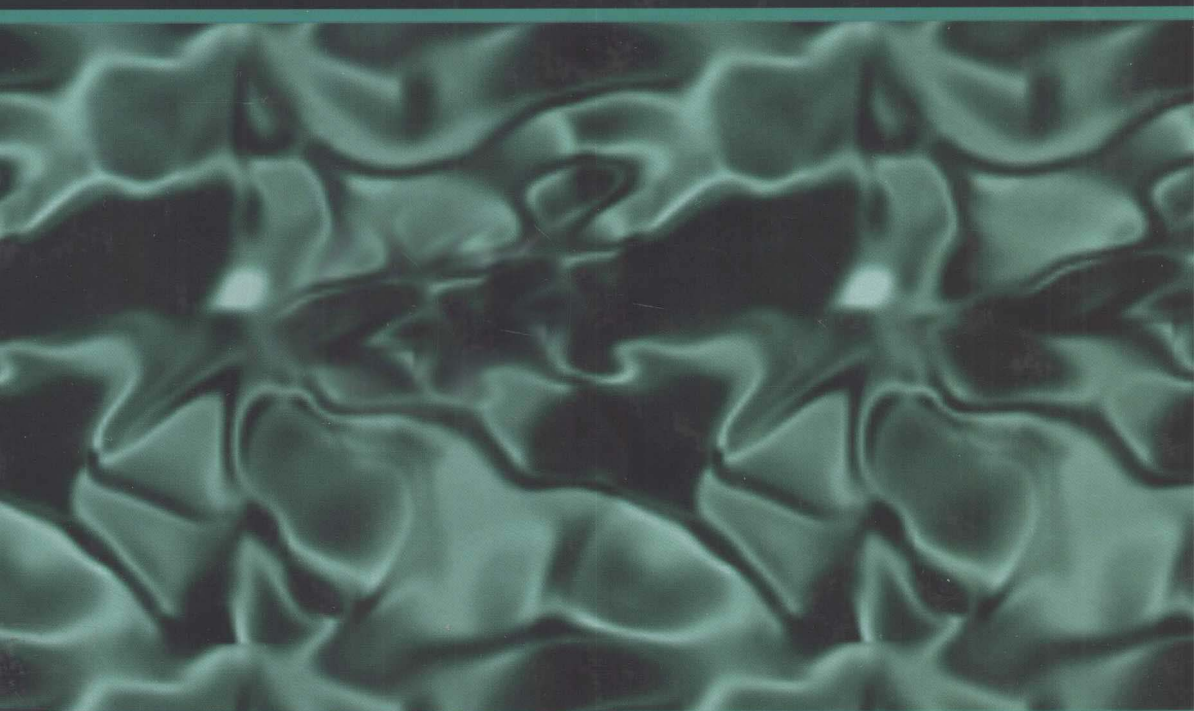


Economics of Antitrust Law

VOLUME I

Edited by **Benjamin Klein** and **Andres V. Lerner**



Economics of Antitrust Law

Volume I

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ECONOMIC APPROACHES TO LAW

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Published by
Edward Elgar Publishing Limited
Glensanda House
Montpellier Parade
Cheltenham
Glos GL50 1UA
UK

Edward Elgar Publishing, Inc.
William Pratt House
9 Dewey Court
Northampton
Massachusetts 01060
USA

A catalogue record for this book is available from the British Library.

ISBN 978 1 84542 513 5 (2 volume set)

Printed and bound in Great Britain by MPG Books Ltd, Bodmin, Cornwall.

Acknowledgements

The editors and publishers wish to thank the authors and the following publishers who have kindly given permission for the use of copyright material.

American Bar Association for article: Jonathan B. Baker and Timothy F. Bresnahan (1992), 'Empirical Methods of Identifying and Measuring Market Power', *Antitrust Law Journal*, **61** (1), Summer, 3–16.

American Economic Association for articles: Oliver E. Williamson (1968), 'Economies as an Antitrust Defense: The Welfare Tradeoffs', *American Economic Review*, **58** (1), March, 18–36; Franklin M. Fisher and John J. McGowan (1983), 'On the Misuse of Accounting Rates of Return to Infer Monopoly Profits', *American Economic Review*, **73** (1), March, 82–97; Joseph Farrell and Carl Shapiro (1990), 'Horizontal Mergers: An Equilibrium Analysis', *American Economic Review*, **80** (1), March, 107–26; Thomas M. Jorde and David J. Teece (1990), 'Innovation and Cooperation: Implications for Competition and Antitrust', *Journal of Economic Perspectives*, **4** (3), Summer, 75–96; Carl Shapiro and Robert D. Willig (1990), 'On the Antitrust Treatment of Production Joint Ventures', *Journal of Economic Perspectives*, **4** (3), Summer, 113–30.

California Law Review, Inc. for article: Janusz A. Ordover and Robert D. Willig (1983), 'The 1982 Department of Justice Merger Guidelines: An Economic Assessment', *California Law Review*, **71** (2), March, 535–74.

Federal Legal Publications, Inc. for article: Jonathan B. Baker (1993), 'Two Sherman Act Section 1 Dilemmas: Parallel Pricing, the Oligopoly Problem, and Contemporary Economic Theory', *Antitrust Bulletin*, **XXXVIII** (1), Spring, 143–219.

Georgetown University Law Center for article: Thomas G. Krattenmaker, Robert H. Lande and Steven C. Salop (1987), 'Monopoly Power and Market Power in Antitrust Law', *Georgetown Law Journal*, **76** (2), December, 241–69.

Harvard Law Review Association via Copyright Clearance Center for articles: Donald F. Turner (1962), 'The Definition of Agreement Under the Sherman Act: Conscious Parallelism and Refusals to Deal', *Harvard Law Review*, **75** (4), February, 655–706; William M. Landes and Richard A. Posner (1981), 'Market Power in Antitrust Cases', *Harvard Law Review*, **94** (5), March, 937–96.

Journal of Law and Economics and University of Chicago for article: Harold Demsetz (1973), 'Industry Structure, Market Rivalry, and Public Policy', *Journal of Law and Economics*, **16** (1), April, 1–9.

New York University Law Review for article: Jonathan B. Baker (2002), 'Mavericks, Mergers, and Exclusion: Proving Coordinated Competitive Effects Under the Antitrust Laws', *New York University Law Review*, **77** (1), April, 135–203.

The RAND Corporation for article: Franklin M. Fisher (1989), 'Games Economists Play: A Noncooperative View', *RAND Journal of Economics*, **20** (1), Spring, 113–24.

Stanford Law Review via Copyright Clearance Center for article: Richard A. Posner (1969), 'Oligopoly and the Antitrust Laws: A Suggested Approach', *Stanford Law Review*, **21** (6), June, 1562–606.

University of Chicago Press for articles: George J. Stigler (1964), 'A Theory of Oligopoly', *Journal of Political Economy*, **72** (1), February, 44–61; Benjamin Klein (1993), 'Market Power in Antitrust: Economic Analysis after Kodak', *Supreme Court Economic Review*, **3**, 43–92.

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In addition the publishers wish to thank the Library of Indiana University at Bloomington, USA, for their assistance in obtaining these articles.

Introduction

The Economics Revolution in Antitrust Law

Benjamin Klein and Andres V. Lerner

It is undeniable that economics has had a huge effect on antitrust law over the last 30 years. Richard Posner, in the preface to the second, 2001 edition of his landmark book, *Antitrust Law*, notes that since the publication of the first edition of the book in 1976 there has been ‘a profound, a revolutionary, change in [antitrust] law. Much of antitrust law in 1976 was an intellectual disgrace. Today, antitrust law is a body of economically rational principles...’¹

The dramatic shift in antitrust law can be vividly illustrated by contrasting Supreme Court decisions in the 1960s that ignored considerations of economic efficiency with the large number of later decisions where economic efficiency was a decisive factor. In fact, a number of Supreme Court decisions in the 1960s not only did not consider economic efficiency as a legitimate rationale for economic behavior, but actually condemned firm conduct in some important cases *because* it reduced costs. For example, in *Brown Shoe*² the court condemned a horizontal merger in a highly competitive market in part because the resulting firm would achieve efficiencies and be able to undersell its rivals. Similarly, in *Procter & Gamble*³ the Court condemned a conglomerate merger because it created efficiencies that rivals could not match. The contrast of these decisions with Supreme Court decisions since *Sylvania*,⁴ which can be considered a turning point in the role of economic efficiencies in antitrust case law, is striking.

In addition to the explicit consideration given to economic efficiencies, antitrust law has moved over the last 30 years to the adoption of a liability standard focusing on anticompetitive impact. In contrast to earlier antitrust decisions that were often motivated by a desire to protect small businesses, the court unambiguously stated in a decision issued the same year as *Sylvania* that ‘[t]he antitrust laws ... were enacted for the “protection of *competition* not *competitors*”.’⁵ This now much-quoted observation represents a clear shift by the Court away from a populist view of antitrust as a protector of small firms to an economic standard of antitrust liability that focuses entirely on anticompetitive market effects.

The legal consequence of these two trends – the increased relevance of economic efficiencies and the necessity to demonstrate anticompetitive market effects – has been a general movement in antitrust law away from per se rules to rule of reason analysis. This shift in the legal framework has been accompanied by an increased reluctance of the courts and regulatory authorities to disturb competitive market forces unless significant anticompetitive effects can be demonstrated. As a result, anticompetitive injury screens have developed in the form of increased minimum defendant market share requirements for antitrust liability.⁶

The purpose of these two volumes is to present a selection of the most important and influential articles underlying the economics revolution in antitrust law that has occurred over

the past 30 years. Some of the articles we have chosen significantly pre-date the legal revolution, but served as an intellectual foundation for the later shift in the law. For example, Aaron Director and Edward Levi's article (Chapter 1, Volume II), written in the mid-1950s, describes the weak economic basis of antitrust policy, and therefore the necessity for more rigorous analysis; George Stigler's 1964 article (Chapter 7, Volume I), which presents an economic alternative to the implicit oligopoly theory underlying the antitrust treatment of conspiracies and mergers, later became the economic foundation of the newly-instituted Merger Guidelines;⁷ and Ward Bowman's early article (Chapter 3, Volume II), which criticizes the monopoly leverage theory that was serving as the economic basis for antitrust regulation of tying, later motivated the systematic Chicago School economic revolution in vertical restraints antitrust law.

In addition to these early influential articles, we also have chosen some much more recent economic articles. For example, we include Dennis Carlton and Michael Waldman's economic model of anticompetitive tying (Chapter 8, Volume II), which explains the economic basis for the government's tying allegations in *Microsoft*;⁸ Barry Nalebuff's article on bundling (Chapter 9, Volume II), which deals with the current unresolved issue of the proper antitrust treatment of bundled discounts;⁹ and Benjamin Klein and Andres Lerner's analysis of the expanded forms of free-riding present in distribution arrangements (Chapter 16, Volume II), which provides an economic analysis of efficiency rationales for exclusive dealing contracts that have been the subject of recent antitrust litigation.¹⁰

We organize our discussion in this introductory essay of how economics has influenced antitrust law by topic area, with articles on market power/horizontal issues in the first volume, and articles on vertical/unilateral conduct issues in the second volume. However, the economic advances and insights that have influenced antitrust law, as well as some important unresolved economic questions such as the appropriate definition of antitrust market power, overlap these general classifications and are crucial for analyzing both vertical and horizontal antitrust issues.

The discussion within each topic area is presented chronologically, largely focused in terms of the crucial role played by the Chicago School of economics. Categorizing antitrust economic analysis in terms of pre-Chicago, Chicago and post-Chicago economics is a common way in which the influence of economics on antitrust law has previously been described.¹¹ In particular, the trend in antitrust economics over the last 30 years is often attributed to the adoption of the Chicago School approach in the late 1970s and early 1980s that largely undercut the expansive view of antitrust that was dominant in the 1960s and 1970s, followed by an economic reaction to a strict Chicago approach that occurred in the late 1980s and 1990s.

The impact and reaction to Chicago School economic analysis, however, differs greatly between horizontal antitrust issues and vertical antitrust issues. The economic advances in the analysis of horizontal antitrust issues, although resulting in a significant, fairly continuous movement to less restrictive antitrust regulation, did not involve a substantial change in the basic accepted economic framework. In contrast, the path of economic and legal developments with regard to vertical antitrust issues has been more dramatic and discontinuous. Chicago economics did not merely modify, but largely rejected the established vertical economics paradigm; and antitrust law beginning with *Sylvania* accepted this new economic paradigm by overturning previously clear antitrust law precedents.

Moreover, in contrast to the post-Chicago incremental changes in the economic analysis of horizontal issues, post-Chicago economic analysis of vertical issues has involved substantial

challenges to the Chicago analysis. Post-Chicago vertical economic analysis, while accepting the basic Chicago premise that a monopolist cannot collect its monopoly profits twice from its customers, challenged the basic Chicago inference that a vertical arrangement could not have horizontal anticompetitive effects. Antitrust law with regard to vertical issues, which has largely adjusted to the initial Chicago economic advances, is now struggling to determine how to incorporate these recent post-Chicago anticompetitive theories into the law.

Although we broadly summarize the history of antitrust economics in this essay in terms of the chronological categories of pre-Chicago, Chicago and post-Chicago economics, the critical importance of economics to current antitrust law largely transcends the particular economic propositions attributed to the original Chicago School economists or to the more recent criticisms and extensions by post-Chicago School economists. The enduring consequences of the Chicago School, fully accepted by the post-Chicago School, involve the increased relevance of economic efficiencies and the adoption of a competitive market impact standard. These two characteristics of the economic revolution in antitrust that began in the late 1970s continue to influence antitrust law today.

Horizontal Issues

The Pre-Chicago School Economic Framework

Pre-Chicago economists adopted an economic framework, later known as the 'structure, conduct, performance' paradigm, that assumed a direct relationship between industry concentration and economic performance.¹² According to this paradigm, an industry's structure determined its conduct, which in turn determined its competitive performance, that is, industry prices, output, and profits. Since industry structure determined equilibrium market prices, there was no need to explicitly consider the intermediate step of firm conduct, or exactly how an increase in industry concentration led to higher prices. However, the intermediate economic conduct step was usually assumed to be based on some form of the Cournot oligopoly model, a model where equilibrium market price is negatively related to the number of firms present in the industry. The structure–conduct–performance paradigm was the dominant theoretical framework of industrial organization economics from the 1950s to the 1970s.

The structure–conduct–performance paradigm was tested extensively by a number of economists during the 1950s and 1960s, most prominently by Joe Bain.¹³ These empirical studies generally found a positive relationship between industry structure (measured by the 4- or 8-firm industry concentration ratio) and industry performance (measured by average rates of return or price/cost margins), and also established that industries categorized as having high 'entry barriers' tended to have higher rates of return. These studies, therefore, appeared to validate the structure–conduct–performance framework and to provide support for the hypothesis that concentrated industries were less competitive than unconcentrated industries.

The theoretical and empirical economic analysis of the structure–conduct–performance paradigm can be thought of as providing an economic basis for early antitrust decisions that challenged horizontal mergers between extremely small firms.¹⁴ However, it may be more accurate to describe antitrust policy during the 1960s as having a goal of protecting small

firms as an essential element of the competitive process, independent of whether this could be economically justified as leading to more efficient (lower-price) market results.

Chicago School Economic Analysis

Although structure, conduct, and performance are useful categories in which to undertake economic analysis of industries, the Chicago School challenged the theoretical and empirical basis of the assumed direct relationship between industry concentration and performance in the pre-Chicago paradigm. On a theoretical level, George Stigler (Chapter 7, Volume I) argued that profitability in an industry would be elevated only if some form of collusion existed, and that conspiracies were inherently difficult to successfully organize and maintain. Since every individual firm in a collusive arrangement has a profit incentive to cheat on its colluding partners by expanding output, Stigler argued that conspiracies were likely to be highly unstable.

Stigler posited that successful collusion involves solving three fundamental economic problems: (1) reaching an agreement among the colluding firms, (2) detecting firms that violate the collusive agreement, and (3) punishing the firms that violate the collusive agreement. Because of the difficulties of solving these fundamental problems, Stigler maintained that successful collusion was likely to occur only infrequently, and therefore collusion between firms in a concentrated industry could not be assumed, throwing into doubt the supposed simple relationship between increased industry concentration and reduced competition.

Stigler's economic analysis of the problems involved in successfully colluding led him to conclude that the likelihood of collusion, and therefore of greater than competitive profits, in an industry depended upon a number of factors other than industry concentration. Stigler claimed that specific industry characteristics, such as the heterogeneity in the products supplied by firms and the importance of non-price competition, made it less likely that collusion would succeed in an industry. This is because these industry characteristics, Stigler maintained, increased the difficulties both of reaching a collusive price-fixing agreement and of detecting violations of a collusive agreement once reached. In particular, Stigler considered industries where firms sold differentiated products and engaged in non-price competition to be unlikely candidates for collusion because the profit maximizing price structure that takes into account product heterogeneity is complex and non-price competition makes deviations from such a price structure especially difficult to detect.

While these industry factors may be important in some contexts, a conspiracy may decide to fix market shares rather than a particular price and monitor deviations from agreed upon market shares to detect cheating.¹⁵ In addition, there are offsetting effects associated with product heterogeneity and non-price competition characteristics that must be taken into account. Stigler is correct that cheating on a price-fixing conspiracy may be more easily detected in industries where the product supplied is largely identical across firms and non-price competition is minimal. However, the elasticity of demand facing individual firms and therefore the economic incentives for individual firms to engage in cheating are likely to be substantially increased in such industries. This is because the expansion in sales that can be achieved by a firm that cuts price are substantially greater in such industries than in industries where buyers are loyal to individual firms because of specific non-price product characteristics

and firm reputations. Therefore, these Stigler factors must be examined on a case-by-case basis.¹⁶

In addition to Stigler's criticism of the theoretical foundation of the structure-conduct-performance paradigm based on the difficulty of establishing and maintaining effective collusion, a number of economists attacked the empirical basis of the paradigm. One element of this attack criticized the use of accounting profits as a measure of monopoly profits. Franklin M. Fisher and J. McGowan (Chapter 3, Volume I), for example, argued that accounting rates of return, which are typically calculated as the ratio of accounting profits to the depreciated historical book value of assets, are poor proxies for economic rates of return. When firms make intangible investments, such as investments in R&D and advertising, that generate long-lasting returns, accounting rates of return may be a poor measure of a firm's economic rates of return because they do not allow for the capitalization of such investments. In particular, because the investments are typically expensed when the R&D or advertising investments are made, but generate profits for many years, accounting rates of return will understate rates of return in years when the expenditures are made and overstate economic rates of return in years after the expenditures are made.¹⁷ Fisher and McGowan conclude that accounting rates of return will only by chance correspond to economic profits, and therefore provide no information about economic rates of return.

Another attack on the empirical studies that supposedly demonstrated the effect of increased concentration on reduced competition was made by Harold Demsetz (Chapter 1, Volume I).¹⁸ Demsetz argued that the positive relationship between concentration and profits did not imply that high concentration caused prices to be above competitive levels because more efficient firms that take advantage of, for example, economies of scale will grow and increase their market share. Therefore, increased concentration may be indicative of efficiencies that lead to both increased profits and increased concentration.

Demsetz tested this alternative hypothesis by showing that smaller firms in concentrated industries did not earn higher rates of return than smaller firms in unconcentrated markets, which he claimed would have been the case if small firms benefited from market prices that were held above competitive levels by dominant firms in concentrated industries. Instead, Demsetz found that the entire relationship between industry profitability and concentration could be explained by the greater profitability of the largest firms in the concentrated industries, suggesting that the positive relationship between industry concentration and profitability could be explained by the increased efficiencies of the largest firms in concentrated industries rather than by increased collusion in concentrated industries.¹⁹

In the 1980s the theoretical and empirical Chicago School criticisms of the simple structure-conduct-performance paradigm had a significant effect on merger policy. In particular, Stigler's theory was explicitly used as a basis for the US Department of Justice 1982 Merger Guidelines.²⁰ The Guidelines accepted the view that industry concentration was a significant factor in determining industry performance, affecting the likelihood that individual firms will either explicitly or tacitly collude, but concentration did not fully determine performance. The Guidelines adopted several other factors that the Stigler framework indicated affected the feasibility of a collusive agreement (such as the homogeneity of products, transparency of prices, frequency of transactions, and transaction size).²¹ In addition, the Guidelines emphasized supply-side factors, including the ease of expansion by firms in the market or the feasibility of new firm entry.²²

Another major economic advance in merger analysis, and in antitrust analysis more generally, instituted by the 1982 Merger Guidelines, was in more rigorously defining relevant product and geographic markets by adopting the now commonly used ‘hypothetical monopolist’ analysis. This framework, discussed by Ordover and Willig (Chapter 13, Volume I), asks whether a hypothetical monopolist of a group of products would find it profitable to institute a ‘small but significant and nontransitory’ price increase. A market is the smallest group of producers such that, if they behaved as a hypothetical monopolist, could impose such a price increase. This hypothetical monopolist test for market definition was later operationalized by using critical loss analysis, a technique that has become an important tool in the evaluation of mergers.²³

The Chicago School also advocated that merger policy should take account of efficiencies. Prior to this, potential efficiencies from mergers were not only not accepted as a defense, but some courts actually held that a merger could be illegal if it made a firm more efficient and thereby disadvantaged smaller competitors.²⁴ However, Oliver Williamson argued in an important article that cost savings would likely benefit consumers because even a monopolist would pass some portion of its cost savings on to consumers in lower prices (Chapter 12, Volume I). In fact, Williamson demonstrated that the efficiencies from mergers, such as economies of scale, did not have to be very large to offset any potential anticompetitive effects, so that any rational merger policy clearly should incorporate efficiencies into the antitrust analysis. The role of merger efficiencies as an integral part of the overall competitive analysis was explicitly recognized in the 1984 Merger Guidelines.²⁵

The recognition of these three economic factors, namely the difficulties of colluding even in relatively concentrated markets, the importance of supply-side factors (entry and expansion by competitors), and the efficiencies from mergers, led to a substantially more permissive merger environment. The result of the economic analysis was a substantial increase in minimum post-merger market shares before a merger was likely to be challenged by antitrust authorities or declared anticompetitive by the courts. Several lower courts in the 1980s and 1990s also reversed 1960s antitrust jurisprudence with regard to mergers by explicitly considering ease of entry conditions to permit mergers that yielded high market shares, largely accepting the Chicago School view that market forces could be expected in most circumstances to quickly correct any potential anticompetitive effects.²⁶

The importance of taking account of economic efficiencies associated with horizontal cooperation also led during this period to a substantially more lenient antitrust treatment of joint ventures. The Supreme Court explicitly rejected the use of the *per se* rule for efficiency-enhancing joint ventures, holding that the rule of reason should be used to assess such ventures (and restraints on joint venture participants).²⁷ The Federal Trade Commission and the US Department of Justice’s ‘Antitrust Guidelines for Collaborations Among Competitors,’²⁸ adopted in 2000, also explicitly recognized that joint ventures among horizontal competitors ‘often are not only benign but procompetitive’²⁹ and described a similar rule of reason framework that the agencies use in assessing efficiency-enhancing joint ventures. The Supreme Court further clarified in *Dagher* that competitor cooperation with regard to ‘core’ functions of a legitimate joint venture are not *per se* illegal.³⁰

Although these developments led to a more lenient treatment of joint ventures under the antitrust laws, several economists have argued that antitrust treatment of joint ventures remains unnecessarily hostile. For instance, Thomas Jorde and David Teece (Chapter 16, Volume I)

argue that antitrust law treats collaborations among competitors too harshly compared to other forms of industrial organization such as a merger. This treatment stifles innovation and puts US firms at a competitive disadvantage vis-à-vis foreign firms. Jorde and Teece propose that joint ventures should be treated no less favorably than mergers. For example, they advocate that the same 'safe harbors' used for mergers between firms with similarly small market shares should apply to joint ventures between firms with similarly small shares.³¹ Carl Shapiro and Robert D. Willig (Chapter 17, Volume I), in contrast, generally maintain that antitrust law strikes an appropriate balance between procompetitive efficiencies and concern about agreements that limit competition among horizontal competitors. However, they also claim that only a '*genuine* joint venture should almost surely be allowed if the participants would be permitted to merge' (pp. 127–8). But, even if a joint venture is not a naked restraint, there may be a reasonable economic rationale for treating joint ventures more stringently than mergers under the law. In cases where similar potential anticompetitive effects can be achieved by control through a joint venture as through a merger, we know that there are likely to be greater economic efficiencies for firms that are merging because full integration by merger involves much larger costs than does a joint venture.

Post-Chicago Extensions

The primary post-Chicago economic advance in the horizontal area was the development of dynamic game theoretic oligopoly models. Although game theoretic models of oligopolistic interaction had been developed many years earlier, more formal game theory models were developed in the 1980s where competitors were assumed to strategically interact with one another repeatedly over time. In particular, models were developed in which oligopolistic interaction led to the adoption of complex strategies in which firms changed behavior in one period depending on the market outcome in previous periods.³² Because repeated interaction increases the ability of firms to punish cheaters, dynamic game theory models suggest that individual firm's decisions to deviate from a collusive agreement may be more costly than Stigler believed.³³ However, this development in industrial organization economics has had little, if any, impact on the two key horizontal antitrust issues, namely identifying the presence of collusive agreements and analyzing the likely effect of mergers.

With regard to the issue of identifying collusive agreements among competitors, both explicit collusion and tacit coordination are more likely once repeated actions of industry participants are taken into account. This is because repeated multi-period interaction increases the ability of firms to punish firms that deviate from both explicit cartels and from implicit or tacit coordinated understandings. Moreover, because firms in an oligopolistic industry are likely to take into account the expected reaction of their rivals to their competitive behavior, an equilibrium may exist above perfectly competitive levels without any overt or explicit communication.

An important academic debate occurred in the 1960s on whether economic evidence of tacit collusion, such as 'consciously parallel' behavior, should in itself be considered a violation of Section 1 of the Sherman Act. Richard Posner (Chapter 9, Volume I) argued yes, while Donald Turner argued that the prohibition of tacit collusion, including parallel pricing, would require firms to irrationally not take into account the likely responses of their rivals when making decisions (Chapter 8, Volume I). Antitrust law has developed consistent with Turner's position, now very explicitly recognizing that real world competitive pricing and output decisions

involves firms taking account of the likely reactions of their rivals. Consequently, Section 1 liability requires more than parallel pricing and the demonstration that an oligopolistic industry may have reached a higher than perfectly competitive equilibrium. What is necessary is evidence consistent with explicit collusion, namely conduct that is clearly contrary to an individual firm's independent economic interests absent a collusive agreement.³⁴

A key economic question for antitrust is whether post-Chicago advances in game theory can help us in identifying the existence of an explicit collusive agreement rather than the existence of competitive tacit coordination by rivals who are taking account of one another's actual and expected behavior. Unfortunately, because the outcomes of dynamic game theoretic models are crucially dependent on the particular assumptions that are chosen, the answer is no. There is little if any insight that can be obtained from these models to be able to infer from the study of oligopolistic interaction or from a particular industry structure the existence of a collusive agreement.

Frank Fisher (Chapter 10, Volume I) is one of the many economists who reach this negative conclusion regarding the usefulness of dynamic game theory models in applied industrial organization and antitrust. Fisher describes the 'Folk-Theorem', one of the best-known results in game theory, where under specific conditions (an infinitely repeated game and sufficiently low discount rate) almost any outcome can occur. Since many different results are possible based on particular chosen assumptions and game theory does not provide any way of predicting which outcome is most likely to occur based on well-defined measurable variables (for example, industry or firm characteristics), Fisher concludes that 'anything that one might imagine as sensible can turn out to be the answer' (p 116). Therefore, despite substantially more complex mathematical models, the dynamic game theoretic literature does not in any significant way expand Stigler's intuitive framework of the factors that may make an explicit agreement more likely in a particular industry.

In contrast to Section 1 conspiracy law, which does not consider independent tacit coordination as an antitrust violation, merger law does legitimately consider the possibility of increased post-merger tacit coordination as well as express collusion when evaluating mergers. If market prices are likely to be higher after the merger, for whatever reason, it makes economic sense to consider that as a negative factor when deciding whether to approve a merger. The Merger Guidelines and case law during the 1980s focused on coordinated effects as the primary anticompetitive effect from mergers, whereby coordinated effects referred to the likelihood a merger would lead to higher prices by making it easier for firms to coordinate their actions either explicitly or tacitly. However, as described above, the checklist of factors provided in the Merger Guidelines based on Stigler's framework offers neither necessary nor sufficient conditions for explicit collusion, and much less so for whether a merger is likely to increase coordinated interaction among firms in an industry. More complex dynamic game theoretic models have not provided us with any additional structural measures or other practical guidelines upon which we can base a more enlightened merger policy than described by Stigler and expressed in the Merger Guidelines.

Given the shortcomings of the theory of coordinated effects and game theory models of oligopoly interaction, by the early 1990s the focus of merger analysis shifted to 'unilateral effects' as the primary theory of economic harm from mergers.³⁵ In a differentiated product industry, even if firms do not explicitly or implicitly coordinate their actions, it may be profitable for a merging firm to unilaterally decide to reduce its output and significantly raise

its price. This will be the case if pricing of a merging firm's product is constrained primarily by competition from a product of the merging partner, so that removing the constraint provides the firm with an economic incentive to increase prices. Models of unilateral effects therefore offered a clearer conceptual framework by which mergers could lead to higher prices than coordinated effects models.

In addition, unilateral effects models typically posit a simpler form of oligopoly interaction, such as Cournot or Bertrand, where each firm assumes that competitors will not change their behavior in response to their own actions. Farrell and Shapiro, for example, use a Cournot model to analyze the conditions under which a merger will lead to a welfare increase (Chapter 14, Volume I). Therefore, although unilateral effects analysis has been called 'the most significant post-Chicago development in the field of horizontal mergers',³⁶ the theory is based on pre-Chicago models of non-strategic oligopoly interaction, and such analysis became popular partly because of the shortcomings of post-Chicago game theoretic methods in providing useful results.

Unilateral effects theories not only provided a clearer theoretical framework than coordinated effects theories, but it also was believed that unilateral price changes resulting from mergers could be reasonably estimated empirically. In particular, developments in econometric tools (including advances in the ability to analyze large quantities of data) and increased availability of data (such as point-of-sale scanner data) made it possible to statistically estimate the extent to which consumers view individual products as close substitutes, the extent to which certain products constrain the prices of others, and the extent to which mergers therefore may lead to price increases when suppliers of close substitutes are combined.

The shift to unilateral effects was formalized in the 1992 Merger Guidelines, which describe several different mechanisms by which a merger in a differentiated products industry may lessen competition through unilateral effects, including conditions where competition is localized (geographic differentiation) or firms are capacity constrained.³⁷ Merger enforcement by the antitrust agencies and the courts also shifted their focus to unilateral effects. For instance, the FTC's (Federal Trade Commission) successful challenge to the Staples/Office Depot merger relied heavily on econometric evidence that the merger would lead to higher prices for consumers via unilateral effects. In particular, the FTC provided the court with evidence that a movement from three to two superstore competitors (OfficeMax was the only other office supply superstore) would result in increased consumer prices by empirically documenting that prices of office supplies were substantially higher in cities with only one superstore than in cities where two or three superstores competed, regardless of the availability of other retailers of office supplies. This indicated that Staples and Office Depot were significant competitive constraints on each other and that office supply superstores were a relevant antitrust market.³⁸

Although the statistical analysis underlying unilateral effects merger simulation models is complex, unilateral effects models generally are based on simple and restrictive assumptions. For instance, it is typically assumed that the Bertrand model (for differentiated product industries) or the Cournot model (for homogeneous product industries) is applicable with virtually no analysis of the actual validity of such assumptions in explaining competition in the market. Applying a highly simplistic theory without empirically validating that the theory adequately approximates reality can lead to erroneous results that can be highly sensitive to small changes in the underlying assumptions.

Moreover, in almost all circumstances, independent of the oligopoly model chosen, a unilateral effects theory will find that almost any merger is likely to increase prices when products are differentiated (in characteristics or spatially). This is because the framework focuses on the elimination of competition between the parties to the merger rather than competition at the market level. But this does not mean that there will be an actual increase in market prices once competitive responses are taken into account.

Consequently, some economists have more recently tried to revive interest in coordinated effects by clarifying the empirical circumstances when a merger may increase the effectiveness of coordination among firms in an industry. For example, Jonathan Baker maintains that one way in which a merger may facilitate coordination is if it involves the loss of a 'maverick' (Chapter 15, Volume I). Baker argues that, at the margin, there may be a firm in the industry that is close to indifferent between whether it will compete more intensely or 'pull its punches' by going along with the rest of the industry. Baker refers to such a firm as a maverick, which may include firms with lower marginal costs, excess capacity, or other characteristics that make coordinated behavior less attractive.³⁹

Whether mergers are analyzed from the point of view of a coordinated effects or unilateral effects theory, the consequence of the adoption during the 1980s of a more realistic economic framework that recognized both supply-side competitive factors and efficiencies resulted in a very substantial increase in the threshold concentration levels at which mergers would likely be challenged. Moreover, these economic factors combined with the growth of geographical markets for many products due to the forces of globalization has led to a continuing increase over time in threshold merger concentration levels, as antitrust authorities have increasingly recognized the efficacy of the competitive market process in mitigating any potential anticompetitive effects.

Market Power

Market power was defined by pre-Chicago economists as the ability of a firm to set price above marginal cost, as measured by a firm's elasticity of demand.⁴⁰ Chicago economic analysis accepted elasticity of demand as the appropriate definition of market power. The classic Landes and Posner article (Chapter 2, Volume I), however, more fully specified the economic factors that determined an individual firm's elasticity of demand, and therefore its market power, namely market share, market demand elasticity, and supply elasticity (both of existing competitors and the entry of new competitors). The only major difference of Chicago economic analysis of market power compared to pre-Chicago economic analysis was the greater emphasis on supply-side factors as economic determinants of market power.⁴¹

Benjamin Klein argues that antitrust market power is an economic concept that is distinct from a firm's own elasticity of demand (Chapter 6, Volume I). Specifically, in defining antitrust market power it is necessary to distinguish between a firm's ability to influence its own prices, as measured by its own-price elasticity of demand, and a firm's ability to influence market prices. A firm's ability to influence its own prices, in the sense of its ability to profitably charge a price greater than marginal cost, is measured by its own-price elasticity of demand. But all that is necessary for a firm to face less than a perfectly elastic demand and to be able to charge a price above marginal cost is the absence of perfect substitutes for its products. This

does not mean, however, that the firm has any significant ability to influence overall market prices, which is what is required for the firm to possess antitrust market power.

Defining a firm's market power in terms of the firm's own elasticity of demand amounts to using deviations from the perfect competition model as the measure of market power. However, in the abstract perfectly competitive economic model firms are assumed to be selling identical, homogeneous products. Consequently, firms in this model face perfectly elastic demands. But in contrast to the assumptions of the perfectly competitive model, almost all firms operating in real world competitive markets sell products that are somewhat differentiated and face negatively sloped demands, so that an increase in price leads to the loss of some but not all of a firm's sales. In these more normal circumstances, firms have some discretion over the prices they charge and will set price above marginal cost. But this does not mean that such firms possess any antitrust market power, nor that the more a firm's price deviates from the perfectly competitive benchmark, that is, the more inelastic a firm's demand, the greater the firm's antitrust market power.⁴²

In fact, there are many cases where an individual firm may have a highly inelastic demand for its products, yet these firms do not possess any antitrust market power whatsoever. For example, consider the case of Apple personal computers compared to computers sold with the Windows operating system. Using an own elasticity of demand criteria would imply that Apple has more market power in the desktop operating system market with its OS X operating system software than Microsoft's Windows because Apple computers with OS X are sold at higher prices relative to marginal cost than Windows-based computers. Once firms produce unique products, an individual firm's own-price elasticity of demand and profit-maximizing price relative to marginal cost does not tell us the extent of its antitrust market power, that is, its ability to restrict market output and raise market prices above the competitive level.

The importance of distinguishing between a firm's own-price elasticity of demand and a firm's ability to influence market output and price does not mean that comparisons of elasticities or of price-marginal cost margins across markets or over time do not sometimes provide valuable evidence for proving antitrust market power.⁴³ The most obvious example is the use of the estimated change in a firm's own-price elasticity of demand in horizontal merger analysis. Since we are concerned solely with whether the merger will cause a significant price increase from current levels, we can use the current prevailing price as the benchmark from which to measure increases in antitrust market power.⁴⁴ However, this is distinct from using the *level* of a firm's own-price elasticity or its price-marginal cost margin as a measure of the firm's market power, for example, in Section 2 cases. This is not appropriate in a differentiated products world where firms with absolutely no antitrust market power may price significantly above marginal cost.

The distinction between antitrust market power defined in terms of the firm's ability to affect market prices and the ability of a firm to affect its own prices as measured by the firm's own-price elasticity of demand is consistent with the definition of antitrust market power used in case law. In interpreting case law the key question is whether the legal formulation of the antitrust market power question, namely whether a firm has 'the power to control prices', the renowned *Cellophane* case definition of market power, refers to a firm's ability to control its own prices or a firm's ability to control market prices.⁴⁵ This ambiguity is resolved when one considers the *Cellophane* opinion, where it is clear that the court, in determining whether du Pont possessed market power, was not referring to du Pont's own elasticity of demand, that

is, the power of du Pont to control its own prices. In fact, the court explicitly rejected the notion that a firm's ability to control its own product prices determines whether a firm has market power, stating:

[O]ne can theorize that we have monopolistic competition in every nonstandardized commodity with each manufacturer having power over the price and production of his own product. However, this power that, let us say, automobile or soft-drink manufacturers have over their trademarked products is not the power that makes an illegal monopoly. Illegal power must be appraised in terms of the competitive market for the product.⁴⁶

The court thus was clear that deviations from the perfectly competitive benchmark should *not* be used to define market power. Rather than focusing on a firm's own elasticity of demand, antitrust market power must be defined in terms of the ability of a firm to influence market conditions.

More recent case law often defines market power as 'the ability to raise prices above those that would be charged in a competitive market'.⁴⁷ To understand whether this general definition of market power is consistent with our definition of antitrust market power in terms of the ability of a firm to influence market conditions, one must further define the 'competitive market price' benchmark. In particular, only if the competitive market price benchmark implicit in this definition is assumed to be the perfectly competitive equilibrium of price equal to marginal cost can we conclude that antitrust market power is referring to own-price elasticity of demand.⁴⁸ However, it is unlikely courts ever mean to suggest that market power exists when a small firm happens to face a downward sloping demand curve because of some unique characteristics of its products and thereby prices above marginal cost. Even an individual, well-known economist, for example, would possess market power under this standard because the demand for the economist's services is less than perfectly elastic, leading to economic service prices above marginal cost.⁴⁹

The major recent antitrust case that appears to contradict this distinction between the concept of antitrust market power and the definition of market power in terms of a firm's own elasticity of demand is the Supreme Court's *Kodak* decision.⁵⁰ Kodak refused to sell replacement parts to independent service organizations (ISOs) that serviced Kodak copiers, thereby requiring most users of its equipment to purchase service from them.⁵¹ The court concluded that it was reasonable, for purposes of rejecting summary judgment, to define a relevant market consisting solely of the aftermarket service of an individual company's products. The court reasoned that consumers who purchased Kodak copiers may not have been aware at the time of their equipment purchase of Kodak service prices. Moreover, even if consumers were aware of current service prices, consumers could be 'held up' by service price increases above the competitive level after they had purchased the equipment and became 'locked-in'. Therefore, a company with a relatively small share and no market power in the interbrand equipment market may nevertheless possess post-equipment purchase market power in the aftermarket relevant market for the service of its own products. This amounted to the implicit acceptance of a post-purchase own elasticity of demand definition of antitrust market power.⁵²

Antitrust case law developments since the court's decision in *Kodak* have narrowed considerably the conditions under which it is proper to deploy a post-equipment purchase, single brand aftermarket service analysis of market power.⁵³ In particular, to demonstrate a