

EDITED BY

**ROGER D.
BLAIR**
**D. DANIEL
SOKOL**

≡ **The Oxford Handbook of**
INTERNATIONAL
ANTITRUST ECONOMICS
VOLUME 2

THE OXFORD HANDBOOK OF

**INTERNATIONAL
ANTITRUST
ECONOMICS**

VOLUME 2

CONSULTING EDITORS

Michael Szenberg

Lubin School of Business, Pace University

Lall Ramrattan

University of California, Berkeley Extension

THE OXFORD HANDBOOK OF

INTERNATIONAL
ANTITRUST
ECONOMICS

VOLUME 2

Edited by
ROGER D. BLAIR
and
D. DANIEL SOKOL

OXFORD
UNIVERSITY PRESS

OXFORD

UNIVERSITY PRESS

Oxford University Press is a department of the University of Oxford. It furthers the University's objective of excellence in research, scholarship, and education by publishing worldwide.

Oxford New York
Auckland Cape Town Dar es Salaam Hong Kong Karachi
Kuala Lumpur Madrid Melbourne Mexico City Nairobi
New Delhi Shanghai Taipei Toronto

With offices in
Argentina Austria Brazil Chile Czech Republic France Greece
Guatemala Hungary Italy Japan Poland Portugal Singapore
South Korea Switzerland Thailand Turkey Ukraine Vietnam

Oxford is a registered trademark of Oxford University Press
in the UK and certain other countries.

Published in the United States of America by
Oxford University Press
198 Madison Avenue, New York, NY 10016

© Oxford University Press 2015

All rights reserved. No part of this publication may be reproduced, stored in a retrieval system, or transmitted, in any form or by any means, without the prior permission in writing of Oxford University Press, or as expressly permitted by law, by license, or under terms agreed with the appropriate reproduction rights organization. Inquiries concerning reproduction outside the scope of the above should be sent to the Rights Department, Oxford University Press, at the address above.

You must not circulate this work in any other form
and you must impose this same condition on any acquirer.

CIP data is on file at the Library of Congress
ISBN 978-0-19-938859-2

1 3 5 7 9 8 6 4 2
Printed in the United States of America
on acid-free paper

CONTENTS

<i>List of Contributors</i>	ix
<i>Introduction</i>	xiii

PART I MONOPOLIZATION: CONDUCT

1. A Framework for the Economic Analysis of Exclusionary Conduct B. DOUGLAS BERNHEIM AND RANDAL HEEB	3
2. Predatory Pricing KENNETH G. ELZINGA AND DAVID E. MILLS	40
3. Raising Rivals' Costs DAVID T. SCHEFFMAN AND RICHARD S. HIGGINS	62
4. Predatory Buying JOHN E. LOPATKA	72
5. Competitive Discounts and Antitrust Policy KEVIN M. MURPHY, EDWARD A. SNYDER, AND ROBERT H. TOPEL	89
6. Squeeze Claims: Refusals to Deal, Essentials Facilities, and Price Squeezes BARAK ORBACH AND RAPHAEL AVRAHAM	120
7. Innovation and Antitrust Policy THOMAS F. COTTER	132
8. Continental Drift in the Treatment of Dominant Firms: Article 102 TFEU in Contrast to Section 2 Sherman Act PIERRE LAROCHE AND MAARTEN PIETER SCHINKEL	153
9. Treatments of Monopolization in Japan and China PING LIN AND HIROSHI OHASHI	188

10. Monopolization in Developing Countries 234
ALBERTO HEIMLER AND KIRTIKUMAR MEHTA
11. Business Strategy and Antitrust Policy 253
MICHAEL J. MAZZEO AND RYAN C. McDEVITT

PART II VERTICAL INTEGRATION AND CONTRACTUAL EQUIVALENTS

12. Resale Price Maintenance of Online Retailing 277
BENJAMIN KLEIN
13. Exclusive Dealing 304
HOWARD MARVEL
14. Tying Arrangements 329
ERIK HOVENKAMP AND HERBERT HOVENKAMP
15. Vertical Restraints across Jurisdictions 351
EDWARD M. IACOBUCCI AND RALPH A. WINTER
16. Franchising and Exclusive Distribution: Adaptation and Antitrust 387
FRANCINE LAFONTAINE AND MARGARET E. SLADE

PART III COLLUSION AMONG OSTENSIBLE COMPETITORS

17. Cartels and Collusion: Economic Theory and
Experimental Economics 415
JAY PIL CHOI AND HEIKO GERLACH
18. Cartels and Collusion: Empirical Evidence 442
MARGARET C. LEVENSTEIN AND VALERIE Y. SUSLOW
19. Tacit Collusion in Oligopoly 464
EDWARD J. GREEN, ROBERT C. MARSHALL, AND LESLIE M. MARX
20. Auctions and Bid Rigging 498
KEN HENDRICKS, R. PRESTON McAFEE, AND MICHAEL A. WILLIAMS

21. Screening for Collusion as a Problem of Inference	523
MICHAEL J. DOANE, LUKE M. FROEB, DAVID S. SIBLEY, AND BRIJESH P. PINTO	
22. Competition Policy for Industry Standards	554
RICHARD GILBERT	
23. Antitrust Corporate Governance and Compliance	586
ROSA M. ABRANTES-METZ AND D. DANIEL SOKOL	
<i>Index</i>	619

LIST OF CONTRIBUTORS

Rosa M. Abrantes-Metz, Adjunct Associate Professor, Stern School of Business, New York University and Principal, Global Economics Group

Raphael Avraham, Associate, Snell & Wilmer

B. Douglas Bernheim, Edward Ames Edmunds Professor of Economics, Stanford University and Partner, Bates White Economic Consulting

Roger D. Blair, Walter J. Matherly Professor and Chair, Department of Economics, Warrington College of Business, University of Florida

Jay Pil Choi, Scientia Professor, School of Economics, Australian School of Business, University of New South Wales and Professor of Economics, Yonsei University

Thomas F. Cotter, Briggs and Morgan Professor of Law, University of Minnesota Law School

Michael J. Doane, Director, Competition Economics LLC

Kenneth G. Elzinga, Robert C. Taylor Professor of Economics, University of Virginia

Luke M. Froeb, William C. Oehmig Chair of Free Enterprise and Entrepreneurship, Owen Graduate School of Management, Vanderbilt University

Heiko Gerlach, Associate Professor, School of Economics, University of Queensland

Richard Gilbert, Emeritus Professor of Economics and Professor in the Graduate School, University of California, Berkeley

Edward J. Green, Professor of Economics, Penn State University

Randal Heeb, Partner, Bates White Economic Consulting

Alberto Heimler, Professor of Economics, Italian School of Public Administration

Ken Hendricks, Professor of Economics, University of Wisconsin

Richard S. Higgins, Director, Berkeley Research Group

Erik Hovenkamp, JD/PhD Candidate, Graduate School, Economics, Northwestern University

Herbert Hovenkamp, Ben V. & Dorothy Willie Professor of Law, University of Iowa

Edward M. Iacobucci, Professor of Law, Osler Chair in Business Law, and Associate Dean of Research, University of Toronto Law School

Benjamin Klein, Professor Emeritus of Economics, University of California, Los Angeles

Francine Lafontaine, William Davidson Professor of Business Economics and Public Policy, Professor of Economics, Ross School of Business, University of Michigan

Pierre Larouche, Professor of Competition Law, Tilburg Law and Economics Center (TILEC), Tilburg Law School, Tilburg University

Margaret C. Levenstein, Executive Director, Michigan Census Research Data Center; Research Scientist, Survey Research Center, Institute for Social Research; Adjunct Professor of Business Economics and Public Policy, Ross School of Business, the University of Michigan

Ping Lin, Professor, Department of Economics, Lingnan University of Hong Kong

John E. Lopatka, A. Robert Noll Distinguished Professor of Law, Dickinson School of Law, the Pennsylvania State University

Robert C. Marshall, Department Head, Professor, Department of Economics, Pennsylvania State University

Howard Marvel, Professor Emeritus of Economics, The Ohio State University

Leslie M. Marx, Robert A. Bandeen Professor of Economics, The Fuqua School of Business, Duke University

Michael J. Mazzeo, Associate Professor, Department of Management and Strategy and Faculty Associate, Institute for Policy Research, Northwestern University

R. Preston McAfee, Research Leader, Google

Ryan C. McDevitt, Assistant Professor of Economics, The Fuqua School of Business, Duke University

Kirtikumar Mehta, former Cartels Director, Directorate General for Competition, European Commission

David E. Mills, Professor, Department of Economics, University of Virginia

Kevin M. Murphy, George J. Stigler Distinguished Service Professor of Economics, University of Chicago Booth School of Business

Hiroshi Ohashi, Professor of Economics, University of Tokyo

Barak Orbach, Professor of Law and the Director of the Business Law Program, University of Arizona College of Law

Brijesh P. Pinto, Senior Consultant, Competition Economics LLC

David T. Scheffman, Director, Berkeley Research Group

Maarten Pieter Schinkel, Professor of Economics, Amsterdam Center for Law & Economics (ACLE), University of Amsterdam

David S. Sibley, Professor, Department of Economics, University of Texas at Austin

Margaret E. Slade, Professor Emeritus, Vancouver School of Economics, The University of British Columbia

Edward A. Snyder, Dean & William S. Beinecke Professor of Economics and Management, Yale School of Management

D. Daniel Sokol, Professor, Levin College of Law, University of Florida and Senior Research Fellow, George Washington University Law School Competition Law Center

Valerie Y. Suslow, Associate Dean of Graduate Programs, Professor of Business Economics and Public Policy, Louis and Myrtle Moskowitz Research Professor of Business and Law, Ross School of Business, University of Michigan

Robert H. Topel, Isidore Brown and Gladys J. Brown Distinguished Service Professor in Urban and Labor Economics, The University of Chicago Booth School of Business

Michael A. Williams, Director, Competition Economics LLC

Ralph A. Winter, Canada Research Chair, Business Economics and Policy and Professor, Strategy and Business Economics Division, Sauder School of Business, University of British Columbia

INTRODUCTION

ROGER D. BLAIR AND D. DANIEL SOKOL

ANTITRUST economics is a subset of industrial organization economics. What makes antitrust economics rather unique is the centrality of economic analysis to the development of antitrust law and policy. In the United States antitrust economics guides all antitrust analysis by government enforcers (at the federal level the Department of Justice Antitrust Division and the Federal Trade Commission) and courts. In other systems, the centrality of antitrust economics to antitrust law (typically called competition law) and policy has not been established. Instead, cutting edge antitrust economic analysis competes with non-antitrust economics goals. Nevertheless, across the major non-US jurisdictions, antitrust economics is far more utilized now than previously. With global mergers and various types of conduct, increased coordination across agencies, practitioner lawyers and economists around the world trained in the latest theories of antitrust economics, and a rise of economic analysis in decision-making by adjudicators, the increasing role of international antitrust economics seems somewhat inevitable.

The desire to provide scholars and policy-makers across jurisdictions a reference tool to understand the most important developments in antitrust economics motivates this handbook. We have assembled many of the most important scholars in the field to provide overviews and analysis of the core issuers in antitrust economics. Although no handbook can be exhaustive, we have attempted to cover all of what we believe to be the major topics in the field. The developments in economic analysis across these areas that the handbook covers will shape policy and legal issues in the field for some time. We hope that the handbook will provide inspiration for new avenues of theoretical and empirical research in the field.

Many people deserve thanks for this book. The project took a number of years to complete. Our editors at Oxford University Press deserve our gratitude for their patience and excellent editing. Coordinating production across so many chapters was not always easy. We particularly thank those authors who turned in their work in a timely manner.

THE OXFORD HANDBOOK OF

**INTERNATIONAL
ANTITRUST
ECONOMICS**

VOLUME 2

PART I

.....

MONOPOLIZATION: CONDUCT

.....

CHAPTER 1

A FRAMEWORK FOR THE ECONOMIC ANALYSIS OF EXCLUSIONARY CONDUCT

B. DOUGLAS BERNHEIM AND RANDAL HEEB

1.1. INTRODUCTION

“EXCLUSIONARY conduct” is a phrase commonly used to describe practices that a firm might undertake to deny a rival access to a market, or some portion thereof. The appropriate antitrust treatment of such conduct is a matter of spirited debate among both economists and legal scholars. The courts have likewise struggled to articulate consistent standards governing the legal status of various practices potentially deemed exclusionary, and some commentators go so far as to pronounce a circuit split between the applicable precedential cases, especially noting the apparently conflicting legal and economic principles articulated in *3M v. LePage’s* in the Third Circuit and *Cascade Health Solutions v. PeaceHealth* in the Ninth Circuit (see, e.g., Jaeckel 2010; Markus 2008; Hungar and Koopmans 2009). The lack of any clear consensus on principles heightens the risk that courts will inadvertently establish economically counterproductive precedents.¹ Legal practitioners complain that the resulting ambiguity precludes them from counseling clients effectively, leaving companies uncertain as to whether any given mode of conduct is

¹ This lack of consensus and the resulting prescriptive confusion was perhaps most visibly on display following the DOJ’s issuance of the Single Firm Conduct report in September 2008. The report emerged from lengthy joint hearings held by the DOJ and FTC, but was issued independently by the DOJ and instantly disavowed by four commissioners of the FTC (<http://www.ftc.gov/opa/2008/09/section2.shtm>). The DOJ subsequently withdrew the report in May 2009.

permissible or proscribed, and hence reluctant to pursue business strategies that might be procompetitive.

Devising clear and broadly applicable principles for analyzing allegedly anticompetitive exclusionary conduct is challenging in large part because that heading subsumes a wide range of diverse practices, including exclusive dealing and other agreements that limit a customer's or supplier's ability to do business with a rival, predatory pricing, bundled pricing, tying, and loyalty discounts. While these practices are unquestionably related, each differs from the others in potentially substantive ways. Those differences contribute to the multiplicity of models and theories pertaining to exclusionary conduct found in the scholarly literature, as well as to the disparate conduct-specific legal precedents. As a result, the topic of exclusionary conduct is widely perceived as complex, confusing, and unsettled.

Despite the manifest confusion surrounding these issues, we maintain that it is possible to distill from the extant body of scholarly thought a single, consistent, and tractable economic framework for analyzing the antitrust implications of a wide variety of exclusionary practices. Analytic unification is possible because all of the exclusionary practices listed above share an ability to activate a single economic mechanism. Briefly, the mechanism has the feature that exclusion from a market or some portion thereof weakens a rival, and thereby impairs its ability to compete for *other* business.² Our preference for a single, unified framework—rather than a conceptually distinct approach for each pertinent practice—reflects our belief that this mechanism overwhelmingly provides the most commonly and persuasively alleged pathway through which exclusionary practices potentially harm consumers. From that premise, it follows that the core objective of any inquiry into the potential anticompetitive effects of exclusionary conduct should be to detect and evaluate the mechanism's operation, a task that naturally calls for a unified approach. While we acknowledge that the scholarly literature has explored other economic mechanisms by which exclusion might achieve anticompetitive ends, we view these as considerably less important in practice, and better handled as special cases and/or exceptions to general principles (much as the *Horizontal Merger Guidelines* handle failing firms).³

With this perspective in mind, we describe a framework for systematically implementing a rule-of-reason inquiry into the competitive effects of exclusionary practices. In the first of three stages, one asks whether the conduct is in fact exclusionary. (To be absolutely clear from the outset, an affirmative answer to this first question does *not* signify that the conduct is necessarily anticompetitive.) For that purpose, we divide

² The "other business" often involves future sales for which exclusion will render the rival less competitive, but it may also consist of contemporaneous sales to other customers, for instance in other geographic regions.

³ For example, a pattern of patent abuse that prevents an established rival from entering a market can potentially achieve anticompetitive ends through exclusion without impairing a rival's ability to compete for other sales. Similarly, a network of vertical arrangements with a supplier might be used to coordinate and discipline collusive horizontal agreements among downstream firms, or to deter entry that might diminish overall industry profits. See Asker and Bar-Isaac (2014).

conduct into two broad classes: practices that involve “exclusionary conditions” and those that do not. We define an exclusionary condition as *any practice that renders aspects of transactions between a company and any one of its customers or suppliers effectively contingent upon that party’s dealings with the company’s rival(s)*.⁴ Practices involving exclusionary conditions include exclusive dealing (both total and partial exclusivity), loyalty discounts (with discounts tied to purchase shares),⁵ and myriad restrictions on customers’ dealings with rivals. Potentially exclusionary practices that do not involve exclusionary conditions include predatory pricing, simple bundling, volume discounts, and conventional tying.⁶ For the latter practices, the principle lever over the customer’s behavior is price, which the excluding firm links to the volume and/or composition of its own sales to the customer without conditioning on the customer’s purchases from rivals.⁷

For conduct involving exclusionary conditions, some degree of exclusion is generally explicit, in the sense that those conditions preclude or discourage incremental purchases from (or sales to) rivals, even if there is no change in purchases from (or sales to) the excluding firm. Consequently, establishing that such conduct is exclusionary (but not necessarily anticompetitive), as required in the first stage of the analysis, involves little more than documenting the conditionality.

In contrast, when exclusionary conditions are not employed, determining whether a particular practice serves exclusionary and nonexclusionary objectives is more challenging, and practical compromises are unavoidable. For example, a firm may reduce prices either to weaken a rival by depriving it of sales or simply to win more business. In that case, because the conduct at issue closely resembles the most common form of procompetitive behavior, subjecting it to close scrutiny creates a substantial risk of chilling beneficial rivalry. Consequently, it is appropriate to set a high bar for establishing that low prices are exclusionary (but not necessarily anticompetitive), as required in the first stage of the analysis; applying a price-cost test represents a reasonable compromise between the conflicting public policy objectives. A more nuanced standard is

⁴ Fiona Scott Morton (2012) coined the term “contracts referencing rivals” to describe agreements containing such terms, implicitly or explicitly.

⁵ We use the term “loyalty discounts” here to mean discounts that are conditional on the share of the customer’s business given to the discounting firm and, consequently, the share of business given to rivals, as opposed to volume discounts, which are conditional only on the volume but not the share purchased from the discounting firm. Some authors call this practice “fidelity discounts” or “market-share discounts.” A more descriptive term might be “purchase-share discounts” or “partial exclusivity discounts.” These terms are not used consistently by all commentators. Note that while nondiscriminatory volume discounts do not entail exclusionary conditions, they can achieve the same ends as loyalty discounts if they are tailored to the customer’s size or market potential.

⁶ Conventional tying (a “tie-in”) involves offering two or more products together when at least some of those products are not offered separately; it does not require exclusionary conditions. Negative tying (a “tie-out”) involves forbidding a customer from buying a particular product from a rival as a condition of sale for another product; it does involve exclusionary conditions. However, for reasons discussed later, that distinction turns out to be of relatively little practical significance within our framework.

⁷ A similar statement pertains to practices involving relationships with suppliers rather than with customers.

appropriate when the conduct resembles modes of nonexclusionary competition that have ambiguous implications for consumer welfare to begin with, such as price discrimination, or that are relatively uncommon, so that the downside consequences of chilling legitimate rivalry through scrutiny are modest.

In the second stage of the inquiry, one examines whether the exclusionary conduct has anticompetitive effects. Such an investigation is naturally structured around empirical manifestations of the main anticompetitive mechanism. Specifically, one asks whether, by virtue of exclusion, a rival's ability to compete for other business is impaired, so that market power is enhanced and consumers are harmed. One must also conduct a factual investigation of the industry to determine whether the types of market failures that are prerequisites for anticompetitive exclusion are present.

Upon reaching a determination that exclusionary conduct has anticompetitive effects, the inquiry proceeds to the third stage, in which one then asks whether the conduct has offsetting procompetitive effects. To demonstrate the presence of such effects, one must identify the market imperfections and contracting failures for which exclusion provides a potential remedy. The task of weighing anticompetitive and procompetitive effects against each other also requires one to document consumers' gains from the use of exclusionary measures, rather than the next best nonexclusionary remedy, to address the contracting failures.

The unified analytic framework set forth herein incorporates familiar principles and approaches and is at least arguably consistent with the legal precedents established in the guiding cases pertaining to exclusion. Importantly, the framework harmonizes the apparently disparate treatment of bundled pricing practices in *LePage's*, *Ortho*, and *PeaceHealth*. The recent decision by the Third Circuit in *ZF Meritor* explicitly addresses the distinction between price-related conduct governed by predatory pricing case law, including *PeaceHealth*, and exclusionary conduct governed by *LePage's*, in a way that fits nicely into the framework. As we explain, our approach is also compatible with the court's treatment of foreclosure and exclusive dealing in *Dentsply* and *Microsoft*, as well as in predatory pricing cases such as *Brooke Group* and *Concord Boat*.⁸

This chapter 1 is organized as follows: Section 1.2 describes the anticompetitive mechanism of primary concern and explains how the various aforementioned practices can activate it. Section 1.3 details the three stages of an inquiry into the competitive effects of exclusionary practices and provides brief examples. Section 1.4 discusses how to identify procompetitive effects and to balance these against anticompetitive effects. Section 1.5 concludes.

⁸ Even though each of these cases is typically cited as establishing precedent for one particular type of conduct, most if not all of them involve allegations of multiple exclusionary practices, or they at least discuss economic principles that are applicable to multiple practices. For a summary of the various elements present in key cases before 2005, see Kobayashi (2005).

1.2. WHY IS EXCLUSIONARY CONDUCT POTENTIALLY ANTICOMPETITIVE?

Antitrust policy is primarily concerned with the possibility that exclusionary conduct may lessen competition to the detriment of consumers. To determine whether conduct has that effect in any given instance, we must first understand how the effect might arise. Looking to the scholarly literature for guidance, one can become somewhat discouraged by the multiplicity of models and theories pertaining to exclusionary conduct, and by the absence of a clear focus on any single channel through which exclusion might affect market outcomes.⁹ However, the fact that scholars have explored a variety of issues pertaining to exclusion (and that journals favor studies that present novel perspectives) does not mean that it is impossible to distill useful general principles.

In this section, we identify the economic mechanism that we take to be the most important reason for concern about exclusionary conduct in practice, and we identify the modes of conduct that potentially implicate that mechanism. In section 1.3, we describe a framework for analysis that is designed to detect the operation of that mechanism and gauge its effectiveness. We do not mean to suggest that other mechanisms are never important, but they appear insufficiently common to serve as the central focus for a practical analytic framework.¹⁰

Throughout the following discussion, we focus on examples in which conduct excludes an upstream firm from a portion of the downstream market (e.g., a buyer agrees to make purchases from only one seller). Similar principles apply to cases in which conduct excludes a downstream firm from a portion of the upstream market (e.g., a seller agrees to make sales to only one buyer).

⁹ For instance, Aghion and Bolton (1987) show how exclusive arrangements can reduce the likelihood of entry by specifying a damage fee that the entrant must pay in order to make sales to the customers; Rasmusen, Ramseyer, and Wiley (1991) and Segal and Whinston (2000) highlight how exclusive arrangements can thwart entry when the incumbent monopolist can exploit the externalities between buyers; Bernheim and Whinston (1998) explain how exclusive dealing in one market can weaken the rival in another market. Salop and Scheffman (1983) explore mechanisms that achieve exclusionary outcomes by raising rivals' costs. Asker and Bar-Isaac (2014) show how a monopolist can support exclusion by sharing a portion of its monopoly rents with downstream firms and facilitating collusion among them so that they can avoid competing away those rents.

¹⁰ A branch of the literature suggests that exclusive dealing may provide a solution to what is known as the "hold-up problem," thereby allowing firms with market power to exercise that power more efficiently (Hart and Tirole 1988). We do not see that consideration as the central concern for antitrust policy (though it may play a role in particular contexts).

1.2.1. The Mechanism

The mechanism of concern is most easily illustrated in a market with the following features. A well-established firm (the “market leader”) competes with a smaller and less established rival (possibly a recent entrant) by selling a product to a group of customers. Entry barriers are high, so the market leader is not concerned about potential competition. The degree to which the rival will pose a future competitive threat to the market leader depends on the rival’s current success in the marketplace. (We discuss possible reasons for that dependence in section 1.3.) The market leader understands that dependence and exploits it to weaken the rival in the future. Specifically, through one or more of the exclusionary devices discussed in section 1.2.2, the market leader effectively “buys” a substantial chunk of the downstream demand so that customers will not purchase the product from the rival. While customers may benefit from improved terms in the short run, the future harm to competition leaves them worse off overall.¹¹

For the purpose of our analysis, the central feature of this example is that one customer’s decision to enter into an exclusionary arrangement with the market leader reduces the benefits that *other* customers can expect to derive from vendor competition. In the language of economists, this effect is an example of a “negative contracting externality” (which we will abbreviate as NCE)—that is, an adverse effect that one party experiences due to the nature of a contract between other parties. Here, the NCE results from the conjunction of three conditions: first, an exclusionary arrangement between the market leader and a customer impairs the rival’s ability to compete for future sales; second, entry is difficult (which typically implies that the market leader has market power), so that a reduction in the rival’s competitive efficacy leads to an overall decline in competition among vendors; and third, vendors have many potential customers, so that the burden of reduced competition resulting from the exclusionary arrangement is borne, at least in part, by customers who were not part of that arrangement.

In the absence of NCEs, vertical agreements that exclude rivals are generally procompetitive. To understand why that is the case, observe that any negotiation involving a vendor and a customer consists of two separable components, one encompassing all considerations that determine the size of the pie they expect to split and the other being the division of that pie. With respect to the second component, the vendor’s and customer’s interests are diametrically opposed; however, with respect to the first component, they are perfectly aligned, in the sense that both parties benefit from maximizing the pie’s size.¹² Consequently, when a vendor and a customer enter into an exclusionary

¹¹ For analyses that share the essential features of this example, see Bernheim and Whinston (1998, section IV); Rasmusen, Ramseyer, and Wiley (1991); and Segal and Whinston (2000).

¹² If an agreement between a vendor and a customer did not maximize the sum of their economic benefits, then one could propose an alternative that would make both better off, and the other would accept. This principle presupposes that vendors and customers can freely divide up the benefits they expect to derive from an agreement without otherwise altering the substance of the agreement—a condition that rarely fails to hold.

arrangement, one can infer that exclusion maximizes the sum of their economic benefits.

What about the economic benefits enjoyed by the customer? There is no reason to think that the mere possibility of agreeing to an exclusionary contract would improve the vendor's negotiating position with respect to the customer and thereby allow it to extract a larger share of the pie. Consequently, if exclusion maximizes the sum of the economic benefits enjoyed by the vendor and the customer, then it will also typically maximize the customer's benefits. This principle applies even when the seller allegedly possesses the power to "compel" the buyer. Unless exclusion increases the sum of the economic benefits received by the vendor and the customer, any bargaining power that is used to compel the customer's participation in an exclusionary arrangement could be deployed more profitably to obtain greater financial consideration without that arrangement.¹³ Robert Bork (1978) correctly recognized this point when commenting on *Standard Fashion*: "Standard can extract in the price that it charges all that its line is worth. It cannot charge the retailer that full amount in money and then charge it again in exclusivity that the retailer does not wish to grant."

From the principles in the two preceding paragraphs, it follows that, in the absence of NCEs, exclusionary agreements will emerge only if they are both socially beneficial, in the sense that they maximize total economic benefits to all members of society, and beneficial to customers. That is why (as noted above), unless NCEs are present, one can reasonably infer that such agreements are procompetitive whenever they are used. An alternative way to state this principle is that, in the absence of NCEs, a market leader cannot profitably engage in anticompetitive exclusion. Assuming that the exclusion of a rival has no procompetitive effects, it generally reduces the total economic value shared by the market leader and the customer.¹⁴ In that case, although a market leader *could* induce the customer to accept an exclusionary arrangement and thereby impair a rival, the terms required to secure the consent of a customer who anticipates the full impact of the rival's exclusion would leave the market leader with lower profits than it could achieve by negotiating a nonexclusive relationship. While there are exceptions to this principle,¹⁵ it applies in a wide range of circumstances.

¹³ This observation presupposes that the buyer and seller can write contracts that include volume-insensitive payments (e.g., a fixed fee that is imposed on top of per-unit charges). If one assumes instead that the buyer can only charge a fixed per-unit price, then Bork's argument (as well as the more general one given in the text) breaks down, and there is greater scope for anticompetitive exclusionary conduct (Matthewson and Winter 1987). As a practical matter, however, we believe that this alternative assumption is typically (though not always) incorrect. See O'Brien and Shaffer (1992) for criticisms of that assumption.

¹⁴ For example, if the established firm and the rival offer differentiated products, then the weakening of the rival deprives the buyer of value that the established firm cannot fully replace.

¹⁵ For example, as noted by Whinston (1990), commitments to certain types of exclusionary practices can alter strategic incentives in ways that favor the established firm, even with only one (current and future) buyer. Also, in some instances, customers may not fully anticipate the effects of exclusive arrangements with the vendor on future competition.

In contrast, when NCEs are present, the chain of reasoning that rules out the possibility of anticompetitive exclusion can break down. Specifically, an exclusionary arrangement can maximize the sum of the economic benefits enjoyed by the market leader and a given customer precisely because the resulting impairment of the rival allows the market leader to extract greater economic value from *other* customers.¹⁶ The seller can then secure each customer's consent to an exclusive arrangement for consideration that is potentially of much smaller value than the harm to all customers collectively.¹⁷ Accordingly, the market leader may well find anticompetitive exclusionary conduct profitable, even though it is highly inefficient.¹⁸

A simple numerical version of our example helps to illustrate this point. Suppose there are ten customers. When the market leader and any one customer enter into an exclusionary agreement, each customer loses \$10 due to reduced future competition (given that the rival is incrementally weakened), while the market leader gains \$80. Because all customers are adversely affected, NCEs are present. We have chosen these numbers so that exclusion is inefficient: the total loss to all customers (\$100) exceeds the gains to the market leader (\$80). Now suppose the market leader offers one of the customers \$11 to enter into an exclusive relationship. That customer will accept the deal because it comes out \$1 ahead. After paying for exclusion, the market leader comes out \$69 ahead. But every other customer comes out \$10 behind, and customers as a whole come out \$89 behind. From a collective perspective, the problem here is that each customer's willingness to enter into an exclusionary relationship reflects the balance of competing considerations that determine its own economic costs and benefits, rather than the costs and benefits for all customers. By signing up all customers to exclusive relationships for \$11 each, the market leader can achieve a total profit of \$690, leaving each buyer worse off by \$89, or \$890 in total. Thus, due to the presence of contracting externalities, the market leader profits from anticompetitive exclusion.

Our example shows that exclusionary agreements can be anticompetitive when they generate NCEs that are borne by the market leader's other customers. What if those externalities are instead borne by other parties? The fact that another party suffers from an NCE does not by itself provide an incentive to engage in anticompetitive exclusion.¹⁹ For such

¹⁶ Farrell (2005) provides an intuitive discussion of this mechanism.

¹⁷ In fact, when negative contracting externalities are strong, the consideration may be extremely small (Segal and Whinston 2000). For a more general discussion of negative contracting externalities, see Segal (1999).

¹⁸ See Bernheim and Whinston (1998, section IV). This was essentially the government's theory of harm in *Regional Health* (<http://www.justice.gov/atr/cases/unitedregional.html>).

¹⁹ For example, an exclusionary agreement between a vendor and a customer will typically impose an NCE on the vendor's rival. Such an effect would not necessarily implicate the antitrust laws, which are designed to protect competition rather than competitors. Leaving legal issues aside, in standard economic models an NCE borne by a rival does not reflect more effective expropriation of economic benefits from the rival by the market leader, the customer, or both. On the contrary, it reflects a reduction in aggregate economic benefits, as a result of which the market leader and customer also jointly suffer (e.g., because the incremental benefits of the rival's differentiated product are lost). Therefore, such NCEs cannot provide a motivation to engage in exclusion. In addition, the relationship between the rival and customer may effectively internalize any contracting externality experienced by the rival; see Bernheim and Whinston (1998).

an incentive to arise, the market leader and the customer must jointly benefit from that NCE; in other words, the NCE must exist because either the market leader, the customer, or both more effectively expropriate economic benefits from another party (just as in our example). For that to occur, the parties bearing the NCEs usually must lie downstream from the market leader—that is, they must either be the market leader’s customers, final consumers downstream from the market leader’s customers, or (in industries with long supply chains) companies situated between the two.²⁰

When vendors engaging in exclusionary practices sell intermediate goods, it is indeed the case that parties downstream from the market leader’s customers, such as final consumers, often suffer from NCEs. For example, such NCEs will be present if exclusion allows the market leader to charge higher prices in the future by weakening the rival, and if customers pass some portion of the price increase downstream.²¹ As long as an exclusionary arrangement between the market leader and a customer imposes NCEs borne by (or passed through) the market leader’s other customers, NCEs borne by downstream parties as a consequence of pass-through can magnify the incentive to engage in exclusion for anticompetitive purposes.²²

To illustrate this point, we will modify the last numerical example as follows. Suppose that when any one customer enters an exclusive deal with the market leader, all customers lose \$5 in future benefits due to reduced competition (given that the rival is incrementally weakened), and downstream consumers lose \$50, while the market leader again gains \$80. The total loss to all customers and downstream consumers combined is \$100, just as before, but now that loss is not absorbed entirely by the market leader’s customers. In this case, the market leader can lure a customer into an exclusive deal by offering only \$6 rather than \$11—the consenting customer ignores the benefits of an unimpaired rival not only to the market leader’s other customers but also to downstream consumers. After paying for exclusion, the market

²⁰ One can imagine exceptions. Suppose, for example, that the market leader and the rival purchase a critical input from an upstream supplier with market power. By weakening the rival, the market leader may be able to create offsetting monopsony power, and thereby obtain the input at lower cost. While the NCE suffered by the upstream supplier would provide an incentive for the market leader and the customer to enter into an exclusionary agreement, the agreement might well benefit consumers, and consequently might not qualify as an antitrust violation.

²¹ Pass-through is not a foregone conclusion. The market leader may have an incentive to exploit its market power by charging lump-sum fees, which the customer would tend to absorb.

²² See Abito and Wright (2008) and Simpson and Wickelgren (2007), which conclude that exclusion is more likely when buyers are downstream firms that compete with one another. A different conclusion (i.e., that exclusion is less likely when buyers are downstream competitors instead of final consumers) is reached by Fumagalli and Motta (2006), though their result depends crucially on some of their simplifying assumptions. For example, as discussed by Wright (2009), they assume that the downstream firms sell a homogenous good and have to pay a fixed cost to stay in business. As a consequence, a downstream firm that secures the input from the rival at a lower price can serve the entire downstream market without competitive constraint. The prospect of the resulting profit makes rejecting the dominant firm’s exclusive offer attractive; as a result, exclusion does not occur in equilibrium. However, with differentiated products and small fixed costs, the downstream firms that have entered into exclusive deals will remain in the market and continue to exert a competitive constraint on the deviating firm, making deviations less profitable.

leader comes out \$74 ahead. But every other customer comes out \$5 behind, or \$45 in total, while downstream consumers come out \$50 behind. The market leader could induce all of them to sign the same exclusive deal, thereby profiting \$740 in total, while leaving the customers all worse off to the tune of \$44 individually, or \$440 in total, and leaving downstream consumers worse off by \$500. Because the NCEs borne by downstream consumers reduce the price of exclusion (from \$11 in the previous numerical example to \$6 in this one), anticompetitive exclusive dealing presents the market leader with an even greater profit opportunity in this example (\$74 per customer, or \$740 in total) than in the previous one (\$69 per customer, or \$690 in total).

Downstream consumers may suffer from NCEs due to pass-through even in the absence of NCEs borne by (or passed through) other customers. However, in that case, firms do *not* generally have incentives to engage in exclusion to achieve purely anticompetitive ends. Consider the simplest case, in which the market leader and rival sell to a single customer, who in turn supplies a product to final consumers. Because exclusion of the rival does not increase the customer's market power over the final consumers, there is no reason to think that it allows the customer to expropriate greater economic benefits from them. Indeed, the effect can be precisely the opposite: if, by weakening the rival, exclusion subsequently allows the market leader to charge the customer a higher price, then expropriation of economic benefits from final consumers may become *less* efficient (e.g., due to double marginalization).²³ In that case, the NCE suffered by final consumers will be associated with a *reduction* in the joint benefits enjoyed by the market leader and the customer, rather than an increase, which attenuates the incentive to exclude. Thus, an exclusionary agreement between a market leader and a customer does not usually raise anticompetitive concerns unless it imposes NCEs borne by (or passed through) the market leader's *other* customers, and unless those NCEs reflect greater expropriation of economic benefits by the market leader.²⁴

It is worth emphasizing that, in the preceding examples (and more generally), exclusionary conditions are anticompetitive *even though each customer voluntarily agrees to exclude the rival*. Considered in isolation, each deal between the market leader and a customer is necessarily mutually beneficial, even accounting for its subsequent impact on competition. However, every such deal harms other parties (other customers and possibly their downstream consumers) who are not part of the deal.

²³ Spengler (1950) is credited with first articulating the inefficiencies of double marginalization.

²⁴ Notably, when NCEs are borne by (or passed through) the market leader's other customers, exclusion can lead to greater expropriation of economic benefits from final consumers. In that case, the rival's exclusion can mitigate the extent to which downstream competition limits the extraction of economic benefits from consumers: with a weakened rival, the market leader can raise the input price, thereby causing customers to increase the prices of their downstream offerings. Because competition would otherwise keep those prices below profit-maximizing levels, the sum of the economic benefits received by the market leader and the customer who enter into the exclusionary arrangement can rise, thereby making exclusion attractive for anticompetitive reasons.

Consequently, every customer would be better off if no deals were consummated; still, each customer has a strong individual incentive to consummate its own deal. It follows that coercion is not necessary to achieve exclusion. Indeed, recognizing the potential for mutual benefit, individual customers may actively seek exclusive arrangements with the market leader, but that possibility renders the arrangements no less anticompetitive.

Certain features of our examples play critical roles in generating anticompetitive effects, while others do not. Distinguishing between those two sets of features is important, because a well-designed antitrust inquiry should focus on the first set and not the second. In tracing anticompetitive exclusion to particular types of NCEs, we have emphasized the importance of entry barriers (and thus the market leader's market power), the rival's vulnerability, and the presence of multiple customers. Many other features of our examples are either inessential or less critical. For instance, similar conclusions follow regardless of whether there is one rival or many and irrespective of whether the rival is active or merely a potential entrant. In the remainder of this section, we elaborate on the roles played by several other features of our examples.

While our examples assume that exclusion impairs the rival's *future* competitive efficacy, the same anticompetitive mechanism can operate when exclusion only limits the rival's *current* ability to compete, for example through the lost economies of scale (see Rasmusen, Ramseyer, and Wiley 1991 and Segal and Whinston 2000). In the latter case, however, the mechanism may be more fragile. For example, it may operate less reliably when contract negotiations with customers are synchronized than when they are staggered (see Segal and Whinston 2000). Alternatively, if the source of the scale economies is a one-time entry cost, and if contract duration is short, then a new rival may well find it profitable to incur that cost even if the market leader has locked up a large fraction of the market in short-term exclusive arrangements; once the entry cost is sunk, the rival can operate efficiently at small scale, so that the exclusionary mechanism is subsequently disabled.

There is a sense in which the mechanism highlighted in this section always involves both profit sacrifice and recoupment. Any provisions in an agreement between the market leader and a customer that restrict the customer's freedom to do business with other vendors leaves the customer worse off, *ceteris paribus*. The customer will not enter into such an agreement voluntarily unless the market leader compensates it for that loss, thereby sacrificing profits. Similarly, the market leader will find the agreement unattractive unless it expects to recoup the compensation. It achieves recoupment by exercising greater market power over other parties. Thus, recoupment is the source of the NCEs at the heart of the mechanism.

Courts have long recognized that profit sacrifice and recoupment are essential features of predatory pricing, and require proof of both in that context (see *Concord Boat; Brooke Group*). Some subsequent commentators have advocated the application of this principle to exclusionary practices more generally, and have in particular proposed that courts use evidence of profit sacrifice as a criterion for distinguishing between

anticompetitive and procompetitive exclusionary conduct (see Melamed 2005; Werden 2006). Others have argued that exclusionary conduct does not necessarily require profit sacrifice, that the sacrifice may not be readily observable, and that it may not be closely associated with the underlying anticompetitive harm (see Nalebuff 2005a and 2005b; Salop 2006).

Though forms of sacrifice and recoupment are always elements of the anticompetitive mechanism highlighted above, a broad *requirement* that plaintiffs provide direct evidence of sacrifice and/or recoupment is inadvisable. Predatory pricing is a rather special case, in that there is a clear temporal separation between the periods during which the market leader sacrifices profit on the one hand and receives recoupment on the other. For many other forms of exclusionary conduct, there is no such separation. For example, when exclusionary contracts with multiple customers impair the rival's current competitive efficacy, each contract implicitly involves both profit sacrifice to secure that customer's assent, and (partial) recoupment of the profits sacrificed to secure the assent of *other* customers. One cannot, however, measure those components individually; the terms of the contract reflect only their combined effects. Even when the sacrifice and recoupment associated with an exclusionary agreement are temporally separated (as in our examples), exclusionary conduct may be ongoing, in which case the current profit sacrifice may be obscured by recoupment associated with past conduct.

Of course, for the market leader to engage willingly in anticompetitive exclusion, the anticipated recoupment must exceed the profit sacrifice, in which case the firm earns supracompetitive profits. To test that implication of the theory, one would not need to distinguish between sacrifice and recoupment. However, the use of such a test is also often inadvisable, given the difficulty of measuring economic profits, let alone *ex ante* profit expectations. Measurement problems aside, the firm may have other sources of supracompetitive profits or, alternatively, economic losses that offset the gains from anticompetitive exclusion. Thus, it is usually better to investigate whether economic conditions favor the operation of the anticompetitive mechanism. For example, supracompetitive profit (i.e., net recoupment) is possible only if the rival is weakened. This principle has been articulated most clearly in the context of predatory pricing: the predator cannot profitably exclude rivals by selling output at prices below cost unless, as a result, rivals collectively pose a reduced competitive threat in the future.²⁵ Of course, focusing only on the weakening of a rival would not distinguish the effects of anticompetitive conduct from the natural demise of a less efficient competitor. Thus, this element is necessary but not sufficient for the conduct in question to be anticompetitive via the highlighted mechanism.

²⁵ See Elzinga and Miles (1994). *Matsushita v. Zenith Radio* is the guiding case on the requirement for recoupment.

1.2.2. Modes of Conduct That Potentially Implicate the Mechanism

So far, we have been intentionally vague concerning the nature of the conduct through which a company excludes a rival from all or part of the market. Modes of exclusionary conduct fall into two main categories: practices that rely on the use of exclusionary conditions (defined in the next section), and those that do not. The latter category includes various pricing strategies, including predatory pricing, bundling, volume discounts, and conventional tying. There are, of course, important substantive differences between the modes of conduct that fall within these categories, and the case law treats them differently.²⁶ However, despite their differences, they have critical commonalities, chief among which is their ability to activate the anticompetitive mechanism described in the previous section. Accordingly, an analytic framework designed to detect the operation of that mechanism can be applied in a unified way to all modes of conduct within the two categories.

1.2.3. Practices That Involve Exclusionary Conditions

We use the phrase *exclusionary conditions* to denote practices that render aspects of transactions between a seller and one of its customers effectively contingent upon the customer's dealings with the seller's rival(s).²⁷ Often, an exclusionary condition takes the form of a restriction, which the customer accepts in exchange for a fixed payment or some other additional consideration (such as a discounted price for goods or services). Alternatively, a company may reward or penalize a customer based on the volume that it purchases from a rival.

The simplest and most readily recognizable type of exclusionary condition is a "100% exclusive deal," in which the seller either pays the customer an agreed sum of money or offers a commensurate price reduction, to refrain from doing business with the rival. Alternatively, instead of 100% exclusivity, the seller may place some other explicit or implied limit on the customer's dealings with the rival. For example, the seller may require the customer to restrict sales of its rival's products to no more than a specified (usually small) percentage of total sales.²⁸ Alternatively, it might require the customer to

²⁶ For predatory pricing, see *Concord Boat* and *Brooke Group*; for tying, see *Jefferson Parish, Microsoft*, and *Eastman Kodak Co.*; for exclusive dealing, see *Microsoft* and *Dentsply*.

²⁷ See Fiona Scott Morton (2012) for a characterization of such conditions.

²⁸ Applicable case law includes *Tampa Electric* (exclusive dealing arrangements violate antitrust law if it is probable that they "will foreclose competition in a substantial share of the line of commerce affected"); *LePage's* (exclusive dealing contracts with large customers); *Microsoft* (arrangements that closed to rivals "a substantial percentage" of distribution opportunities); *SmithKline* (conditioning rebates on market-share thresholds).

limit sales of rivals' products to secondary channels, forbid active marketing of rivals' products, or insist upon inferior placement of rivals' products in advertisements, store displays, or on customers' websites.²⁹ Provided that the scope of the resulting exclusion is sufficient to meaningfully handicap the rival and thereby impair its ability to serve other customers, such arrangements can activate the anticompetitive mechanism described in the preceding section.

Significantly, exclusionary conditions involve more than merely winning all of a customer's business through aggressive competition on the merits. Instead of focusing on the business that the customer transacts with the seller, these conditions place limits on the business that the customer can transact with the rival. This distinction is substantive. For instance, a requirement of exclusivity precludes the rival from selling *additional* units to the same customer beyond those the seller supplies, whereas merely winning a bid to sell the customer some number of units does not.

The fundamental character of arrangements involving exclusionary conditions does not depend on the form of consideration received by the customer in exchange for accepting the exclusionary condition. In the simplest case, the *quid pro quo* consists of a monetary payment. Alternatively, it could take the form of a large rebate or additional marketing funds (see, e.g., *LePage's*; *Microsoft*; *SmithKline*). It may also involve an in-kind payment, such as technological information, engineering support, preferential supply consideration, or other advantages.³⁰ Any good or service received as an in-kind payment has an equivalent monetary value—either the price for which the good or service sells in the open market or the price at which the seller would provide it to the buyer separate from the broader agreement. Transferring the good or service is economically equivalent to transferring its monetary value, although it may be very difficult to determine precisely what that value is.

When the seller's customers compete with each other downstream, the compensation that a customer receives in exchange for exclusivity may entail a promise to supply the customer at terms that are more favorable than those given to other customers. Such a promise effectively amounts to a payment for exclusivity: the seller forgoes revenue by supplying the customer at preferential terms; the customer receives an opportunity to earn greater profits in competition with other downstream firms. Significantly, the *quid pro quo* for accepting an exclusionary condition may also take the form of a threat unexecuted. For example, the seller can "reward" the customer's cooperation by refraining

²⁹ Applicable case law includes *Grinnell*; *LePage's*; *Conwood*; *General Industries*.

³⁰ See, e.g., *Microsoft*; in its complaint against Intel, the Federal Trade Commission charged that "[o]n one hand, Intel threatened to and did increase prices, terminate product and technology collaborations, shut off supply, and reduce marketing support to OEMs that purchased too many products from Intel's competitors. On the other hand, some OEMs that purchased 100% or nearly 100% of their requirements from Intel were favored with guarantees of supply during shortages, indemnification from intellectual property litigation, or extra monies to be used in bidding situations against OEMs offering a non-Intel product" (United States of America before the Federal Trade Commission, Complaint in the Matter of Intel (2009)).

from withholding products that are essential to the customer's business and/or from supplying the customer's competitors at favorable terms.³¹

An exclusionary condition need not be memorialized in a formal written contract. A shared understanding of the relationship between the extent of the customer's dealings with the rival and the consideration received from the seller will suffice.³² Indeed, ambiguity in the terms of the relationship can be useful to the supplier, as it permits the supplier to interpret the exclusionary requirement broadly and flexibly in light of new developments.

1.2.4. Practices That Do Not Involve Exclusionary Conditions

Anticompetitive exclusion does not require the use of exclusionary conditions. Instead, a company that seeks to limit a customer's purchases from a rival can simply "buy" the customer's business by offering sufficiently attractive terms for its own products. The most straightforward approach, predatory pricing, is to charge a price so low that the rival is unable or at least unwilling to compete. Of course, that practice closely resembles the type of competitive conduct that the antitrust laws are designed to protect. Conceptually, the considerations that distinguish predatory pricing from ordinary competitive pricing are motives and their associated effects. When a company sets its prices to maximize profits without regard to the effect that sales will have on the future viability of rivals, it is acting competitively, even if the rival suffers as a result. However, when a company sets a lower price than it would otherwise have charged because it recognizes that limiting a rival's sales will weaken the rival as a future competitor, it is acting anticompetitively.³³ Thus, anticompetitive pricing can be defined as prices below those that would prevail if the firm ignored any resulting impairment of rivals. Significantly, costs do not enter into that definition. However, because motives and counterfactual profit maximizing prices are difficult to establish in practice, predatory pricing is usually

³¹ See, e.g., *LePage's* ("[T]he evidence in this case shows that Scotch brand tape is indispensable to any retailer in the transparent tape market"). If the conduct succeeds in inducing the buyer's cooperation, then such a threat need never be carried out. Whether or not such threats can sustain an exclusionary equilibrium in a theoretical model or compel cooperation in the real world depends upon parties' beliefs. See for example Nalebuff (2005b). Thus, evidence illuminating both the beliefs of the parties and observable efforts to influence those beliefs may be informative about whether or not (anticompetitive) exclusion is possible.

³² The *Dentsply* court noted that although the arrangements between monopolist and dealer were "technically only a series of independent sales" rather than "agreements," "the economic elements involved . . . realistically make the arrangements here as effective as those in written contracts." See also *Tampa Electric* ("[E]ven though a contract does not contain specific agreements not to use the [goods] of a competitor, if the practical effect . . . is to prevent such use, it comes within the condition of the section as to exclusivity" (internal quotation omitted)).

³³ Ordover and Willig (1981) have proposed a definition of predatory pricing that is based on this distinction.

defined as pricing below some cost-based threshold. We will return to its practical definition in section 1.3.1.

Companies can accomplish the same end through more complicated pricing arrangements. One strategy, bundled pricing (or simply “bundling”), is to charge lower prices when goods are purchased in specified combinations than when they are bought separately. Antitrust concerns related to bundling tend to arise most often in practice when a seller offers a discount on a good over which it has monopoly power,³⁴ conditional upon the customer purchasing a sufficient volume of a product for which rivals provide close substitutes. As in the case of predatory pricing, the seller limits a customer’s purchases from rivals by “buying” the customer’s contested business; in this case, it compensates the buyer through the contingent discount on the monopolized good rather than through an unconditional discount on the contested good.³⁵

For the purpose of the mechanism described in section 1.2.1, it is not actually necessary for the seller to have significant market power over the good that bears the contingent discount,³⁶ inasmuch as this discount is simply a vehicle for packaging a payment to the buyer. From the perspective of a company seeking to exclude a rival, attaching the discount to a monopolized good is cosmetically advantageous; in that case, the discounted price may be well above cost and, hence, less likely to raise suspicion of anti-competitive predatory pricing. As we explain in section 1.3.1, any given contingent discount is more likely to be anticompetitive if the seller monopolizes the good that bears the discount, than if that good is provided competitively.

A seller can also use single-product pricing schemes (as opposed to the multiple-product pricing schemes employed in bundling arrangements) to reward buyers with lower prices and/or rebates when the volume purchased exceeds specified thresholds. As with predatory pricing and bundling, the seller limits a customer’s purchases from rivals by “buying” the customer’s contested business, but in this case, it compensates the buyer through a conditional discount on the contested good (e.g., with a volume discount or “loyalty” discount), rather than through either an unconditional discount or a conditional discount on some other good.³⁷

³⁴ Throughout, we use the phrase “monopoly power” to denote a high degree of market power, rather than that held by a textbook monopolist.

³⁵ When the seller links the discount on the monopolized good to the buyer’s purchases of the contested good from a rival, the conduct also involves exclusionary conditions, because it renders aspects of transactions between a company and one of its customers or suppliers effectively contingent upon that party’s dealings with the company’s rival(s).

³⁶ In contrast, for other mechanisms through which bundled pricing may have anticompetitive effects, a high degree of market power over the product that bears the contingent discount is essential (Whinston 1990).

³⁷ *Brooke Group* addressed discriminatory volume discounts and market share “loyalty” discounts as predatory pricing and examined them under a price-cost test; see Kobayashi (2005) for a discussion; see also Greenlee and Reitman (2006); *ZF Meritor* addressed contracts with high share requirements and other conditions restricting dealing with rivals without requiring a price-cost test.

Sellers can also exclude rivals through tying. Tying occurs when a company links a monopolized product to another potentially competitive product and either sells the products only as a package (conventional tying, or a “tie-in”) or requires that purchasers of the monopolized product refrain from purchasing the competitive products of rival firms (negative tying, or a “tie-out”). Negative tying involves an exclusionary condition, but conventional tying does not. Nevertheless, a seller can still exclude rivals through a conventional tie. Indeed, one can think of this practice as an extreme form of bundling, where the seller sets the prices of the products at prohibitive levels if they are purchased separately (so that the contingent discounts are extremely large). Even so, courts have treated the two practices differently. Any tie between a monopolized product and a competitive product is a *per se* antitrust violation, while a rule of reason is applied in cases that involve bundling.³⁸ Although a rule-of-reason analysis is better suited conceptually for correctly sorting out the exclusionary implications of tying than a *per se* standard, there is indeed a good reason to treat both forms of tying more skeptically than practices involving less rigid links between goods, such as bundled pricing; see section 1.3.1. In addition, tying may implicate some special anticompetitive mechanisms that bundled pricing is less likely to activate (see, e.g., Carlton and Waldman 2002).

1.3. EVALUATING EXCLUSIONARY CONDUCT

Having elaborated on the primary economic mechanism through which exclusionary conduct may achieve anticompetitive ends, we turn to the question of how one properly evaluates suspect conduct. It is helpful to divide the inquiry into three stages, each of which addresses a distinct question. First, we ask whether the conduct is, in fact, exclusionary. If we find that it is, we then move to the second stage and ask whether it has anticompetitive effects. To be clear, a finding that conduct is exclusionary does not by itself answer the second question; it merely establishes that further inquiry is warranted. If we find that anticompetitive effects are indeed present, we then move to the third stage, asking whether the conduct also has procompetitive effects and, if so, whether the company could achieve those benefits through less restrictive practices. If such effects are also present, we then weigh them against the harms to competition.

³⁸ *Jefferson Parish* establishes that tying is a *per se* violation if the firm has sufficient market power to compel customers of the tying good to purchase a “second, unwanted product.” Whether this precondition, which would make the tie a *per se* violation, is met in practice would appear to require a rule-of-reason analysis; the court further limited the assumption of market power based on patent rights in *Independent Ink*, observing that “many tying arrangements, even those involving patents and requirements ties, are fully consistent with a free and competitive market”; some commentators predict that the Supreme Court is on the verge of revoking the *per se* status of tying arrangement entirely. See, e.g., Werden (2009).

1.3.1. Determining Whether Conduct Is Exclusionary

Antitrust policy seeks to limit anticompetitive conduct without chilling legitimate competitive activity. Where exclusion is concerned, the similarities between procompetitive and anticompetitive conduct render that objective especially challenging. In some sense, all competitive conduct involves exclusion: the losing party is excluded from making the sales won by the prevailing party. Because exclusion of that form can motivate firms to better serve consumers' interests by lowering prices and improving quality, it is essential to define the scope of suspect conduct much more narrowly.

The type of exclusion that occurs with plain-vanilla competition has two features that render it innocuous. First, from the perspective of the prevailing firm, *depriving* the rival of sales is an incidental consequence of winning business; it does not provide additional motivation for prevailing over the rival beyond the benefits of *making* the sales. Second, the rival is free to make *additional* sales to the customer over and above those made by the prevailing firm. It is therefore appropriate to treat conduct as exclusionary (in the suspect sense) only when at least one of these features is absent; that is, *either* when there are good reasons to conclude that the excluding firm views the reduction in the rival's sales as an added benefit over and above the increase in its own sales *or* when the conduct precludes or impedes the rival from making incremental sales to the customer.

Based on these criteria, conduct involving exclusionary conditions is easily distinguished from plain-vanilla competition. If the objective is simply to win business, then, conditional on doing so, there is no reason in addition to require exclusion of the rival or otherwise seek to limit the rival's dealings with the customer. The inclusion of such provisions, which are secured only at a cost to the excluding firm, necessarily implies that it views the reduction in the rival's sales as an extra benefit. Exclusionary conditions also go beyond the units at stake in any given negotiation—they prevent the buyer from obtaining *additional* units from the rival, even when the excluding firm would not itself meet that incremental demand (e.g., because either it has limited inventories or the rival offers a differentiated product).

To be clear, exclusionary conditions are not necessarily anticompetitive. In some settings, they may help firms resolve incentive problems and thereby establish more productive business relationships, in which case their effects are at least partially procompetitive. However, they do not routinely arise in the course of competition on the merits. The potentially chilling effects of subjecting exclusionary conditions to scrutiny under the antitrust laws is therefore narrowly circumscribed and can be minimized provided that the courts carefully examine the conduct's causes and effects, recognizing the potential procompetitive uses of such conditions in particular circumstances. Certainly, there is no risk of chilling straightforward price and quality competition, which are the main engines of the competitive marketplace. Accordingly, evidence of exclusionary conditions adequately answers the threshold question—whether the conduct is exclusionary—and calls for a thorough investigation of competitive impact.

Unfortunately, if the challenged conduct does not involve exclusionary conditions, then matters are not so clear-cut. The distinction between exclusionary and nonexclusionary conduct is necessarily more subtle when the instrument of exclusion is the price of the good in question. Conceptually, the most challenging case involves predatory pricing. Some economists have proposed classifying a price as anticompetitive if it falls below the level that would prevail if the seller maximized short-term profits, ignoring effects on a rival's future competitiveness or on the number of rivals (Ordover and Willig 1981). While such definitions are conceptually appealing from the perspective of economic principles, they would potentially expose all forms of price cutting to routine challenge and would preclude procompetitive, dynamic rationales for such low prices, such as accelerated learning or penetration pricing. Such challenges could severely chill legitimate price competition to the detriment of consumers, contrary to the intent of the antitrust laws.

To reduce the risk of broadly chilling price competition, exclusionary pricing can be defined more narrowly, ideally with reference to characteristics that, like exclusionary conditions, are more distinctively anticompetitive. One widely discussed possibility is to focus on prices that are below costs (Areeda and Hovenkamp 2008). The law and most commentators treat such prices as presumptively exclusionary (because they prevent equally efficient rivals from winning business profitably) (see *Brooke Group* and *Advo*), and they arise in the course of legitimate competition only in relatively limited and identifiable circumstances.³⁹ Indeed, economic principles teach us that competition is desirable not because it drives prices downward, but rather because it pushes them toward costs (Bernheim and Whinston 2008). From the perspective of achieving a desirable allocation of society's resources, prices that are too low can be just as problematic as prices that are too high, even if they benefit consumers in the short term. To be clear, evidence of below-cost pricing does not by itself establish that a seller's conduct is anticompetitive, but it is another cause for potential concern and, like exclusionary conditions, calls for a thorough investigation of competitive impact. Consistent with this reasoning, the Supreme Court has ruled that below-cost pricing is a necessary (but not sufficient) condition for a finding of predation (see *Brooke Group*).

It is critical to emphasize, however, that as a matter of economic theory, prices above costs can be exclusionary and anticompetitive (Ordover and Willig 1981). To illustrate, suppose a monopolist in a differentiated product market faces competition from an emerging rival but realizes that the rival will be weakened in subsequent rounds of competition if it is denied opportunities to benefit from learning-by-doing, to raise capital at attractive terms based on evidence of market success, and to build valuable relationships with customers. Taking these effects into account, the monopolist would set a lower price than it would have otherwise chosen. Its conduct is exclusionary (because its objective is not merely to win sales but also to deprive the rival of sales) and anticompetitive

³⁹ E.g., prices below costs may be used procompetitively by a firm to promote product introductions, to gain positions of leadership in emerging industries, to benefit from learning-by-doing, or to generate positive externalities that increase the value of a firm's offerings in a two-sided market.

(because it reduces subsequent competition). And yet, there is no particular reason to think that the price it sets will be below cost.

Thus, the Supreme Court's requirement of a price-cost test in the context of predation is appropriate not because economic theory tells us that below-cost pricing is necessary for exclusion (which it is not), but rather because extreme caution is warranted to avoid chilling legitimate competition when price is the only instrument of exclusion. In principle, one could apply price-cost tests to exclusive deals (and other exclusionary conditions), by asking whether prices are below costs when adjusted to reflect an (appropriately attributed) share of the payment received in exchange for exclusivity.⁴⁰ However, the courts have pointedly *not* required such a test for exclusive dealing or exclusionary conditions (see, e.g., *Dentsply*; *Microsoft*). The absence of such a requirement is appropriate. The extreme level of caution exercised in the context of predatory pricing is excessive in the context of conduct involving exclusionary conditions because, unlike low prices, such conduct is (1) clearly differentiated from plain-vanilla price competition, and (2) a relatively uncommon consequence of routine competition, so that the adverse effects of chilling competition by subjecting those conditions to scrutiny is relatively small. In addition, when the monopolist supplies an intermediate good, exclusive dealing or exclusionary conditions (again, unlike a low price) can harm downstream customers *immediately* by blocking current sales of the rival's products, including those that are significantly differentiated from the monopolist's offerings.

For bundled pricing, an analysis of exclusion is neither as clear-cut as for exclusionary conditions, nor as challenging as for predatory pricing. A systematic pattern of linking discounts on monopolized products to competitive offerings in response to a rival's marketing efforts is certainly more suspicious than simply charging a low price. As with exclusionary conditions, if the object is simply to win the business, then the monopolist could incorporate the discount into the price of the good facing competition; there is no obvious need to provide it in a more convoluted way through bundled pricing. Moreover, because bundled pricing is used far less often than straightforward price competition, subjecting it to scrutiny under the antitrust laws does not carry nearly the same risk of chilling important forms of competition as scrutinizing low prices, particularly inasmuch as some of its other uses (e.g., facilitating price discrimination) may also be contrary to consumers' interests (Nalebuff 2005a). Even so, unlike exclusionary conditions, bundled pricing can arise when exclusion is not the objective; hence, the practice is not intrinsically exclusionary. Consequently, some additional consideration may be required to determine whether or not bundled pricing is exclusionary within the context of a particular factual setting.

Courts considering particular cases involving different factual circumstances have reached different conclusions as to the showing required to establish exclusion for

⁴⁰ Other commentators in this volume and elsewhere have discussed appropriate attribution of discounts in the context of bundled pricing. Mechanically, the same principles could be employed to compute attribution in the context of a payment for exclusivity. However, as we explain in the text, that calculation does not provide an appropriate basis for evaluating exclusionary conditions.

bundled pricing. Most notably, within a context where bundled pricing was intermingled with a broader pattern of exclusionary conduct by a monopolist (including exclusive dealing and other exclusionary conditions), the Third Circuit in *LePage's* determined such pricing to be exclusionary, without need for a showing that effective prices were below cost.⁴¹ In *Ortho* and *PeaceHealth*, two other courts examined bundled pricing in contexts in which it constituted the principal basis for alleged exclusion. Both courts recognized the potential for exclusion but endorsed the use of a price-cost test to determine whether bundled pricing actually had that effect, given the facts of those cases.

The apparently disparate precedents mentioned in the preceding paragraph are potentially reconcilable within our framework. It is far less likely that the objective of bundled pricing is nonexclusionary when a monopolist's intent to exclude is apparent from other intrinsically exclusive practices, as in *LePage's*, than when it is not, as in *Ortho* and *PeaceHealth*. Recalling that the argument for protecting bundled pricing is less compelling than that for protecting plain-vanilla price-cutting, one could reasonably conclude that the price-cost test is excessively demanding in the circumstances of *LePage's*, but not necessarily in those of *Ortho* and *PeaceHealth*.

In section 1.2.4, we noted that bundled pricing can in principle activate an anticompetitive mechanism even when the good that bears the discount is not monopolized. However, whether or not that good is monopolized affects the proper implementation of a price-cost test. The reason is that a properly performed price-cost test attributes contingent discounts to *contested* sales.⁴² Consider the following example: a company produces good A at a cost of \$5 per unit and good B at a cost of \$10 per unit, selling good A at a price of \$10 per unit and good B at a price of \$15 per unit. A customer purchases 1,000 units of good A and none of good B. Seeking to boost sales of good B, the company offers a discount of \$1 per unit on all units of good A if the customer purchases at least 100 units of good B. Under this bundled pricing scheme, the customer buys the first 100 units of good B at a net cost of \$500,⁴³ or \$5 per unit, which is below cost. If good A is monopolized, then the bundled pricing scheme fails the price-cost test: an equally efficient rival for good B cannot win business without losing money. In contrast, if good A is also contested, then the same scheme passes an appropriately formulated price-cost

⁴¹ See *LePage's* ("3M raises various objections to the trial court's decision but essentially its position is a legal one: it contends that a plaintiff cannot succeed in a § 2 monopolization case unless it shows that the conceded monopolist sold its product below cost. Because we conclude that exclusionary conduct, such as the exclusive dealing and bundled rebates proven here, can sustain a verdict under § 2 against a monopolist and because we find no other reversible error, we will affirm").

⁴² See *United Regional* ("To accurately determine whether United Regional's discounted prices are above cost, however, the entire discount should be attributed not to the entire volume of the 'competitive product[s],' as suggested by the court in *PeaceHealth*, *id.* at 909, but rather to the patients that United Regional would actually be at risk of losing if an insurer were to choose non-exclusivity (the 'contestable volume')"), <http://www.justice.gov/atr/cases/f267600/267653.pdf>.

⁴³ If the customer can buy 1,000 units of good A for \$10,000 or 1,000 units of good A and 100 units of good B for \$10,500 (i.e., \$9,000 for 1,000 units of good A and \$1,500 for 100 units of good B), the net difference is \$500.

test: an equally efficient rival can match and even beat the bundled price for 1,000 units of good A and 100 units of good B (\$10,500) while still earning a profit (because the total cost of the bundle is \$6,000). Indeed, if both goods are contested, then a bundled pricing scheme cannot fail an appropriate price-cost test unless the discounted price of at least one of the goods is below its cost, which typically is not the case.

When the good that bears the discount is not only monopolized but also generates large amounts of revenue, the attributed discount for the contested good can be very large, even when the nominal discount on the monopolized good is small (as in our example). Hence, under those conditions, there is legitimate reason for heightened concern that bundled pricing schemes are exclusionary.

Single-product volume discounts are widespread, likely for legitimate procompetitive reasons. Subjecting such discounts to scrutiny under the antitrust laws therefore runs a risk of chilling an important and largely beneficial form of competition. For that reason, the standard for evaluating exclusion should reflect a high level of caution, just as with aggressive price-cutting. Once again, a price-cost test emerges as a reasonable and practical compromise.⁴⁴

Some legal scholars have expressed the view that pricing schemes involving either a single product or multiple products belonging to the same market do not raise any antitrust concerns apart from the possibility of predatory pricing (see, e.g., Areeda and Hovenkamp 2008). Their argument asserts that if only one product is involved, a rival can then defeat any putative exclusionary effects of the pricing scheme by competing to sell all of the volume (in other words, by offering a package to meet all of the buyer's needs). That conclusion is warranted in some circumstances, but not in others, because it depends on critical and unstated assumptions: that the buyer is *willing* to purchase all units of the single product from the rival, and that the rival is *able* to provide all of the units that the buyer requires. These assumptions may be untenable. The first assumption is violated, for example, when the buyer uses the single product in two or more distinct applications and the perceived suitability of the rival's offering is low for at least one important application.⁴⁵ The second assumption is violated, for example, when the rival is capacity constrained. In such cases, because the rival cannot offer a competing package to meet all of the buyer's needs, single-product bundled pricing schemes, including certain types of volume discounts, can raise the same concerns about exclusion as bundled pricing involving multiple products.

For volume discounts, exactly as for bundled pricing, all contingent discounts are appropriately attributed to the contested units. To illustrate, let's suppose that a company sells its product for \$10 per unit, and that a customer buys 800 units. Seeking

⁴⁴ See notes 10, 21, 27 above.

⁴⁵ For example, with respect to allegations that Intel excluded AMD from portions of the market for microprocessors, the European Commission found that computer purchasers fell into two classes: those who insisted upon purchasing Intel-based computers, and those who were open to purchasing AMD-based alternatives; moreover, in order to remain viable, computer makers needed to carry Intel-based computers for the first group. Decision of the European Commission (Non-confidential version), (COMP/C-3 /37.990—Intel) at 870–71.

to boost sales, the company offers a discount of \$2 per unit on the first 1,000 units if the consumer purchases at least 1,000 units; the customer responds by purchasing 1,000 units (paying \$8,000 in total). If all units sold to the customer are contestable, an equally efficient rival could then conceivably secure the customer's business by charging a total of \$8,000 for 1,000 units, for an average of \$8 per unit. Applying the same standard as for predatory pricing, the volume discount fails the price-cost test if the unit cost of production is greater than \$8 and passes it if the unit cost is less than \$8.

Now let's assume that the first 600 units of the product sold to the customer are not actually contestable. (Possibly the customer has downstream clients for whom the brand of the input is essentially nonnegotiable.) In that case, the rival can only contest the last 400 units. Under the volume discount scheme, the customer pays \$6,000 for the first 600 units and \$8,000 for 1,000; therefore, incrementally, the customer pays \$2,000, or \$5 per unit, when buying the last 400 units from the volume discounter. If the cost of production is, say, \$7 per unit, then this pricing arrangement fails the appropriate price-cost test (because it precludes an equally efficient rival from winning the 400 contestable sales without losing money), even though it would pass the corresponding test when evaluated as conventional predatory pricing.

One can think of conventional tying as an extreme form of bundling, where the seller sets the prices of the products at prohibitive levels if they are purchased separately (so that the contingent discounts are extremely large). Consequently, to determine whether it is exclusionary, we apply the same test as for bundling.

To illustrate, suppose a seller ties two products, good A and good B, so that customers must buy an equal number of each. Our objective is to determine whether the tie excludes a rival producer of good B. For the customer, the incremental price of obtaining good B from the tying firm, conditional on purchasing good A, is zero, which is always below cost. Therefore, if the tying firm monopolizes good A, then the tie automatically fails the pertinent price-cost test. It follows that a tie between a monopolized good and a contested good is intrinsically exclusionary. To determine whether the exclusion is anti-competitive, one would proceed directly to the second stage of the analysis; however, because other uses of tying are not necessarily in consumers' interests, a *per se* standard may well be justified.

Thus, even though conventional tie-ins between contestable and monopolized goods need not involve exclusionary conditions, our framework effectively treats them as if they do: because such tying fails the pertinent price-cost test automatically, one moves immediately to the second stage of the analysis, just as if exclusionary conditions were present. In practice, that same treatment is also sometimes warranted because the tie is associated with implicit exclusionary conditions that make it costly or infeasible for the customer to deal with a rival.

In contrast, if the tying firm does not have market power over good A, then a rival could contest the entire bundle. In that case, we simply treat the bundle as a single product: the inquiry into anticompetitive exclusion ends unless the bundle's cost exceeds its price. The fact that there is a tie raises no additional issues.

1.3.2. Determining If Exclusionary Conduct Has Anticompetitive Effects

Exclusionary conduct is not necessarily anticompetitive; indeed, it sometimes has pro-competitive effects. Consequently, even when conduct has been deemed exclusionary, further investigation is required to determine whether it is in fact problematic from an antitrust perspective.

To determine whether exclusionary conduct generates anticompetitive effects through the mechanism discussed in section 1.2.1, one can apply a test consisting of the following four elements:

Element 1: Diminished ability to compete

Element 2: Enhanced market power

Element 3: Harm to consumers

Element 4: Negative contracting externalities

We will elaborate on each of these elements in turn.

1.3.2.1. *Element 1 (Diminished Ability to Compete)*

Exclusion from the portion of the market targeted by the excluding firm's conduct must significantly impair the rival's ability and/or incentive to compete effectively for business *other than that which the excluding firm captures directly*. In other words, the impact on the rival of the exclusionary conduct must extend beyond the loss of the sales covered by the agreement. It is not enough that the conduct simply deprives the rival of the sales that are captured by virtue of the conduct; after all, the customer forgoes the opportunity to purchase those units from the rival voluntarily and cannot be worse off as a consequence.⁴⁶ However, if the rival's ability to compete for *other* sales—for example, sales at later points in time or to other customers—is substantially impaired by conduct that precludes the rival from doing business with a customer, then that conduct is potentially anticompetitive. Notice that this first element of the test automatically protects firms that adopt exclusionary practices in contexts where there is no serious risk of meaningfully weakening rivals; see section 1.4.1 for an example involving a soft drink duopoly.

Why might exclusion substantially impair a rival's ability and/or incentive to compete effectively at later points in time? There are many possibilities. One effect of exclusion is that it reduces the rival's cash flow by limiting its ability to make profitable sales. When a company cannot access external capital markets on attractive terms (which is often the case for the types of firms that are the victims of exclusionary practices), limited cash

⁴⁶ Even if the customer is coerced by the threat of retaliation for purchasing from a rival, the choice to accede to the condition must be in the customer's interest, given the threat, and the customer is no worse off than if the seller had chosen to exercise the same negotiating power in some other way.

can constrain its investments in research and development, as well as in plant and equipment, thereby undermining its ability to offer competitive products in the future. Cash constraints can slow a company's growth and prevent it from achieving an economically efficient scale.⁴⁷ They can prevent the company from enjoying a "cushion" against hard times, bad luck, or even bad decisions of the sort that the monopolist, not similarly constrained, can weather.

Often, a company with good prospects can turn to external investors to overcome its liquidity constraints. In practice, a greater need for external financing can increase a rival's cost of capital (Myers 2003). External financing can be particularly expensive when insiders have much better information about the company's prospects than outside investors, which is often the case for newly emerging rivals (see Jensen and Meckling 1976; Myers and Majluf 1984). The problem of asymmetric information may be so severe that that a company's ability to raise capital essentially vanishes (Stiglitz and Weiss 1981). Significantly, when outside investors are unaware that the rival's failure to generate profits results from anticompetitive exclusion (or are simply uncertain about the existence, continuation, and/or impact of anticompetitive conduct), they may conclude incorrectly that the company itself is at fault, that its business plan is ill-conceived, and that its prospects are therefore poor, even if it is, in fact, positioned to compete successfully on the merits.⁴⁸ Accordingly, anticompetitive exclusion can leave a company cash-starved, dependent on costly sources of finance, and with limited ability to raise funds.

A second effect of exclusion is that it can prevent the rival's product from earning the degree of customer acceptance required to compete effectively. In some contexts, customer interest and acceptance depend on whether the product is widely used, for example because positive evaluations spread by word of mouth, because extensive use establishes reliability, or because adoption by certain market leaders, or in certain applications, confers validation. Limiting usage through exclusion (particularly selective exclusion from opinion leaders) deprives the rival of the opportunity to acquire those competitive advantages. In other circumstances, successful product development depends upon iterative feedback from customers, so hindering access to initial customers can inhibit future product innovation.

A third effect of exclusion is that it can prevent the rival from achieving the scale and scope necessary to compete effectively. For example, in industries where firms

⁴⁷ A leading treatise explains, "A set of strategically planned exclusive dealing contracts may slow the rival's expansion by requiring it to develop alternative outlets for its products or rely at least temporarily on inferior or more expensive outlets. Consumer injury results from the delay that the dominant firm imposes on the smaller rival's growth." (*Dentsply* at 191, quoting Hovenkamp 2002). The *Dentsply* court found that the monopolist's exclusionary conditions "help[ed] keep sales of competing teeth below the critical level necessary for any rival to pose a real threat to Dentsply's market share," making them "a solid pillar of harm to competition."

⁴⁸ In this way, anticompetitive exclusion can create a "signal jamming" problem. See Fudenberg and Tirole (1986); see also *Dentsply* (recognizing that the monopolist's conduct could create the impression that the rivals were ineffective: "The apparent lack of aggressiveness by competitors is not a matter of apathy, but a reflection of the effectiveness of [the monopolist's] exclusionary policy").

achieve significant cost reductions and/or insights into product development through learning-by-doing, exclusion can significantly reduce the future competitive threat posed by a rival.

A few clarifying remarks are in order concerning the extent of foreclosure required to satisfy the first element of the test. As the courts have recognized, exclusion may be problematic from an antitrust perspective even if the rival is not foreclosed from the entire market.⁴⁹ The pertinent question is whether the overall scope of exclusion is material, in the sense that it is sufficiently widespread to meaningfully weaken the rival or otherwise prevent the rival from effectively competing for other business. In assessing materiality, the following considerations come into play.

First, the scope of exclusion may be material even if the conduct does not entirely prevent the rival from selling to any particular buyer. All else equal, a condition that explicitly or effectively excludes a rival from all of the business served by a customer who purchases 90 units may have the same impact on the rival, and, hence, on competition and consumers, as an exclusionary agreement covering 90% of the business served by a customer who purchases 100 units, or one covering half of the business served by a customer who purchases 180 units. Complete exclusion from any particular buyer may not be needed to reduce the rival's ability to compete (see, e.g., *Dentsply*; *LePage's*; *Microsoft*).

Second, one must judge the materiality of a company's exclusionary conduct as a whole, not episode by episode.⁵⁰ Neither is it sufficient to judge the effect of all episodes of a particular type of conduct or exclusionary condition without taking into account all of the other forms of exclusionary conduct. In the extreme, individual episodes or collections of episodes may each inflict only a little damage on the rival, and yet the overall pattern of conduct may have a substantial effect on the rival's ability to compete. Any analysis that attempts to evaluate component parts of the conduct independently, rather than assess the totality of the effect, is inevitably biased against a finding of anticompetitive impact, which necessarily depends upon all facets of an exclusionary agenda.

Third, a restriction on the channels through which a rival's product is distributed, including exclusion from important or uniquely positioned downstream firms, can be material in and of itself, even if other routes to the customer remain, and even if the scope of that exclusion is somewhat limited relative to the entire market. For example, the adoption and promotion of a product by an influential set of downstream firms may validate a rival's product in the minds of consumers; consequently, exclusion from one or more of those firms can materially weaken the rival by depriving its products of validation. As the Third Circuit

⁴⁹ "The test is not total foreclosure, but whether the challenged practices bar a substantial number of rivals or severely restrict the market's ambit" (*Dentsply*).

⁵⁰ See, e.g., *Continental Ore* ("The character and effect of a conspiracy are not to be judged by dismembering it and viewing its separate parts, but only by looking at it as a whole; and in a case like the one before us, the duty of the jury was to look at the whole picture and not merely at the individual figures in it" (internal citations and quotation omitted)); *LePage's* ("The relevant inquiry is the anticompetitive effect of [the defendant's] exclusionary practices considered together"); *Anaheim* ("[I]t would not be proper to focus on specific individual acts of an accused monopolist while refusing to consider their overall combined effect").

concluded in *Dentsply*, the “realities of the marketplace” may make the foreclosed channel much more valuable and significant than those channels that remain available.⁵¹

Fourth, one must also judge the materiality of a company’s exclusionary conduct relative to the portion of the market that is, in principle, open to the rival at a given point in time, absent artificial barriers. For example, customers may differ in their willingness to purchase products that are less familiar to them or less familiar to those on whom they rely for advice. To earn potential acceptance with such customers, an upstart rival might first have to make significant inroads among those who are less wedded to established products. Artificial exclusion from 20% of the total market might not be sufficiently material to meaningfully weaken the rival if it implies that the rival can legitimately compete for the other 80% of a sufficiently large market. However, the same foreclosure looms much larger if the rival’s product is not yet sufficiently well established to gain acceptance with a large portion of the market. Suppose, for example, that 50% of consumers in the overall market are committed to purchasing the more familiar brand and will remain so until the rival is much better established. In that case, the same exclusion from 20% of the total market limits the rival to competing for a residual 30% slice of the market, rather than 80%, in which case the exclusion may well be material. To put the matter another way, in this example, exclusion from 20% of the market leaves the rival effectively excluded from 70% of total sales. If those customers from whom the rival is excluded are particularly influential in winning over other customers (e.g., because they are opinion leaders), then the effect of the exclusion can be compounded.

Fifth, the duration of the exclusionary conduct also bears on materiality. If the conduct is brief, then the effect on the rival will presumably be small. However, in evaluating duration, it is important to avoid confusing the duration of the conduct with the contractual duration of any particular exclusionary agreement. As we noted in section 1.2.1, the latter consideration does not necessarily play an essential role in what we take to be the anticompetitive mechanism of greatest practical concern.⁵² As long as negative contracting externalities exist at short durations (Element 4, discussed later), the same analysis potentially applies, and exclusion over long time periods can be achieved by stringing together successive short-term agreements. Consistent with this economic logic, agreements imposing exclusivity can be anticompetitive even if the contracts are terminable at will.⁵³

⁵¹ The *Dentsply* court rejected the argument that vendors of artificial teeth had a “viable” method of distribution in the form of direct sales when they were foreclosed from the dealer network.

⁵² The contractual duration of exclusionary agreements may, however, be relevant in other settings, where other anticompetitive mechanisms are implicated. E.g., some theories of exclusive dealing require that exclusion directly limits the achievable future sales the rival can make as a result of current investments. Either the agreements must span a period of time that starts before the investment and includes the resulting sales, or exclusive contracts with different customers must cover overlapping time periods that collectively bridge the same time period. See, e.g., Rasmusen, Ramseyer, and Wiley (1991); Segal and Whinston (2000).

⁵³ See *Dentsply* (“Although the parties to the sales transactions consider the exclusionary arrangements to be agreements, they are technically only a series of independent sales. *Dentsply* sells teeth to the dealers on an individual transaction basis and essentially the arrangement is ‘at-will.’ Nevertheless, the economic elements involved—the large share of the market held by *Dentsply* and its conduct excluding competing manufacturers—realistically make the arrangements here as effective as those in written contracts”).

1.3.2.2. *Element 2 (Enhanced Market Power)*

The conduct must increase, extend, or maintain market power. The excluding firm must start out with market power and, once the rival is weakened, have greater market power than it would otherwise possess. The purpose of this element of the test is to distinguish harm to competition from mere harm to the rival. Antitrust laws protect competition, not competitors. If, for example, a rival harmed by exclusionary conduct is simply replaced by yet another equally capable competitor, then competition is not diminished. The existence of significant entry barriers is, therefore, generally a necessary but not sufficient condition for enhanced market power. Notably, this element automatically and appropriately protects conduct by firms that neither have nor verge upon monopoly power.⁵⁴ Even among those firms with substantial market power, only conduct that demonstrably increases or maintains that power raises concerns.

1.3.2.3. *Element 3 (Harm to Consumers)*

The conduct must cause harm to consumers, whom the antitrust laws are designed to protect. When the conduct enhances the excluding firm's market power (as Element 2 of the test requires), harm to consumers is usually ensured: consumers will pay higher prices and potentially forgo other benefits of competition, such as improved variety and innovation. However, because it is often necessary to weigh the anticompetitive effects of exclusionary conduct against procompetitive effects, it is not enough simply to establish the existence of harm; it is also important to assess its magnitude.

Measuring the degree to which exclusionary practices impair a rival, reduce competition, and raise prices can prove challenging. An alternative approach is to evaluate the magnitude of gains that consumers have derived from a rival's past competitive activities. Estimates of those gains provide indicators of the economic benefits that the conduct places at risk.

When measuring harm to consumers, it is also important to recall that some forms of exclusionary conduct (specifically, exclusionary conditions) are designed to suppress sales beyond those that the excluding firm captures. That outcome is particularly likely in industries with differentiated products. When weighing anticompetitive and procompetitive effects, one should include the lost economic value associated with those suppressed sales. Measuring those losses can be more straightforward than quantifying the lost consumer benefits associated with reductions in future competition.

As long as the first three elements are present, exclusion of the rival from a portion of the market during one period of time reduces competition and allows the excluding firm to extract greater rents from buyers in other markets or at future points in time. However, unless a fourth condition is also present, the exclusion is not necessarily anticompetitive.

⁵⁴ Thus, it is appropriate to treat the absence of market power as a "safe harbor" for the use of vertical practices with potentially exclusionary effects. That said, it is also important to bear in mind that firms may collectively wield significant market power through explicit or tacit collusion.

1.3.2.4. *Element 4 (Negative Contracting Externalities)*

By diminishing the rival's ability to compete, the exclusionary conduct must give rise to negative contracting externalities, reflecting more effective expropriation of economic benefits from other parties, from which the parties to an exclusive arrangement can jointly benefit. As we explained in section 1.2.1, such externalities are typically present when the rival potentially serves many customers, either in the same market or different markets,⁵⁵ especially when a portion of the benefits of competition would be passed along to downstream parties, such as final customers. Thus, evaluating this fourth element of the test is usually straightforward. However, as we emphasized in section 1.2.1, the issue involves some subtleties. For example, negative contracting externalities borne only by the rival, or by downstream consumers served by a single customer, typically do not sustain anticompetitive exclusionary conduct, because they usually do not reflect more effective expropriation of economic benefits by the parties to the exclusionary agreement.

It is worth emphasizing that, in the presence of negative contracting externalities, evidence that certain customers eagerly agreed to or even sought out an exclusionary relationship with the seller sheds no light on the question of whether the conduct is anticompetitive. Considered in isolation, each deal between the seller and a buyer is necessarily mutually beneficial, even accounting for its subsequent impact on competition. However, such deals may harm other parties (especially other buyers and/or downstream consumers) who are not part of the deal. Consequently, every buyer might be better off if no deals were consummated; nevertheless, recognizing the potential for mutual bilateral benefit, each buyer has a strong individual incentive to enter an exclusionary arrangement, and even to seek it out.

This four-part test is generally consistent with the approach to predatory pricing adopted by the US Supreme Court. Specifically, a competitor may be held liable under the antitrust laws for setting prices below costs if there is a sufficient probability of recouping, through subsequent monopoly profits, more than the losses sustained (see *Brooke Group*; *Matsushita*). Elements 1–3 ensure that the seller benefits from greater monopoly profits as a consequence of exclusion. Those benefits will exceed the cost of securing the participation of customers only if Element 4 is also present.

While it is possible that exclusionary conduct could be anticompetitive without meeting this four-part test through some other mechanism, when considering such possibilities, it is important to avoid common fallacies. For example, it is sometimes alleged that loyalty discounts permit a dominant firm facing limited competition to earn monopoly profits instantly by denying rivals access to customers.⁵⁶ The following simple example illustrates the idea. A single customer buys five units of a good from a monopolist at a price of \$200 per unit. A new entrant arrives on the scene, possessing an ability (in the

⁵⁵ Anticompetitive effects can arise if the excluding firm and the rival compete in “noncoincident markets.” See Bernheim and Whinston (1999).

⁵⁶ See, e.g., Jacobsen (2010), who quotes testimony to this effect by Einer Elhauge.

near term) to supply one unit. Both produce the good at a cost of \$100 per unit. To defeat the entrant's threat, the monopolist increases its price to \$250 per unit but offers a discount of \$50 per unit if the customer buys five. Faced with a choice between buying four units from the monopolist at a total cost of \$1,000 or four units from the monopolist at a total cost of \$1,000 plus a fifth unit from the rival at any positive price, the customer will clearly buy all five units from the monopolist. According to the argument, the entrant is foreclosed, and the dominant firm continues to charge the monopoly price for all five units.

There is, however, a fly in the ointment, because the argument ignores an important possibility: facing these terms, the customer might choose to buy one unit from the rival and nothing from the dominant firm. Implicitly, the example assumes that the customer's marginal benefit from consuming the good is \$200 per unit for the first five units, and less thereafter.⁵⁷ Let's suppose that the rival sets the price of a single unit equal to its cost. Then the consumer's net benefit from buying five units under the loyalty discount program is zero, while his net benefit from buying a single unit from the rival is \$100. The second option is clearly better than the first. Because the dominant firm must leave the customer with a net benefit of at least \$100 (lest the customer decide to deal only with the rival), it cannot improve on the profits it receives when offering the first four units at a price of \$200 and a fifth unit at a price of \$100, matching (rather than excluding) the rival.

1.4. DETERMINING IF EXCLUSIONARY CONDITIONS ARE PROCOMPETITIVE

If conduct is found to be both exclusionary in the first stage of the inquiry and to have anticompetitive effects in the second, we then move to the third stage: determining whether the conduct also has procompetitive effects, and weighing those effects against the costs of reduced competition. The scholarly literature identifies a number of potential procompetitive rationales for exclusionary practices (see, e.g., Marvel 1982; Bernheim and Whinston 1998, section V). Generally, these rationales proceed from the premise that, because written contracts are imperfect, the conflicting interests of any given buyer and seller can cause their relationship to operate inefficiently. In some

⁵⁷ Because the example involves loyalty discounts, it plainly assumes that the monopolist can employ nonlinear price schedules. If the consumer's marginal benefit differed over the first five units, then a monopolist would generally earn higher profits by using a nonlinear price schedule, rather than by setting a fixed price. See Oi (1971); Maskin and Riley (1984). Thus, the premise that the monopolist charges a fixed price of \$200 in the rival's absence implies that the consumer's marginal benefit is the same over the first five units. That benefit cannot be less than \$200 per unit or the consumer would buy nothing; it cannot be greater than \$200 per unit or the monopolist would raise its price.

circumstances, those inefficiencies may be reduced when the relationship excludes other sellers, other buyers, or both.

As an example, suppose that a manufacturer's sales depend heavily on its reputation with customers, and that the point of contact with customers is a sales-and-service organization (which we will call the "rep" for short). If the relationship between the manufacturer and the rep is nonexclusive, the rep can then potentially expropriate some of the benefits generated by the manufacturer's investments in product promotion and/or quality. First, the rep can divert customers at the point of sale to other products from which it receives greater profits, even if the customers come to the rep seeking the manufacturer's product because of the latter's investments. Second, if the manufacturer invests in quality improvements, customers may then misattribute part of the incremental value they receive to the quality of service and repairs provided by the rep, which again allows the rep to benefit by selling competing products. Anticipating these outcomes, the manufacturer may underinvest or choose not to make any investments in the first place. Designing a nonexclusive contract that overcomes these problems can prove difficult. For example, as a matter of principle, one potential solution is to shift responsibility for the pertinent investments to the rep. But in practice, an agreement cannot call upon the rep to make investments in product quality on the behalf of a manufacturer, and in any event, conflicting incentivization by multiple manufacturers can produce inefficient outcomes (see Bernheim and Whinston 1998, section V). Thus, exclusivity can emerge as a more efficient solution. Automobile dealerships and prestige goods retailers are often cited as exemplifying this motive for exclusivity.

The procompetitive and anticompetitive rationales for exclusion share a common characteristic: they all presuppose the existence of market imperfections that prevent collections of parties from achieving mutually efficient outcomes through contracts. In a Coasian world with perfectly efficient contracts, there would be no contracting externalities. Any exclusionary relationship that inefficiently reduced a market's total contribution to economic value by increasing some party's market power would be avoided; the parties would instead collectively opt for a more efficient alternative, along with a distribution of benefits that would leave all of them better off. Consequently, anticompetitive exclusion would not occur. Similarly, the agreements reached by buyers and sellers would be sufficiently comprehensive to preclude opportunism. Because there would be no incentive problems to remedy, procompetitive exclusion would not be necessary.

Significantly, procompetitive and anticompetitive exclusion reflect different *types* of contracting failures. Procompetitive exclusion occurs when contracting imperfections afflict the relationship between a buyer and a seller; in that case, exclusion provides a partial solution to the contracting problem. In contrast, anticompetitive exclusion occurs when contracting imperfections afflict the relationships between multiple parties on the same side of the exclusionary relationship (e.g., several buyers, and potentially customers who are downstream from those buyers). In that case, a party on the opposite side of the relationship (e.g., a seller) takes advantage of the afflicted parties' lack of coordination and conjures its business relationships to extract a larger share of the total pie. Thus, determining whether exclusionary conduct is pro- or anticompetitive always

requires an examination of the types of market imperfections and associated contracting failures that lead to exclusion.

When evaluating procompetitive explanations for exclusionary conduct, it is important to be wary of ex post rationalizations. The mere fact that an economist can concoct a logically coherent rationalization consistent with the details of a case does not mean that the rationalization is correct. Unlike a company seeking anticompetitive ends, one engaging in procompetitive exclusion has no reason to disguise its objectives. Thus, when the objective is procompetitive, one expects to find contemporaneous documents that describe the problem and characterize the conduct as an attractive solution.⁵⁸ Exchanges between the buyer and seller may be particularly informative concerning the nature of the contracting problem (if any).⁵⁹ However, it is also important to keep in mind that a strategically savvy company can defensively conjure a helpful paper trail. Therefore, courts should not automatically lend credence to such evidence when it is uncovered.

When conduct yields both anticompetitive and procompetitive effects, one must weigh one against the other. In the previous subsection, we emphasized the importance of quantifying the harm borne by consumers; the need to quantify procompetitive benefits is no less important, and the same standard of proof should apply. Consistent with the antitrust laws, the focus should once again be on benefits to *consumers*. Furthermore, it is generally not appropriate to measure those benefits by comparing market outcomes with and without the conduct. Rather, the proper approach is to compare the market outcome with the conduct to the outcome with the most efficient nonexclusionary alternative solution to the contracting problem that the conduct addresses. Consider the following simple example: without the conduct, consumers would gain \$100 million in value from increased competition but lose \$150 million in value due to the consequences of worsened incentive problems between buyers and sellers; however, were buyers and sellers to adopt a less efficient, nonexclusive solution for the incentive problems, the losses would be \$50 million rather than \$150 million. In that case, it is appropriate to compare the \$100 million gain with the \$50 million loss, not the \$150 million loss, and to conclude that the conduct is, on balance, anticompetitive.

1.4.1. Some Illustrative Examples

To illustrate the application of our framework, we will briefly describe two contrasting examples. In the first, a dominant supplier of false teeth demands (and receives) exclusive deals with most of its large distributors. The resulting exclusion prevents a

⁵⁸ That said, if the genesis of the conduct predates the available records, then the absence of more recent documents that continue to reference the problem may or may not be surprising, depending on the facts of the case.

⁵⁹ The absence of such discussion does not imply that the restrictions are anticompetitive, as their necessity may be obvious to both parties, or at least to the party proposing the contract.

smaller rival from gaining access to a substantial and important portion of the market. As a result, the rival loses not only the immediate sales denied to it by the exclusionary conduct but also future sales that it would gain from customers who, but for the exclusivity, might have made introductory or exploratory purchases leading to larger future contracts. The rival is denied both the opportunity to establish its reputation with those end customers and also the scale that would support a more extensive and effective marketing and distribution operation. As a consequence, the rival is weaker in the future, and the dominant firm gains not only from its current sales but also from reduced competition for future sales. There is no contracting failure that calls for exclusivity between the distributor and supplier. The harms resulting from reduced future competition are divided among distributors (both those that entered into exclusive deals and those that did not), as well as consumers, who cannot efficiently coordinate their actions to forestall the dominant firm's opportunism. Here, the conduct is plainly anticompetitive.

In the second example, the owner of a sports stadium or a fast-food franchise has a limited degree of monopsony power with respect to soft drinks that it resells on its premises.⁶⁰ Practical considerations, such as space constraints at food-vending stations, rule out offering highly similar products (i.e., both Coke and Pepsi, both Sprite and 7UP, and so forth). The establishment owner therefore requires the Coca-Cola Company and PepsiCo to compete for the right to be the establishment's exclusive supplier of soft drinks. It is difficult to imagine that the Coca-Cola Company would noticeably impair the future competitiveness of PepsiCo by entering into such an agreement with the establishment owner or that PepsiCo would noticeably impair the Coca-Cola Company.⁶¹ Each enters into exclusive arrangements with similar types of establishments, and both distribute their products through a wide array of unaffected channels, such as grocery stores, convenience stores, and vending machines. Accordingly, in this example, the conduct is procompetitive.

1.5. CONCLUDING REMARKS

The framework for analyzing the competitive effects of exclusionary conduct proposed in this chapter does not aspire to an unachievable ideal. Rather, it reflects a

⁶⁰ While this hypothetical example involves exclusivity at the venue or chain, another case, *PepsiCo, Inc. v. Coca-Cola Co.*, addressed a similar question involving soft drink exclusivity at the distribution level. There, too, the court found no evidence of an anticompetitive effect.

⁶¹ Some customers might have sufficiently strong preferences to go without a soft drink entirely rather than purchase the exclusively provided alternative, but in the present example, this would not result in a material reduction in the rival's ability to compete for other sales. Competition in the soft drink market remains robust, even under exclusivity. More generally, however, such arrangements could adversely affect competition, depending on the fact pattern. E.g., if exclusive arrangements are sufficiently widespread, then they could adversely affect the viability of an upstart soft drink manufacturer.

combination of both sound economic principles and reasonable, practical compromises. We have made those compromises, where possible, to favor simplicity, clarity (in terms of what is and is not permitted), and predictability (with respect to the outcome of an informed inquiry).

It is also worth emphasizing that the framework is reasonably conservative. For example, the requirements for establishing the presence of anticompetitive effects in stage 2 of the inquiry resemble those that are currently applied in cases of predatory pricing (once below-cost pricing is established); to our knowledge, relatively few commentators have claimed that the standards for establishing predation are too lax. A conservative approach is, in our view, preferable to one that favors a wider range of challenges and, thereby, risks chilling beneficial competition.

Contrary to our objective of achieving clarity, we have intentionally left portions of the analytic framework somewhat vague—for example, the appropriate measure of cost to apply when evaluating whether bundled pricing is exclusionary, given any particular fact pattern. In such instances, the appropriate details depend on subjective judgments concerning social costs and benefits, and consequently are more appropriately left to policymakers and the courts; our framework usefully clarifies the pertinent tradeoffs.

REFERENCES

- Abito, Jose Miguel, and Julian Wright. 2008. *Exclusive Dealing with Imperfect Downstream Competition*. International Journal of Industrial Organization 26: 227–46.
- Aghion, Philippe, and Patrick Bolton. 1987. *Contracts as a Barrier to Entry*. American Economic Review 77: 388–401.
- Areeda, Phillip E., and Herbert Hovenkamp. 2008. *Fundamentals of Antitrust Law*. New York: Aspen Publishers (3rd ed.).
- Asker, John, and Heski Bar-Isaac. 2014. *Raising Retailers' Profits: On Vertical Practices and the Exclusion of Rivals*. American Economic Review 104: 672–86.
- Bernheim, B. Douglas, and Michael D. Whinston. 1998. *Exclusive Dealing*. Journal of Political Economy 106: 64–103.
- Bernheim, B. Douglas, and Michael D. Whinston. 1999. *Anti-competitive Exclusion and Foreclosure through Vertical Agreements*. CORE Lecture Series, Center for Operations Research and Econometrics, Louvain-La-Neuve, Belgium, Université Catholique de Louvain.
- Bernheim, B. Douglas, and Michael D. Whinston. 2008. *Microeconomics*. New York: McGraw-Hill/Irwin.
- Bork, Robert. 1978. *The Antitrust Paradox: A Policy at War with Itself*. New York: Basic Books.
- Carlton, Dennis W., and Michael Waldman. 2002. *The Strategic Use of Tying to Preserve and Create Market Power in Evolving Industries*. Rand Journal of Economics 33: 194–220.
- Elhauge, Einer. 2011. *United States Antitrust Law and Economics*. New York: Foundation Press (2nd ed.).
- Elzinga, Kenneth G., and David W. Mills. 1994. *Trumping the Areeda Turner Test: Recoupment Standard in Brooke Group*. Antitrust Law Journal 62: 559–84.

- Farrell, Joseph. 2005. *Deconstructing Chicago on Exclusive Dealing*. University of California, Berkeley Competition Policy Center Working Paper No. CPC05-053.
- Fudenberg, Drew, and Jean Tirole. 1986. A "Signal-Jamming" Theory of Predation. *Rand Journal of Economics* 17: 366–76.
- Fumagalli, Chiara, and Massimo Motta. 2006. *Exclusive Dealing and Entry: When Buyers Compete*. *American Economic Review* 96: 785–95.
- Greenlee, Patrick, and David S. Reitman. 2006. *Competing with Loyalty Discounts*. US Department of Justice EAG Discussion Paper 04-2.
- Hart, Oliver D., and Jean Tirole. 1988. *Contract Renegotiation and Coasian Dynamics*. *Review of Economics Studies* 55: 509–40.
- Hungar, Thomas G., and Ryan G. Koopmans. 2009. *Appellate Advocacy in Antitrust Cases: Lessons from the Supreme Court*. *Antitrust* 23: 53–59.
- Jaeckel, Jeffrey A. 2010. "LePage's", "Cascade Health Solutions" and a Bundle of Confusion: What Is a Discounter to Do? *Antitrust* 24: 46–51.
- Jensen, Michael C., and William H. Meckling. 1976. *Theory of the Firm: Managerial Behavior, Agency Costs and Ownership Structure*. *Journal of Financial Economics* 3: 305–60.
- Kobayashi, Bruce. 2005. *The Economics of Loyalty Discounts and Antitrust Law in the United States*. Law and Economics Series, George Mason University, Working Paper No. 05-26.
- Markus, Blake I. 2008. *The Ninth Circuit and Third Circuit Are on Separate "LePage's"*. *Missouri Law Review* 73: 907–20.
- Marvel, Howard. 1982. *Exclusive Dealing*. *Journal of Law and Economics* 25: 1–25.
- Maskin, Eric, and John Riley. 1984. *Monopoly with Incomplete Information*. *Rand Journal of Economics* 15: 171–96.
- Matthewson, Frank, and Ralph Winter. 1987. *The Competitive Effects of Vertical Agreements: Comment*. *American Economic Review* 77: 1057–62.
- Melamed, A. Douglas. 2005. *Exclusionary Conduct under the Antitrust Laws: Balancing, Sacrifice, and Refusals to Deal*. *Berkeley Technology Law Journal* 20: 1247–67.
- Myers, Stewart C. 2003. *Financing for Corporations*. In George M. Constantinides, Milton Harris, and René M. Stulz, eds., *Handbook of the Economics of Finance* 1A: 215–53. Amsterdam: Elsevier.
- Myers, Stewart C., and Nicholas S. Majluf. 1984. *Corporate Financing and Investment Decisions When Firms Have Information That Investors Do Not Have*. *Journal of Financial Economics* 13: 187–221.
- Nalebuff, Barry. 2005a. *Exclusionary Bundling*. *Antitrust Bulletin* 50: 321–70.
- Nalebuff, Barry. 2005b. *Tied and True Exclusion: Comment on Jean Tirole's "The Analysis of Tying Cases: A Primer"*. *Competition Policy International* 1: 41–53.
- O'Brien, Daniel P., and Greg Shaffer. 1992. *Vertical Control with Bilateral Contracts*. *Rand Journal of Economics* 23: 299–308.
- Oi, Walter Y. 1971. *A Disneyland Dilemma: Two-Part Tariffs for a Mickey Mouse Monopoly*. *Quarterly Journal of Economics* 85: 77–96.
- Ordover, Janusz A., and Robert D. Willig. 1981. *An Economic Definition of Predation: Pricing and Product Innovation*. *Yale Law Journal* 91: 8–53.
- Rasmusen, Eric B., J. Mark Ramseyer, and John S. Wiley. 1991. *Naked Exclusion*. *American Economic Review* 81: 1137–45.
- Salop, Steven C. 2006. *Exclusionary Conduct, Effect on Consumers and the Flawed Profit-Sacrifice Standard*. *Antitrust Law Journal* 73: 311–74.

- Salop, Steven C., and David T. Scheffman. 1983. *Raising Rivals' Costs*. American Economic Review 73: 267–71.
- Scott Morton, Fiona. 2012. *Contracts That Reference Rivals*. Transcript, Georgetown University Law Center Antitrust Seminar. Retrieved from <http://www.justice.gov/atr/public/speeches/281965.pdf>.
- Segal, Ilya. 1999. *Contracting with Externalities*. Quarterly Journal of Economics 114: 337–88.
- Segal, Ilya, and Michael D. Whinston. 2000. *Naked Exclusion: Comment*. American Economic Review 90: 296–309.
- Simpson, John, and Abraham L. Wickelgren. 2007. *Naked Exclusion, Efficient Breach, and Downstream Competition*. American Economic Review 97: 1305–20.
- Spengler, Joseph J. 1950. *Vertical Integration and Antitrust Policy*. Journal of Political Economy 58: 347–52.
- Stiglitz, Joseph E., and Andrew Weiss. 1981. *Credit Rationing in Markets with Imperfect Information*. American Economic Review 71: 393–410.
- US Department of Justice. 2008. *Competition and Monopoly: Single-Firm Conduct under Section 2 of the Sherman Act*.
- Werden, Gregory J. 2006. *Identifying Exclusionary Conduct under Section 2: The “No Economic Sense” Test*. Antitrust Law Journal 73: 413–33.
- Werden, Gregory J. 2009. *Next Steps in the Evolution of Antitrust Law: What to Expect from the Roberts Court*. Journal of Competition Law & Economics 5: 49–74.
- Whinston, Michael D. 1990. *Tying, Foreclosure, and Exclusion*. American Economic Review 80: 837–59.
- Wright, Julian. 2009. *Exclusive Dealing and Entry: When Buyers Compete: Comment*. American Economic Review 99: 1070–81.

CASES

- Advo, Inc. v. Phila. Newspapers, Inc.*, 51 F.3d 1191 (3d Cir. 1995).
- Anaheim v. S. Cal. Edison Co.*, 955 F.2d 1373 (9th Cir. 1992).
- Brooke Grp. v. Brown & Williamson Tobacco Corp.*, 509 U.S. 209 (1993).
- Cascade Health Solutions v. PeaceHealth*, 515 F.3d 883 (9th Cir. 2008).
- Concord Boat Corp. v. Brunswick Corp.*, 34 F.Supp. 2d 1125 (E.D. Ark. 1998).
- Continental Ore Co. v. Union Carbide & Carbon Corp.*, 370 U.S. 690 (1962).
- Conwood Co. v. U.S. Tobacco Co.*, 290 F.3d 768 (6th Cir. 2002).
- Eastman Kodak Co. v. Image Technical Serv., Inc.*, 112 S. Ct. 2072 (1992).
- General Indus. Corp. v. Hartz Mountain Corp.*, 810 F.2d 795 (9th Cir. 1987).
- Indep. Ink, Inc. v. Ill. Tool Works, Inc.*, 396 F.3d 1342 (9th Cir. 2005).
- Jefferson Parish Hosp. Dist. No. 2 v. Hyde*, 466 U.S. 2 (1984).
- LePage's, Inc. v. 3M*, 324 F.3d 141 (3d Cir. 2003).
- Matsushita Elec. Indus. Co. v. Zenith Radio Corp.*, 475 U.S. 574 (1986).
- Ortho Diagnostic Sys. v. Abbott Lab.*, 920 F.Supp. 455 (S.D.N.Y. 1996).
- PepsiCo, Inc. v. Coca-Cola Co.*, 315 F.3d. 101 (2d Cir. 2002).
- SmithKline Corp. v. Eli Lilly & Co.*, 575 F.2d 1056 (3d Cir. 1978).
- Tampa Elec. Co. v. Nashville Coal Co.*, 365 U.S. 320 (1961).
- United States v. Dentsply Int'l, Inc.*, 399 F.3d 181 (2005).

United States v. Grinnell Corp., 384 U.S. 563 (1966).

United States v. Microsoft Corp., 253 F.3d 34 (D.C. Cir. 2001).

United States v. United Reg'l Health Care Sys., No. 7:11-cv-00030-O (N.D. Tex. 2011).

ZF Meritor LLC v. Eaton Corp., 696 F.3d 254 (3d Cir. 2012).

Summary of Commission Decision of 13 May 2009 relating to a proceeding under Article 82 of the EC Treaty and Article 54 of the EEA Agreement (Case COMP/C-3/37.990—Intel), *OJ* C227/13, 22.9.2009.

CHAPTER 2

PREDATORY PRICING

KENNETH G. ELZINGA AND DAVID E. MILLS

Given the enormous stake that antitrust has in low prices, and our extraordinary difficulties assessing predation claims, the best course is to develop predation rules that are both simple and somewhat underdeterrent.

Herbert Hovenkamp (2005, p. 161)

2.1. INTRODUCTION

PREDATORY pricing occurs when a dominant firm, motivated by the prospect of charging high prices in the future, uses temporary, low prices to drive its competitors out of business. Economists have long recognized that “underselling for predatory purposes” can harm competition and reduce consumer welfare (Giddings, 1887, p. 77). Indeed antitrust enforcement in the United States cut its teeth on claims that predatory pricing violated the Sherman Act.¹ It was not until McGee (1958) mounted a serious challenge to the canonical predatory pricing story that economists and legal scholars began to examine this pricing phenomenon carefully.

McGee disputed whether a profit-seeking dominant firm would ever launch a predatory pricing campaign against a rival. His challenge provoked two important reactions. The first was judicial skepticism about the plausibility of predatory pricing claims that earlier courts did not have. This development spawned a debate about the proper test or criterion to apply in predatory pricing cases, a debate that is not yet resolved to everybody’s satisfaction. The second reaction was a flood of activity on the part of economic theorists who were skeptical about McGee’s hypothesis that predatory pricing would

¹ The US Supreme Court’s landmark opinions are *Standard Oil* and *American Tobacco*. Allegations of predatory pricing actually precede the US antitrust laws. *Mogul Steamship* is an English tort law case that involved claims of below-cost pricing to destroy ocean-shipping competition.

rarely be a successful monopolizing strategy. This research program used game theory to identify conditions that would circumvent McGee's objections and proposed internally consistent economic theories of predatory pricing.

The search for a compelling antitrust test to evaluate predatory pricing claims is an exercise in balancing false positive against false negative judicial outcomes. How this balance is made depends in large part on whether one thinks aggressive low-price episodes typically are about ejecting rivals or generally reflect vigorous competition among rivals.² These priors are shaped and informed (an economist hopes) by what economic theory has to say about the plausibility of predatory pricing.

This chapter summarizes both of these post-McGee endeavors: the search for credible economic theories of predatory pricing that can identify those pricing episodes that warrant antitrust sanction, and the search for an optimal predatory pricing rule for use in antitrust enforcement.

In its 1993 decision in *Brooke Group*, the US Supreme Court developed standards for establishing liability in predatory pricing cases. The Antitrust Modernization Commission commended these standards for being “clear and predictable in application and administrable” (2007, p. 89). While *Brooke Group* has proved too cautious for some economists and antitrust scholars who favor more judicial intervention, the caution built into the *Brooke Group* standards reflects the Court's concern with false positives and shows the Court's determination not to let antitrust get in the way of aggressive price competition.³ This chapter shares the Court's caution and concurs with its embrace of the *Brooke Group* standards for conventional predatory pricing claims.

2.2. THE ECONOMICS OF PREDATORY PRICING

The practice of predatory pricing traditionally is identified with pricing below cost. In her influential history of the Standard Oil Company, Tarbell wrote that a firm threatens “predatory competition” when it sets out ruthlessly and persistently “to sell at cost or less, until the rival is worn out” (1904, p. 60). Not long after, Clark declared that “predatory competition differ[ed] from ordinary competition in that producers who have the . . . most influence on the market . . . do not stop lowering prices at a point which covers all costs, . . . but go below this level” (1926, p. 131).

The presumed intention of predatory pricing is to eliminate rivals, whether by forcing them out of the market or by acquiring them on advantageous terms, and thereby to

² A false positive concludes that predation has occurred when it did not. A false negative concludes that there is no predatory pricing when in fact there is.

³ The foundation for this caution was laid earlier in the Court's opinion in *Matsushita*: “predatory pricing schemes are rarely tried, and even more rarely successful” (p. 589).

establish or maintain monopoly power that will yield supracompetitive profits for the predator. Ordover and Willig (1981) defined a predatory practice as one that is profitable only because it induces the exit of a competitor.

While the elimination of rivals was the first recognized consequence of predatory behavior, economists have since classified pricing strategies with other goals such as deterring entry or disciplining rivals to be predatory as well.⁴ Strategies that deter entry or discipline rivals have adverse effects on consumer welfare, of course, and are the proper concern of antitrust policy. But the focus in this chapter is on pricing behavior that reduces consumer welfare because it induces exit as a monopolizing strategy. In the most common scenario, a predator charges prices below cost and willingly sacrifices profits so it can inflict an unsustainable loss on a competitor, often a new entrant. The predator supposedly is able to withstand the losses that accompany below-cost pricing better than its target because it is much larger and has a “long purse.”⁵ Once the competitor exits the market, the predator raises its prices and recovers the lost profits.

The general notion that a dominant firm might establish or strengthen a monopoly position by waging a price war against a smaller competitor was widely accepted at the time the US antitrust laws were enacted. It was not until McGee (1958) revisited *Standard Oil*, and raised objections to the prevailing interpretation of that important case, that the strategy of predatory pricing was submitted to careful economic analysis.

McGee concluded that Standard Oil did not use predatory pricing to drive out its competitors, as was widely assumed, and in the course of his argument offered several reasons for doubting the plausibility of predatory pricing in general.⁶ He argued that, as compared to a small competitor, a predator with a large market share would suffer a disproportionate loss from below-cost prices—a loss that the small competitor would be able to amplify by curtailing its own unremunerative sales. Realizing this, the competitor would remain in the market and wait for the predator to capitulate. Anticipating this futile sequence of events, the dominant firm would never resort to predatory pricing.

McGee also questioned whether a “long purse” (or what is sometimes called a “deep pocket”) would confer an advantage to a prospective predator. He reasoned that a small firm with limited financial resources would have access to creditors willing to sustain the firm through a siege of low prices because the creditors would understand that this access would convince a predator to abandon the siege. Even if a predator succeeded in driving a small competitor out of the market, the availability of durable equipment and

⁴ For instance, Joskow and Klevorick write that “[p]redatory pricing behavior involves a reduction of price in the short run so as to drive competing firms out of the market or to discourage entry of new firms in an effort to gain larger profits via higher prices in the long run” (1979, pp. 219–20). Milgrom and Roberts define predatory pricing as “the temporary charging of particularly low prices in order to improve long-run profitability by inducing exit, deterring entry, or ‘disciplining’ rivals into accepting relatively small market shares” (1990, p. 112).

⁵ When a large firm “finds itself matching expenditures or losses, dollar for dollar, with a substantially smaller firm, the length of its purse assures it of victory” (Edwards, 1955, p. 334).

⁶ While acknowledging the “extraordinary influence” of McGee’s analysis of *Standard Oil*, Dalton and Esposito offer an alternative interpretation of events (2011, p. 245).

specialized human capital released by the failed competitor would facilitate subsequent entry or reentry. Consequently, the predator's gains from driving the competitor from the market would be short-lived. This, according to McGee, would make predatory pricing a costly and futile undertaking. Finally, McGee argued it would be more profitable for a prospective predator to achieve a monopoly position by *acquiring* its bothersome competitors instead of waging a costly price war to drive them out of business.⁷

One consequence of McGee's spadework in the *Standard Oil* record was to raise suspicion about the merits of other alleged instances of predatory pricing. Elzinga (1970) examined the record of an early case in which US explosives manufacturers were accused of using predatory pricing tactics, and found no evidence that they had. Koller (1971) examined twenty-three cases in which defendants were convicted of predatory pricing and found little evidence of below-cost pricing and even less evidence that below-cost pricing tactics were directed at the elimination of a rival. When Adelman deconstructed the antitrust case against A&P, he found that "[t]here is not a single instance in the record of the sequence: lower prices—fewer competitors—higher prices again," notwithstanding the government's successful prosecution of the once prominent food retailer (1959, p. 373).⁸

Another consequence of McGee's paper was to arouse interest in the economic theory of predatory pricing and stimulate critical commentary on the thesis that successful predatory pricing would be rare and unlikely. These criticisms have led to qualifications and refinements of the theory of predatory pricing.⁹ For instance, McGee's argument about the threat of reentry requires that the fixed costs of entry or reentry are small, or if they are large they must not be sunk. Yamey (1972) countered McGee's reentry argument by contending that episodic predatory pricing might enable a predator to discourage reentry by cultivating a "predatory" reputation, an insight that frequently reappears in subsequent analyses of predatory pricing.

To counter the fault McGee found with the long-purse story, it was necessary to explain why a small competitor might not have access to sufficient financial resources to withstand a siege of below-cost pricing by a predator with substantial financial resources (Telser, 1966). One such explanation holds that the smaller competitor's access to capital markets is limited by asymmetric information prevalent in these markets.

McGee's claim that predatory pricing is a less profitable monopolization strategy than acquiring one's competitors does not mean that a dominant firm bent on eliminating its competitors would always reject predatory pricing. Acquiring competitors became

⁷ Two years before McGee's seminal article, Leeman expressed skepticism that Rockefeller used predatory pricing as a monopolizing tactic and argued that "localized price cutting" by a large incumbent was unlikely to thwart new entry (1956, p. 332). He considered whether a dominant firm might use predatory pricing to "soften up" smaller rivals in order to acquire them at fire-sale prices, but concluded that price wars are "a very costly method of preserving a dominant position and that probably in most cases in the long run the costs are prohibitive" (1956, p. 330).

⁸ Adelman's extensive analysis of the A&P case actually *preceded* McGee's article.

⁹ Ordover and Saloner (1989) and, more recently, Motta (2004) provide summaries of the counterarguments.

more difficult in the years after McGee made this claim because federal antimerger enforcement became more stringent. Also, predatory pricing and horizontal mergers are not necessarily alternative monopolizing strategies. A dominant firm might use predatory pricing to discourage a competitor and thereby reduce the firm's acquisition price (Telser, 1966; Yamey, 1972). Burns's (1986) investigation of American Tobacco's acquisition of over forty small, geographically separated competitors at the turn of the 20th century found that the terms of sale for these buyouts were depressed by price wars instigated by American Tobacco.¹⁰

Countering McGee's skepticism about predatory pricing launched a search for more complete and internally consistent theories of predation, a project that coincided with the ascension of game theory within the economics profession. This search led away from case study narratives about predation and to the identification of theoretical conditions that would uphold predatory pricing as an equilibrium strategy. A characteristic generally shared by the reformulated theories of predatory pricing is that incomplete information handicaps firms that are the victims of predatory pricing. A predator exploits this handicap to raise the competitor's doubts about the rationale behind the predator's low prices and hence raise doubts about the competitor's prospects for success in the market. The predator raises these doubts to persuade the victim to withdraw from the market (or persuade potential entrants to refrain from entering).

Ordover and Saloner (1989) summarized the theories of predatory pricing that emerged in reaction to McGee's critique, and assigned them to three categories: multiple-market reputation theories, signaling theories, and reconstituted long-purse theories. Exploring the theory of predatory pricing attracted a talented group of economic theorists, and an expansive literature on the subject appeared following Selten's (1978) influential demonstration of the chain store paradox. This is not the place to give a full account of these theories, but a few prominent examples are indicative of the literature.

McGee argued that the losses a predator would experience in a predatory pricing episode would be too great to recoup even if the targeted competitor is driven out of the market. But if the predator operates in multiple markets in which it faces the prospect of new entry, the payoff from driving a new entrant out of one market with below-cost prices may come from other markets where new entry is deterred. If new or prospective entrants have incomplete information about the predator's costs, they are uncertain whether the predator's low, postentry prices are below the predator's own costs (and hence unsustainable for the predator in the long run) or above the predator's costs due to the firm's efficiency (and hence sustainable over time). Kreps and Wilson (1982) showed that a multimarket monopolist facing poorly informed potential entrants in a succession of markets may find it profitable to respond to one or several early entrants with

¹⁰ Genesove and Mullin examined the pricing behavior of the American Sugar Refining Company at roughly the same period and concluded that the firm used below-cost pricing "to lower the acquisition price of entrants and small incumbents" (2006, p. 67).

below-cost prices to establish a reputation for being more efficient than it really is. The payoff to the predator then comes from the entry-detering effect this reputation has on subsequent prospective entrants. The loss the predator incurs in a “demonstration” market becomes an investment that pays off in other markets.

Signaling theories of predatory pricing incorporate a similar informational asymmetry but can apply to a single market in which an incumbent’s goal is to deter entry (Milgrom and Roberts, 1982; Fudenberg and Tirole, 1986). To understand this scenario, assume that a potential entrant is uncertain about its own postentry prospects because it is not fully informed about the incumbent firm’s costs, the size of the market, or other factors that would affect the potential entrant’s profits. The entrant’s best signal of its own prospects may be the pre-entry prices of the supposedly better-informed incumbent. By charging low prices, the incumbent can manipulate this indicator to magnify the entrant’s doubts about whether it would be efficient enough to survive competing with the incumbent. The low price signal thereby deters the entrant.

For the long-purse theory to trump McGee’s criticism, there must be a reason why a new entrant would lack sufficient external funding to remain in the market with a predatory incumbent gorged with liquidity. One such explanation holds that the new entrant’s access to the necessary resources is limited by asymmetric information of a kind that is prevalent in capital markets (Bolton and Scharfstein, 1990). The key insight in this theory is that lenders would be reluctant to continue funding an entrant whose initial financial performance is poor. This reluctance is due to a lender’s inability to tell whether the entrant’s poor financial performance is due to the incumbent’s predatory pricing or the entrant’s inefficiency. As the price war continues, the entrant exhausts its own financial resources and exits the market. Victory follows for the predator.

2.3. PREDATORY PRICING AND ANTITRUST ENFORCEMENT

In the United States, predatory pricing allegations have been brought under both the Sherman Act and the Clayton Act.¹¹ The US Supreme Court has defined predatory pricing as “pricing below an appropriate measure of cost for the purpose of eliminating

¹¹ Section 2 of the Sherman Act prohibits monopolization. Section 2 of the Clayton Act singles out price discrimination for special scrutiny, distinguishing primary from secondary line price discrimination. Primary line price discrimination is when the alleged effect of the discriminatory pricing is at the level of the discriminating firm. Secondary line price discrimination takes place when the alleged effect of the discriminatory pricing is at the level of the *buyers* of the discriminating firm. Predatory pricing need not involve price discrimination.

competitors in the short run and reducing competition in the long run.”¹² In the EU, predatory pricing allegations are brought as an abuse of a dominant position under Article 102 of the Treaty on the Functioning of the European Union. The European Court of Justice held in *Tetra Pak II* that an abuse of dominance is established when a dominant firm charges prices below average variable cost (AVC), or when prices are below average total cost (ATC) if the intention to eliminate a competitor is established.

Detecting predatory pricing is a greater challenge than detecting many other antitrust offenses because the offense involves charging low prices. Low prices, in themselves, generally confer benefits on consumers. But low, predatory prices are problematic because they trigger a sequence of events that leads to *high* prices. From a consumer’s vantage point, predatory pricing (at least initially) looks a lot like vigorous competition. This is why antitrust requires an error-cost framework to evaluate predatory pricing allegations in order to weigh the likelihood and consequences of false positive outcomes against false negative outcomes.

In the years before Areeda and Turner (1975) proposed a specific test for distinguishing whether prices were predatory, predatory pricing in the United States was inferred mainly from ad hoc demonstrations of predatory *intent*. Demonstrating predatory intent usually involved an assessment of the defendant’s conduct, and this could range from a pattern of declining prices to an assessment of the language used by a firm in its internal strategy documents. If an enthusiastic sales manager gave instructions to “kill the competition,” this might be construed as predatory intent. There was, to say the least, no clear standard for identifying predatory intent, and it is not hard to see the difficulty of distinguishing a subjective state of mind seemingly bent on the destruction of a rival from a subjective state of mind that is set on winning business and letting the rival’s chips fall where they may. In *Utah Pie* the Supreme Court deduced predatory intent from a “drastically declining price structure” when the defendant cut prices to establish itself in a new sales territory, and from the firm’s internal documents.

In an effort to bring economic analysis and a measure of predictability to the task of proving predatory intent, Areeda and Turner proposed a concrete test for determining whether a defendant’s low prices were predatory. This test asked whether those prices were below the firm’s reasonably anticipated average variable cost AVC, where AVC was a proxy for marginal cost (MC).¹³ Areeda and Turner rationalized that if the defendant’s prices were below its AVC, the low prices probably revealed predatory intent. There are two reasons for drawing this inference; both would be familiar to any economics student. One reason is that prices this low generally are not remunerative for the defendant in the short run and hence require an explanation other than short-run profit maximization. One such explanation is predatory pricing.

The other reason for the inference of predatory intent is that with prices below AVC, an equally efficient competitor would rather close down its operations than match

¹² *Cargill, Inc. v. Monfort of Colo., Inc.*, 479 U.S. 104, 117 (1986).

¹³ Areeda and Turner believed that MC was the proper benchmark, but that AVC was more easily measured.

the defendant's low prices and continue producing. Areeda and Turner proposed this test to protect otherwise efficient firms from being forced out of the market. But the Areeda-Turner test does not encumber defendants with an obligation to protect the viability of an inefficient competitor. Effective competition provides no such protection for inefficient competitors, so it would be perverse for competition policy to impose this obligation. Posner (2001) proposes that the equally efficient competitor standard should be applied for all claims that involve exclusionary practices.

The Areeda-Turner test was designed to assign the burden of proof in predatory pricing cases. If those prices were above AVC, then they are presumed to be nonpredatory because prices above AVC generally do not signal a departure from short-run profit maximization. Areeda and Turner proposed that such prices should be a safe harbor for defendant firms. If a defendant's prices were below AVC, the defendant must prove that its prices were not motivated by predatory intent. This might be done, for instance, by showing the low prices were an introductory offer or a temporary promotion.

The Areeda-Turner test is perceived as a cautious test and in some corners it is viewed as being too permissive. Early dissatisfaction arose because the test does nothing to detect strategic price-cutting behavior that threatens the viability of competitors when, if ever, the defendant's prices are above AVC but below ATC. Scherer (1976) disapproved of evaluating an allegation of predatory pricing by applying a single price-cost test, and favored a more open ended rule-of-reason analysis as had been customary in the past. Others proposed rules that placed less reliance on the price-cost relationship than the Areeda-Turner standard. Every alternative that has been proposed has its own set of difficulties in its application.¹⁴

Recognizing that a predatory incumbent would raise prices once a new entrant is driven from the market by the incumbent's low prices, Baumol (1979) proposed a rule that would require an incumbent who cuts prices by any amount in response to entry to maintain those low prices for an extended period. The rationale for this approach was to deter predation by making it more difficult for an incumbent to recoup any losses that stem from price-cutting. Williamson (1977) proposed a rule that would limit the aggressiveness of an incumbent's response to a new entrant. Williamson's approach would prohibit any increase in an incumbent's output level in response to entry. Edlin (2002) advocated a rule that would prohibit an incumbent from reducing prices substantially in response to entry. The goal of Edlin's "price freeze" proposal, which combined elements

¹⁴ Detecting predatory pricing by a state-owned enterprise presents a different set of problems because the firm's objectives are various and multidimensional and are not limited to the pursuit of private profit (Lott, 1990). This does not mean that state-owned enterprises are less likely to acquire or preserve a dominant position by means of below-cost pricing. For instance, Sappington and Sidak show "how the diverse goals that a public enterprise faces may lead it to act more aggressively toward its rivals than a private enterprise" (2003, p. 199). In any case, the non-profit-seeking conduct of a public enterprise makes a comparison of the firm's prices and costs a flawed indicator of predatory intent. See generally Sokol (2009).

of the Baumol and Williamson rules, was to discourage dominant firms from charging high prices *before* an entrant appears.

Joskow and Klevorick (1979) favored a two-tier test. The first tier would examine structural conditions in the market, such as market shares, entry conditions, and profit histories, to assess whether a defendant has sufficient market power to make it plausible that predatory pricing could be successful. If a defendant in a predatory pricing case does not have significant market power, there is no need to inquire further. But if the first-tier examination indicates that the defendant has enough market power to be a predatory threat, the analysis would proceed to the second tier, in which the firm's prices and costs would be compared. For an incumbent firm that satisfies their first-tier criterion, Joskow and Klevorick proposed that prices below average total costs should establish a presumption of predation. Motta advocates using a more lenient variation of Joskow and Klevorick's second-tier test. He proposes that a price below AVC "should be presumed unlawful, with the burden of proving the opposite on the defendant"; a price above AVC but below ATC "should be presumed lawful, with the burden of proving the opposite on the plaintiff," and a price above ATC "should definitely be considered lawful, without exceptions" (2004, p. 442).

The principal reservation some economists have about relying on the Areeda-Turner test is that AVC or even MC may not be the "correct price floor: whether some potentially higher price floor would not be more appropriate from the welfare standpoint given the strategic nature of predatory conduct" (Ordover and Saloner, 1989, p. 582). This reservation springs from the post-McGee game-theoretic theories of predation that incorporate incomplete information. In these theories, strategic behavior by a dominant firm seeking to induce a competitor's exit often does not involve prices below cost, regardless of how costs are measured. If these theories are relevant for antitrust policy, the relationship between a defendant's prices and its marginal costs is not a reliable indicator of predatory intent. Charging prices below cost is a feature of some strategies for eliminating a competitor, but it is not an essential feature of other strategies.

The Areeda-Turner test does not distinguish whether a defendant's pricing conduct conforms to the predictions of any above-cost theory of predatory pricing. But this shortcoming does not matter in the great majority of predatory pricing claims (going all the way back to *Standard Oil*) that explicitly allege below-cost pricing. The Areeda-Turner test provides vital guidance for assigning the burden of proof in these predatory pricing cases. Fisher (2007) disapproves of reliance on any one "bright-line" test for distinguishing predatory pricing from competitive pricing. But Fisher acknowledges that the Areeda-Turner test is a useful diagnostic tool, given the difficulty of drawing the correct inference about a defendant's intent from the firm's conduct, and recognizing that a *test* for predatory intent is not the same thing as a *definition* of predation.

The circumstance that generates the most serious reservation about reliance on the Areeda-Turner test is when firms have high fixed costs and very low MC or AVC. In markets with this characteristic, a defendant has more leeway than elsewhere to cut prices and impose losses on a competitor (*vis-à-vis* ATC) without running afoul of the

Areeda-Turner test. The most frequently cited examples are airlines and firms with valuable intellectual property.¹⁵

Notwithstanding the scrutiny and the criticism it has received, the Areeda-Turner test has altered the way courts evaluate predatory pricing claims. Philips (1995) proposes that the reason the Areeda-Turner test became so influential is the test's conceptual simplicity. One thing is clear: an important consequence of the Areeda-Turner test was to raise the burden for plaintiffs in predatory pricing cases. The number of such cases fell sharply in the years that followed (Salop and White, 1988).

2.4. BROOKE GROUP

The most important predatory pricing opinion issued by the Supreme Court since Areeda and Turner proposed their test is *Brooke Group* (1993).¹⁶ This case involved two cigarette manufacturers and focused on the aggressive pricing of newly introduced discount cigarettes. In its opinion,¹⁷ the Court adopted a two-pronged approach for proving predatory pricing: "A plaintiff must prove (1) that the prices complained of are below an appropriate measure of its rival's costs and (2) that the competitor had a reasonable prospect of recouping its investment in below cost prices" (p. 210). If a plaintiff demonstrates both prongs, this establishes a rebuttable presumption of predatory intent.

In the price-below-cost prong, the Court did not specify which measure of the defendant's costs is appropriate, but *Brooke Group* is widely read as an endorsement of the Areeda-Turner test (Baker, 1994). A defendant's marginal or average variable cost has been adopted as the appropriate cost measure in the First, Second, Fifth, and Sixth federal circuits. Prices above that benchmark but below the firm's average total cost will not necessarily exonerate a defendant in the Eighth and Ninth circuits, and in the latter, prices above the defendant's average total cost may still be considered predatory. The Seventh Circuit's benchmark currently is a defendant's long-run incremental cost. The Third, Fourth, and Tenth circuits have not specified what they consider an appropriate measure of costs for the purpose of applying the *Brooke Group* standard (ABA Section of Antitrust Law, 2012, pp. 278ff.).

¹⁵ In the US Department of Justice's lawsuit against American Airlines, the airline successfully defended its practice of dramatically reducing fares on routes served by new entrants. In this case, the court did not accept the government's inclusion of the opportunity cost of fixed assets (such as airplanes) in its AVC calculations with the result that the airline's fares remained above AVC. However, the court in a subsequent predatory pricing case against another airline was more receptive to including these opportunity costs. See Elzinga and Mills (2009).

¹⁶ The authors were consultants to the defendant in the course of the litigation. See Elzinga and Mills (1994).

¹⁷ Also, *Brooke Group* established a single standard for proving predatory pricing under both the Robinson-Patman Act and Section 2 of the Sherman Act.

The price-below-cost prong is similar to, but more permissive than, a profit-sacrifice test based on Ordover and Willig's definition of predation (Salop, 2006). Instead of establishing predatory intent by showing that a defendant's prices constitute a short-run profit sacrifice (i.e., an avoidable reduction in profit), the *Brooke Group* standard requires a defendant's prices to be low enough to create an actual short-run loss. Substituting a negative profit test for a profit sacrifice test avoids the difficulty of identifying an alleged predator's most profitable alternative pricing strategy—an exercise that would bring its own set of problems (Motta, 2004). Although some ambiguity remains about which cost measure is appropriate, *Brooke Group's* below-cost pricing requirement creates a less problematic safe harbor for the defendant than a strict profit-sacrifice test.

The more striking feature of the Court's opinion in *Brooke Group* is the recoupment prong: "The plaintiff must demonstrate that there is a likelihood that the scheme alleged would cause a rise in prices above a competitive level sufficient to compensate for the amounts expended on the predation" (p. 210). Here the Court recognizes that predatory pricing has the characteristics of an investment. The recoupment test assesses the likelihood that the defendant could charge monopoly prices for a long enough period after disposing of the target competitor to recoup its investment in low prices.

The prospect of recoupment is not a consideration that materialized in US law with *Brooke Group*. The ability of the defendant to recoup allegedly predatory losses figured prominently in preceding decisions in *Cargill* (1986), *Matsushita* (1986) and *A. A. Poultry Farms* (1989). In *William Inglis* (1982), the Ninth Circuit Court of Appeals held that "Predation exists when the justification for ... [low] ... prices is based ... on their tendency to eliminate rivals and create a market structure enabling the seller to recoup his losses. This is the ultimate standard, and not rigid adherence to a particular cost-based rule" (p. 1035).

An inquiry about the likelihood of recoupment shifts the focus in predation cases away from the narrow issue of the defendant's short-run losses to the larger issue of the economic rationality of the firm's alleged predatory scheme in its entirety. An evaluation of a defendant's prospects for recoupment involves both the firm's conduct and structural conditions in a properly defined relevant market: "The determination requires an estimate of the alleged predation's cost and a close analysis of both the scheme alleged and the relevant market's structure and conditions" (p. 210). Structural conditions conducive to recoupment are present if the defendant's market share is large, its rivals are small and limited in their ability to discipline the defendant's prices, and if there are significant barriers to entry in the market.

This inquiry harkens back to the first-tier market power component of Joskow and Klevorick's two-tier approach. A necessary condition for successful recoupment is a defendant's possession of, or a reasonable prospect of acquiring, significant market power. In keeping with the screening role Joskow and Klevorick assigned to the first tier of their approach, the Antitrust Modernization Commission (2007, p. 89) noted that the recoupment test "enhances administrability for the courts by allowing summary disposition of claims where market circumstances—such as easy entry—preclude the possibility of recoupment."