pertinent to the choice of market versus non-market allocation,” in *The Analysis of Public Expenditure: the PBB System*. Volume I. U.S. Joint Economic Committee, 91st Congress, 1st Session, U.S. GPO, Washington, D. C., 59-73.

Bok, Derek C. (1960). “Section 7 of the Clayton Act and the Merging of Law and Economics” *Harvard Law Review* 74:226-355.

Bork, Robert H. (1966). “Legislative Intent and the Policy of the Sherman Act” *Journal of Law and Economics* 9:7-48.

— (1967). “The goals of antitrust policy” *American Economic Review* 57:242-253.

— (1978). *The Antitrust Paradox: A Policy at War With Itself*. New York: Basic Books. Second edition, 1993, with a new Introduction and Epilogue.

Brock, James W. and Obst, Norman P. (2009). “Market Concentration, Economic Welfare, and Antitrust Policy” *Journal of Industry, Competition,*

and *Trade* 9:65-75.

Brodley, Joseph F. (1987). "The Economic Goals of Antitrust: Efficiency, Consumer Welfare, and Economic Progress" *NYU Law Review* 62:1020-1053.

Brown, Stuart Gerry, Director, Aaron, and Weaver, Richard M. (1955). "Who are Today's Conservatives?" *University of Chicago Roundtable* Number 881:27 February.

Chandler, Alfred D. Jr. *The Railroads: The Nation's First Big Business*. New York: Harcourt, Brace & World, Inc. 1965.

— *The Visible Hand: The Managerial Revolution in American Business*. Cambridge, Massachusetts: Harvard University Press, 1977.

Chipman, John S. and Moore, James C. (1978). "The New Welfare Economics 1939-1974" *International Economic Review* 19:547-584.

Clark, John Bates (1900a). "The Necessity of Suppressing Monopolies while Retaining Trusts," pp. 404-409 in *Chicago Conference on Trusts*. Chicago Conference on Trusts. Chicago: Civic Federation of Chicago. Reprinted 1973 by Arno Press, Inc.

Clark, John Bates (1900b). "Trusts" *Political Science Quarterly* 15:181-195.

Crane, Daniel A. (2015). "All I Really Needed to Know About Antitrust I Learned in 1912" *Iowa Law Review* 100:2015-2038.

Destler, Chester McArthur (1953). "The Opposition of American Businessmen to Social Control During the "Gilded Age" *Mississippi Valley Historical Review* 39:641-672.

Ellison, Glenn (1994). "Theories of Cartel Stability and the Joint Executive Committee" *Rand Journal of Economics* 25:37-57.

Ely, Richard T. (1886). "Report on the Organization of the American Economic Association" *Publications of the American Economic Association* 1:5-32.

Farmer, Hallie (1924). "The Economic Background of Frontier Populism" *Mississippi Valley Historical Review* 10:406-427.

Fetter, Frank A. (1932). "The Economists' Committee on Anti-Trust Law Policy" *American Economic Review* 22:465-469.

Fiorito, Luca (2013). "When Economics Faces the Economy: John Bates Clark and the 1914 Antitrust Legislation" *Review of Political Economy* 25:139-163.

Fox, Eleanor M. (1981). "Modernization of Antitrust: A New Equilibrium" *Cornell Law Review* 66:1140-1192.

- Giddings, Franklin H. (1887). "The Persistence of Competition" *Political Science Quarterly* 2:62-78.
- Ginsburg, Douglas H. (2014). "Bork's 'Legislative Intent' and the Courts" *Antitrust Law Journal* 79:941-951.
- Giocoli, Nicola (2015). "Old Lady Charm: Explaining the Persistent Appeal of Chicago antitrust" *Journal of Economic Methodology* 22:96-122.
- Gunton, George (1888). "The Economic and Social Aspect of Trusts" *Political Science Quarterly* 3:385-408.
- Harberger, Arnold C. (1954). "Monopoly and Resource Allocation" *American Economic Review* 44 (Papers and Proceedings):77-87.
- Hart, Oliver D. (1975). "On the Optimality of Equilibrium When the Market Structure is Incomplete" *Journal of Economic Theory* 11:418-443.
- Hicks, John R. (1939). "The Foundations of Welfare Economics" *Economic Journal* 49:696-712.
- (1942). "Consumers' Surplus and Index-Numbers" *Review of Economic Studies* 9:126-137.
- (1945-6). "The Generalised Theory of Consumer's Surplus" *Review of Economic Studies* 13:68-74.
- Hollander, Stanley C. (1964). "Nineteenth Century Anti-Drummer Legislation in the United States" *Business History Review* 38:479-500.
- Hovenkamp, Herbert (1982). "Distributive Justice and the Antitrust Laws" *George Washington Law Review* 51:1-31.
- (1985). "Antitrust policy after Chicago" *Michigan Law Review* 84:213-284.
- (1989). "Antitrust's Protected Classes" *Michigan Law Review* 88:1-48.
- (2011). "Distributive Justice and Consumer Welfare in Antitrust." Electronic copy available at: <http://ssrn.com/abstract=1873463>.
- Kaldor, Nicholas (1939). "Welfare propositions of economics and interpersonal comparisons of utility" *Economic Journal* 49:549-552.
- Kintner, Earl W. *The Legislative History of the Federal Antitrust Laws and Related Statutes*. New York and London: Chelsea House Publishers, 1978.
- Kitch, Edmund W. (1983). "The fire of truth: a remembrance of law and economics at Chicago, 1932-1970" *Journal of Law and Economics* 26:163-234.
- Koopmans, Tjalling C. (1957). *Three Essays on the State of Economic Science*. New York and elsewhere: McGraw-Hill.

Lamoreaux, Naomi R. *The Great Merger Movement in American Business, 1895-1904*. Cambridge and elsewhere: Cambridge University Press, 1985.

Lande, Robert H. (1982) “Wealth Transfers as the Original and Primary Concern of Antitrust: the Efficiency Interpretation Challenged” *Hastings Law Journal* 34:65-151.

Letwin, William L. (1956). “Congress and the Sherman Antitrust Law: 1887-1890” *University of Chicago Law Review* 23:221-258.

Manne, Henry G. (2005). “How law and economics was marketed in a hostile world: a very personal history.” In Parisi, Francesco and Rowley, Charles K. *The Origins of Law and Economics*. Cheltenham, UK and Northampton, Massachusetts, USA: Edward Elgar, 309-327.

Marshall, Alfred (1920). *Principles of Economics*. London: The Macmillan Press Ltd, eighth edition, 1920;
<http://www.econlib.org/library/Marshall/marP.html>.

Martin, David Dale *Mergers and the Clayton Act*. Berkeley and Los Angeles: University of California Press, 1959.

Martin, Stephen (2008). “The Goals of Antitrust and Competition Policy,” pp. 19-84 in Wayne Dale Collins, editor, *Issues in Competition Law and Economics* American Bar Association.

McCurdy, Charles W. (1978). “American law and the marketing structure of the large corporation, 1875–1890” *Journal of Economic History* 38:631–649.

— (1979) “The *Knight Sugar* decision of 1895 and the modernization of American Corporation law, 1869-1903” *Business History Review* 53:304-342.

Meyer, Jane (2016). *Dark Money*. New York: Random House.

Miller, George H. (1954). “Origins of the Iowa Granger Law” *Mississippi Valley Historical Review* 40:657-680.

Newbery, David M. (1989). “Missing Markets: Consequences and Remedies,” pp. 211-242 in Frank Hahn, editor *The Economics of Missing Markets, Information, and Games*. Oxford: Oxford University Press.

Oxenfeldt, Alfred R. (1951). *Industrial Pricing and Market Practices*. Prentice-Hall.

Peckham, Brian W. (1983). “Trust Busting Reconsidered: United States v. Corn Products Refining Co.” *Utah Law Review* 1983:737-824.

Posner, Richard (1979). “The Chicago School of antitrust analysis” *University of Pennsylvania Law Review* 127: 925-948.

— (1987). “Legal formalism, legal realism, and the interpretation of statutes and the Constitution” *Case Western Reserve Law Review* 37:179-217.

Priest, George L. (2005). “The rise of law and economics: a memoir of the early years.” In Parisi, Francesco and Rowley, Charles K. *The Origins of Law and Economics*. Cheltenham, UK and Northampton, Massachusetts, USA: Edward Elgar, 350-382.

Reder, Melvin W. (1982). “Chicago Economics: Permanence and Change” *Journal of Economic Literature* 20:1-38.

Robbins, Lionel (1932). *An Essay on the Nature and Significance of Economic Science*. London: Macmillan.

— (1938). “Interpersonal comparisons of utility: a comment.” *Economic Journal* 48:635-641.

— (1981). “Economics and political economy” *American Economic Review* 71:1-10.

Rowe, Frederick M. (1984). “The decline of antitrust and the delusions of models: the Faustian pact of law and economics” *Georgetown Law Journal* 72:1511-1570.

Samuelson, Paul A. (1942). “Constancy of the marginal utility of income,” in Oscar Lange, Francis McIntyre, and Theodore O. Yntema, editors *Studies in Mathematical Economics and Econometrics*, pp. 75-91. Chicago: University of Chicago Press.

— (1990). “Trimming consumers’ surplus down to size,” pp. 261-297 in John D. Hey and Donald Winch, editors *A Century of Economics*. Oxford and Cambridge, Massachusetts: Basil Blackwell, 1990.

Slesnick, Daniel T. (1998). “Empirical Approaches to the Measurement of Welfare” *Journal of Economic Literature* 36:2108-2165.

Stigler, George J. (1943). “The new welfare economics” *American Economic Review* 33:355-359.

Selten, Reinhard (1973). “A Simple Model of Imperfect Competition, Where 4 are Few and 6 are Many” *International Journal of Game Theory* 2:141-201.

Simons, Henry C. (1936). “The requisites of free competition” *American Economic Review* 26:68-76.

U.S. Library of Congress *List of Books Relating to Trusts. With References to Periodicals*. Washington: Government Printing Office, Third edition, 1907.

Van Horn, Robert, Mirowski, Philip, and Stapleford, Thomas A., editors. (2011). *Building Chicago Economics*. Cambridge: Cambridge University Press.

Williams, Philip L. (1990). "The Attitudes of the Economics Professions in Britain and the United States to the Trust Movement, 1890-1914." In Hey, John D. and Winch, Donald, editors. *A Century of Economics*. Oxford: Basil Blackwell, pp. 92-108.

Williamson, Oliver E. (1968). "Economies as an antitrust defense: the welfare tradeoffs" *American Economic Review* 58:18–36.

Winch, David M. (1965). "Consumer's Surplus and the Compensation Principle" *American Economic Review* 55:395-423.

12 Cases

American Tobacco Co. *et al. v. U.S.* 328 U.S. 781 (1946).

Appalachian Coals, Inc., *et al. v. U.S.* 288 U.S. 344 (1933).

Brown Shoe Co. *v. U.S.* 370 U.S. 294 (1962).

FTC *v. Morton Salt Co.* 334 U.S. 37 (1948).

Jefferson Parish Hospital Dist. No. 2 *v. Hyde* 466 U.S. 2 (1984).

Maple Flooring Manufacturers Assn. *et al. v. US* 268 U.S. 563 (1925)

Northern Pacific Railway Company *v. U.S.* 356 U.S. 1 (1958).

Northern Securities Company *v. U.S.* 193 U.S. 197 (1904).

Reiter *v. Sonotone Corp. et al.* 442 U.S. 330 (1979).

Standard Oil *v. U.S.* 221 U.S. 1 (1911).

Standard Oil Co. (of Indiana) *v. FTC* 340 U.S. 231 (1951).

U.S. *v. Aluminum Co. of America et al.* 148 F.2d 416 (2d Cir. 1945).

U.S. *v. Columbia Steel Co. et al.* 334 U.S. 495 (1948).

U.S. *v. Corn Products Refining Co. et al.* 234 F. 964 (1916)

U.S. *v. E.C. Knight* 156 U.S. 1 (1895).

U.S. *v. Socony-Vacuum Oil Co., Inc. et al.* 310 U.S. 150 (1940).

U.S. *v. Trans-Missouri Freight Association* 166 U.S. 290 (1897).

U.S. *v. Trenton Potteries* 273 U.S. 392 (1927).

Virgin Atlantic *v. British Airways plc* 69 F. Supp. 2d 571 (1999).