20 Years of Raising Rivals' Costs: History, Assessment, and Future[*,1]

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I. Introduction

This paper begins with a discussion of the historical context in which the research underlying the original Raising Rivals' Costs (RRC) papers was conducted. We then go on to evaluate the contribution of this literature to economics and to antitrust policy, and to discuss how the literature has evolved, both on RRC (or "non-price predation")[3] and vertical mergers.

II. History[4]

The work that formed the foundation of what became my contribution to the original RRC articles began in 1980, during my first "stint" at the FTC, which began in 1979. My work was heavily influenced by what was going on at the FTC and in antitrust and industrial organization during that time. During the 1970s and continuing into the early 1980s the FTC had a number of major monopolization cases and investigations, including cases like *Du Pont*[5] (allegations of predatory capacity expansion), *General Foods*[6] (allegations of predatory pricing and marketing), and *Kellogg's*[7] (allegations of predatory product proliferation). In addition, in the 1970s and on into the 1980s there were a number of papers on predatory pricing and papers on non-price predation and on "strategic" industrial

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[1] The authors thank Tim Muris, Mary Coleman, and Elizabeth Callison for helpful comments.

[2] The views expressed here are those of the authors, not of the FTC or any Commissioner.

[3] We will use "RRC" as the shorthand for non-price predation or vertical conduct that injures rivals.

[4] This section expresses the opinions of Dr. Scheffman.

[5] E.I. duPont de Nemours & Company, 9108 FTC (October 20, 1980).

[6] General Foods Corporation, 9085 FTC (January 5, 1982).

[7] Kellogg Company, General Mills, Inc., and General Foods Corporation, 8883 FTC (January 15, 1982).

organization models.

A notable event from the perspective of non-price predation was the FTC Conference held in June 1980, put together by Steven Salop.[8] This conference brought together leading industrial organization economists, business school academics, experimental economists, and lawyers. The Conference was well balanced, with advocates of aggressive new approaches to price and non-price predation and advocates of caution and/or great skepticism. "Hanging over" the Conference was the FTC's *Du Pont* case (a very important matter for the viability of an aggressive nonprice predation enforcement program) with the FTC Administrative Law issued after the conference, but in time to be included in conference volume. It is interesting to note that Michael Spence, whois probably the father of modern strategic conduct-focused industrial organization literature, was one of those urging a cautious approach. Clearly, "non-price" predation was "in the air,"and was an explicit focus of the conference. However, the conference did not provide a unifying conceptual framework. I would argue that the RRC article provided the outline of a unifying conceptual framework.[9]

In published work in industrial organization economics from the 1980s to the present, there appears to have been little recognition or even memory of the big monopolization cases of the 1970s.[10] This is unfortunate, since those cases involved top government and "outside" lawyers and economists and created substantial records with very detailed opinions.[11] In litigated cases that an economist would call strategic conduct cases,[12] the government did not prevail. The typical result was that the

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[8] *Strategy, Predation, and Antitrust Analysis*, FTC, September 1981.

[9] In his introduction to the 1981 FTC volume Salop summarizes some of our then ongoing work that resulted in the RRC papers.

[10] *See*, for example, the summary of the non-price predation literature, Janusz Ordover and Garth Saloner, *Predation, Monopolization, and Antitrust*, Handbook of Industrial Organization, Volume I, edited by R. Schmalensee and R. Willig, North Holland, New York (1989).

[11] One of the more notable contributions was a full airing of arguments as to whether profits, measured somehow, could be used as an indicator of market power. Those contributions have greatly fenced in potential mischief that can be created by using evidence on profitability to try to establish the existence of market power.

[12] Because of the regulatory "hook," we do not classify *AT&T* as a strategic conduct case.

district or appeals court judge(s) concluded that the challenged conduct was not anticompetitive.[13] Of the major cases that were closed or settled, only AT&T resulted in a victory for the government. Economists appear not to have paid much attention either to the fact that the deficiencies in the government's cases did not lie in the government's economic theories or to the implications of this fact for the contours of a useful role for economics in antitrust litigation and policy. Rather, the government was not able to put forward evidence that led to a conclusion that the challenged conduct was anticompetitive. A particular problem was the inability to credibly distinguish between "competition on the merits" and anticompetitive conduct. The fact finder in these cases had to deal with all the richness and complexity of "real world" competition, about which the modeling of competition in economic theory then, and still today, provides only limited assistance. I will return to this issue below.

Despite all my criticism of theorizing, of course contributions to economic theory can be important. However, theorizing would be much more productive if it was based on greater knowledge of facts and institutions. Unfortunately, there is probably too little in Ph.D. programs and in published economics articles about the actual functioning of "real" markets and companies to help in this regard.

Although my own published work in this area has been largely theoretical, my thinking about non-price predation was from the beginning and continues to be heavily influenced by empirical realities. My work on what became the RRC papers began with my assignment as an FTC staff economist for the FTC's shared monopoly oil industry case ("*Exxon*"). Briefly, an important allegation in that matter was that the respondents were involved in conduct intended to create a "vertical squeeze" of the "independent" (*i.e.*, non-"major") gasoline marketers. As best as I can now recall, the claim was that the "majors" were "overbuying" crude oil, thereby raising the price of gasoline at wholesale while at the same time squeezing the margins of the "independent" gasoline wholesalers and retailers. I was assigned to determine whether we could develop an economic theory that would make such allegations viable.

I benefitted greatly from conducting my research in the context of this actual antitrust investigation. I still vividly recall presenting the theory to the FTC attorneys, explaining to them what sort of evidence we needed to support the theory and having them provide me with the relevant documents and information. It quickly became obvious that the basic facts did not fit the theory in this

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[13] Of the major cases that led to a court decision, the government prevailed in what is probably the more typical reason for plaintiffs to lose monopolization cases, *i.e.*, relevant product and geographic market. Thus, what is particularly notable is that the fact finder rejected the government's case based on a finding that the challenged conduct was not anticompetitive. Such finding go the heart of limited applicability of RRC theories (that *assume* market definition and generally market power).

case.[14] Although the majors' documents were filled with concern about the independents and hints of thinking about how to "foreclose" the independents, the facts/data on the industry showed that the independents were growing, including in share, during this period. This was, in significant part, because the majors were selling them the majors' increasingly "excess" production. A vertical squeeze theory did not make much sense when the allegedly squeezed sector was growing because of increased sales to this sector by the alleged predatory cartel.[15] I was taught an important (but not new) lesson as a relatively young antitrust economist – begin by thoroughly checking the basic facts and understanding the institutions.[16] Of course if the basic facts on the increased sales to the independents had not been so inhospitable, FTC staff would still have had to develop many other facts to support the allegations in the case (with one major stumbling block being that the case alleged the eight largest oil companies, which at that time had a share of around 50% were engaged in some – probably – tacit collusion to engage in this vertical squeeze strategy). So I learned from the outset in this, and many other matters, that the important issues are generally going to be factual rather than theoretical. This lesson was reinforced many times during the term of Michael Pertshuk as chairman of the FTC, with respect to both the antitrust and consumer protection missions.

I end this section on history with a summary of my assessment of the significance of the RRC papers as contributions to the academic literature. In retrospect, that a strategy by a dominant firm that raised its rivals' costs but also increased the dominant firm's own costs could be profitable is "obvious." However, it did not seem obvious at the time, and it took several months of thinking through the analysis to get the first results. Many critics of the RRC literature have pointed out that there were earlier articles (or assertions) that pointed to this result.[17] Indeed, for the propositions they can

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[14] According to my recollection, the respondents' counsel was not very helpful in this regard, arguing that it did not make sense that their clients would have engaged in conduct that raised their own costs.

[15] Since, as will be explained further below, RRC theory shows that lots of things can happen, as a matter of *theory*, a RRC allegation would not fail simply because the independents were growing, due in part to increased sales by the alleged predator.

[16] Although much of my academic work was theoretical, much of my work as an academic arose in a policy context in which the institutions and facts were very important.

[17] Most of which were cited in the RRC papers. See Oliver Williamson, *Wage Rates as a Barrier to Entry: The Pennington Case*, QUARTERLY JOURNAL OF ECONOMICS 85-116 (February 1968); Aaron Director and Edward H. Levi, *Law and the Future: Trade Regulation*, 51 NORTHWESTERN UNIVERSITY LAW REVIEW 281-296 (1956); Richard R. Nelson, *Increased Rents From Increased Costs: A Paradox of Value Theory*, 65 JOURNAL OF POLITICAL ECONOMY 287-294 (October 1957).

embrace, some Chicago-school lawyers have credited Chicago-school thinking for the basic contribution. However, the contribution of the RRC articles has stood the test of time, with myriad citations and follow-on literature. None of the earlier work really laid out the model and results. Next we will discuss the results and their implications in more detail.

III. Assessment

A. Overview of Analysis

We begin with an overview of the basics of RRC analysis. RRC can work for a dominant firm ("predator")[18] because raising costs of other competitors is likely to shift their supply curves or reaction functions back (*i.e.*, at each price they sell less, or at each set of competitor prices they set higher prices), and if so, this shifts out the demand facing the "predator."[19] There is nothing remarkable in this – having rivals with higher costs, other things equal, is likely to be beneficial. What is more interesting is taking into account that actions that raise rivals' costs will generally increase the instigating dominant firm's own costs. Some kinds of cost-raising strategies can obviously be very cost-effective – *e.g.*, actions that lead to governmental actions that exclude your rivals', or impair their ability to compete with you.[20] Of more interest, as a theoretical matter and for antitrust, is when the cost increase imposed on rivals has a similar effect on the "instigator," – *e.g.*, raising the price of an input used by both rivals and the instigator through "over-buying" the input (which was the *Exxon* theory, discussed above).

The logic of profitable RRC is straightforward.[21] A RRC strategy will be profitable if by raising rivals' costs the dominant firm can shift up the market price at the current level of output by more than

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[18] And as discussed below, even for firms without "traditional" market power.

[19] Although it does not focus on a dominant firm model, a simple nontechnical explanation is provided in David Scheffman, *Comments on 'An Economic Definition of Predatory Product Innovation*, in Strategy Predation, and Antitrust Analysis, S. Salop (ed.), FTC, 1981 (Washington, D.C.) 397- 414.

[20] This is the focus of Steven C. Salop, David Scheffman & W. Schwartz, *A Bidding Analysis of Special Interest Regulation: Raising Rivals' Costs in a Rent Seeking Society*, in B. Yandle and R. Rogowsky (eds.) The Political Economy of Regulation: Private Interests in the Regulatory Process, FTC (1984), discussed further below.

[21] In my view probably the best simple explication is David Scheffman, *Comments on 'An Economic Definition of Predatory Product Innovation*, in Strategy Predation, and Antitrust Analysis, S. Salop (ed.), FTC, 1981 (Washington, D.C.) 397- 414.

the firm shifts up its average cost (keeping your output constant).[22] For example, in a homogeneous product industry, an increase in the incremental costs of rivals will shift up the rivals' supply curves by the amount of the increase in their incremental costs. Then, if the rivals have very elastic supply curves, assuming the dominant firm keeps its output constant, the market price will shift up by the increase in the rivals' incremental costs. The dominant firm's profits will increase if its average costs increases by less than the increase in rivals' incremental costs (which in this case is the increase in market price, with the dominant firm's output held constant).[23] This simple example demonstrates the power and superiority of RRC strategies over predatory pricing. With a very elastic supply by a fringe of a number of competitors, a predatory pricing strategy cannot work (without substantial re-entry barriers), but a RRC strategy can be very effective.

It probably cannot be stressed enough that raising rivals' costs or exclusion is not necessarily anticompetitive. As stated by Krattenmaker and Salop, "A firm that raises its rivals' costs has not necessarily gained anything. It may have harmed one or more of its competitors, but has it harmed competition? Competition is harmed only if the firm purchasing the exclusionary right can, as a result, raise its price above the competitive level." In fact, much of "competition on the merits" in concentrated industries involves strategies and tactics that disadvantage rivals, but is not anticompetitive.[24]

The specifics of cost raising strategies under various scenarios, including overbuying inputs to drive up rivals' input costs, and some initial results on RRC through vertical integration are covered in Salop and Scheffman (1987).[25] A paper that has probably received less attention, possibly because it was contained in an FTC volume, expanded the RRC framework to RRC through use of the government, and also dealt more thoroughly with the issue of whether counter-strategies by rivals could

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[22] As a technical matter, this is a *sufficient*, but not *necessary* condition. The condition is not necessary because although the condition may fail at pre-predation price and output, RRC may nonetheless be profitable at another output level.

[23] If rivals' supply curves are not very elastic, then the elasticity of their supply curves, their share of total sales, and the elasticity of market demand impact how any increase in their incremental costs impact the market price. (*See* David Scheffman and Steven Salop, *Raising Rivals Costs*, Vol. 73, No. 2 AMERICAN ECONOMIC REVIEW 267 - 271(May 1983)).

[24] *See* Charles Holt and David Scheffman, *Strategic Business Behavior and Antitrust*, in R. Larner and J. Meehan (eds.) ECONOMICS AND ANTITRUST POLICY, Quorum Books, 1989, 39-82.

[25] Steven C. Salop and David Scheffman, *Cost-Raising Strategies* JOURNAL OF INDUSTRIAL ECONOMICS (1987).

thwart a predator's attempts at RRC.[26] Finally, Scheffman (1992) applies the logic of RRC to horizontal restraints cases (*e.g.*, trade association and standards cases).[27]

B. Strengths of the RRC Analysis

The RRC framework has a number of virtues. The analysis is pretty straightforward, so that you do not need to be an economic theorist to grasp the basic logic. In some senses the results are theoretically powerful. RRC makes clear that cost raising and exclusionary strategies are generally, if not always, going to be superior (for an instigating dominant firm) to predatory pricing or other strategies that require recoupment, since a RRC strategy will often be profitable "nearly" from the outset. Put differently, the RRC analyses (and the literature on predatory pricing) make clear that cost-raising and exclusionary strategies should be the predominant antitrust concern about a dominant firm's behavior.

A further strength, at least as a matter of theory, of some of the RRC literature, particularly Salop and Scheffman (1987)[28] and Salop, Scheffman, and Schwartz (1984),[29] and Ordover and Saloner (1989),[30] is that empirically "testable" conditions are derived. These conditions are probably too cryptic for most lawyers, but they are conditions amenable, at least in principle, to application by economists in specific fact situations.

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[26] Steven C. Salop, David Scheffman & W. Schwartz, *A Bidding Analysis of Special Interest Regulation: Raising Rivals' Costs in a Rent Seeking Society*, in B. Yandle and R. Rogowsky (eds.) The Political Economy of Regulation: Private Interests in the Regulatory Process, FTC (1984).

[27] See David Scheffman, *Comments on 'An Economic Definition of Predatory Product Innovation*, in Strategy Predation, and Antitrust Analysis, S. Salop (ed.), FTC, 1981 (Washington, D.C.) 397-414.

[28] Steven C. Salop and David Scheffman, *Cost-Raising Strategies* JOURNAL OF INDUSTRIAL ECONOMICS (1987).

[29] Steven C. Salop, David Scheffman & W. Schwartz, *A Bidding Analysis of Special Interest Regulation: Raising Rivals' Costs in a Rent Seeking Society*, in B. Yandle and R. Rogowsky (eds.) The Political Economy of Regulation: Private Interests in the Regulatory Process, FTC (1984).

[30] Janusz Ordover and Garth Saloner, *Predation, Monopolization, and Antitrust*, Handbook of Industrial Organization, Volume I, edited by R. Schmalensee and R. Willig, North Holland, New York (1989).

C. Limitations of the RRC Analysis

Both the original RRC article and the later articles[31] make clear that as a matter of economic theory, the effects of cost-raising strategies are ambiguous. That is, that a dominant firm engages in cost-raising strategies, does not, itself prove, as a matter of economic theory, that such strategies are anticompetitive. It is important to understand this theoretical ambiguity, particularly in light of the many papers written since the RRC paper that focus on the potential for vertical mergers to be anticompetitive (a topic I will discuss in more detail below).

The analyses in the RRC papers largely focus on a situation with a dominant firm that is assumed to have significant market power, independent of any cost-raising strategies. Although it appears pretty simple, the model is actually quite complex in generating general results, as are all general models that involve market power short of monopoly. Thus, as is pointed out clearly in the Salop and Scheffman (1987) paper, as a matter of theory, cost-raising strategies by a dominant firm may raise or lower price, raise or lower total welfare, and even raise or lower the profits of the "victims."

The ambiguity arises from a number of sources. The most straightforward reason is that in the models, the dominant firm prices according to the elasticity of demand that it faces. A cost-raising strategy shifts out the demand faced by the dominant firm , but it is possible that it also makes the demand more elastic – sufficiently more elastic that the profit maximizing price falls. Again, RRC theory lays out, in principle, testable conditions under which, in a specific situation cost-raising strategies are likely, from an economic perspective, to be anticompetitive.

A more serious limitation of the RRC analysis is that it does not provide guidance on how to distinguish cost-raising strategies from "competition on the merits," or pro-competitive strategies that shift business from rivals.[32] As a matter of simple theoretical modeling, in principle this could be tackled, in part, in the RRC models by having the cost-raising strategy also impact *market* demand and/or the production costs of the dominant firm (to incorporate that possibility that the strategy that increase rivals' costs makes the dominant firm more efficient). Needless to say, such changes greatly increase the ambiguity of the competitive effects of cost-raising strategies. As a matter of policy, conduct by a dominant firm that clearly increases market demand should not be challenged absent a showing that clearly "separable and unnecessary" portions of the conduct were anticompetitive. As I will discuss below, one problem in private monopolization cases is that what at best is highly ambiguous conduct is labeled monopolization, and a case with "bad" conduct can sweep in what at best is highly

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[31] Particularly Salop and Scheffman (1987).

[32] This is discussed in some detail by Holt and Scheffman (Charles A. Holt and David T. Scheffman, *Strategic Business Behavior and Antitrust*, in R. Larner and J. Meehan (eds.) Economics and Antitrust Policy, Quorum Books, 39-82 (1989).

ambiguous conduct.

D. Empirical Support for RRC

The big monopolization cases and later important decisions, including *Microsoft*, have made clear that a firm with market power still has broad latitude to engage in conduct that is typically also engaged in by firms without market power (adding capacity, introducing new products, competing aggressively in marketing tactics against rivals, *etc*.). The important lesson (that was largely ignored, at least in the ensuing economics literature), was that lawyers and the judicial system could not be convinced that economics could suitably draw the line determining when a firm with market power was doing "too much" of what are otherwise normal competitive strategies and tactics, particularly with respect to product innovation and introduction, expansion, and pricing. The subsequent literature has not contributed much to drawing that line credibly. Instead, at their core, the major cases, including *Microsoft*, have focused on alleged overtly exclusionary conduct. I believe that the RRC literature has contributed to the analysis of such cases, but the core focus of the RRC literature (raising competitors' costs through in various ways manipulating their input markets – other than overt exclusion, and vertical mergers) has had little impact on law or policy.

In a more perfect world, industrial organization economists' reaction to the outcome of the monopolization cases and further development in the case law would have been to place a greater emphasis on empirical research that would have contributed to a determination of what sort of evidence could lead a fact finder (*i.e.*, not just a Ph.D. economist) to conclude that conduct undertaken by a firm with market power was anticompetitive. What happened instead was that economists (myself included) largely devoted their efforts to developing new theories of monopolization. One notable exception was Krattenmaker and Salop[33] who attempted to show that a number of past monopolization cases provided evidence supporting RRC theories. However, their arguments have been widely critiqued, based on additional facts or differing interpretations of the facts in the cases.[34] I think that a fair

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[33] Thomas Krattenmaker and Steven C. Salop *Anticompetitive Exclusion: Raising Rivals' Costs to Achieve Power Over Price*, THE YALE LAW JOURNAL 215 - 291 (1986).

[34] *See*, for example, Malcolm B. Coate and Andrew M. Kleit, *Exclusion, Collusion or Confusion? The Underpinnings of Raising Rivals' Costs*, 16 RES. L. & ECON., 73 (1994); John Lopatka and Paul Godek, *Another Look at Alcoa: Raising Rivals' Costs Does Not Improve the View*, 35 J.L. & ECON. 311 (1992); David Reiffen and Andrew Kleit, *Terminal Railroad Revisited: Foreclosure of an Essential Facility or Simply Horizontal Monopoly?*, 33 J.L. & ECON. 419 (1990); Scott Masten & Edward Snyder, *United States versus United Shoe Machinery Corporation: On the Merits*, 36 J.L. & ECON. 33 (1993); John Lopatka & Andrew Kleit, *The Mystery of Lorain Journal and the Quest for Foreclosure in Antitrust*, 73 TEX. L. REV., 1278-80 (1995); Timothy J. Muris, *The FTC and the Law of Monopolization*, 67 ANTITRUST L.J., 693-723 (2000); and Herbert Hovenkamp, *Post-Chicago Antitrust: A Review and Critique*, 257

assessment of the debate has been that for most of the cases they discuss, the Krattenmaker and Salop's interpretations are not proved. Another important paper that attempts to provide empirical support for RRC is Granitz and Klein,[35] who develop a lot of evidence supporting a RRC-type theory interpretation of the Standard Oil case, which has thus far stood up to review. However, their research demonstrates the need for a very extensive empirical analysis to support a RRC-type theory.

RRC-theories are logically valid, given their assumptions. There are cases that fit the theories. However, with one exception, the proponents of RRC-type theories have not made the case that RRC-type monopolization cases should have a significantly greater market share in enforcement policy (or a larger winning percentage in private litigation). The one category of cases that deserves (and at the FTC under Chairman Muris has received) more resources and attention are cases in which a dominant firm or collusive group misuses legal or governmental processes to anticompetitively exclude competitors or entrants.[36] We discuss this further below.

That there is no convincing evidence that anticompetitive RRC that does not involve the government to exclude has been a significant problem historically is, itself, striking. RRC generally involves injured parties that realize that they have been excluded, had their costs raised, *etc.*, who are often vocal about the perceived effects of such RRC. However, there are few instances (other than those that involve using the government to exclude or raise costs) that provide credible evidence that the subject of complaints produced a significantly anticompetitive result.

Although empirical research is unlikely to provide credible support for changing current presumptions about vertical conduct, more empirical work is very important, because economics has to make a more substantial contribution to determining whether allegations of anticompetitive RRC in a specific case actually are anticompetitive.

IV. Policy Implications of RRC

Many commentators have been very skeptical about the viability of RRC-type cases. For example, Granitz and Klein state "... our analysis provides no support for a new antitrust policy which

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COLUMBIA BUS. L. R. (2001).

[35] Elizabeth Granitz & Benjamin Klein, "Monopolization by 'Raising Rivals' Costs: The Standard Oil Case," 39 J. Law & Econ. 1 (1996).

[36] Timothy J. Muris, *Looking Forward: The Federal Trade Commission and the Future Development of U.S. Competition Policy*, COLUMBIA BUS. L. R. (forthcoming).

would condemn a vertical relationship without the presence of a horizontal conspiracy."[37] This leaves, at best, unclear as to their view of vertical relationships for which at least one party has substantial market power and is able to anticompetitively exclude rivals or entrants. Judge Easterbrook states that "My recommendation is that for the foreseeable future we leave raising rivals' costs to the academy."[38] We are not as skeptical. To begin, we suspect that both Klein and Easterbrook would support going after anticompetitive exclusion through manipulation of governmental or legal process. However, we advocate enlarging the focus of potential governmental or legal process abuse cases.

In the modern economy, barriers-to-entry or to effective competition increasingly do not arise from bricks-and-mortar, economies-of-scale, *etc*. In any event, we have learned from cases like *Du Pont* and *Kellogg's* (and *Microsoft*) that "predatory" capacity expansion or product innovation or introduction are not likely to be a fruitful lines of pursuit. In the modern economy, the traditional sources of competitive advantage have often been eroded by globalization and technological advances. Competitive advantage increasingly involves intangibles such as intellectual property. Such intangibles are often more manipulable than are bricks and mortar. Thus, we would argue that the sound policy basis for potential concern with non-price predation by a dominant firm has increased over time. Certainly, manipulating the government and the patent system are fruitful areas of concern with potentially anticompetitive conduct. Two recent Federal Trade Commission cases, *Rambus*[39] and *Unocal,*[40] are examples. More difficult to reach are what appear to be anti-consumer (but may be more difficult to reach as anticompetitive) activities of "patent vultures," and the use of patent thickets, sometimes combined with high stakes (for the defendant) actions at the International Trade Commission.

Of course, we do not mean that conduct involving patents should be challenged because patents sometimes "create" market power. Rather, we think it is appropriate to be aggressive about patent "misuse," involving patents "inappropriately" obtained, and misused, for example in standard setting contexts. The recent FTC/DOJ hearings on intellectual property[41] highlighted widespread

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[37] Elizabeth Granitz & Benjamin Klein, "Monopolization by 'Raising Rivals' Costs': The Standard Oil Case," 39 J. Law & Econ. 1 (1996), at 717.

[38] Frank H. Easterbrook, *When Is It Worthwhile to Use the Courts to Search for Exclusionary Conduct*?, COLUMBIA BUS. L. R. (forthcoming). *See*, also, Frank H. Easterbrook, *On Identifying Exclusionary Conduct*, 61 NOTRE DAME L. REV., 972, (1986).

[39] Available at http://www.ftc.gov/os/caselist/d9302.htm.

[40] Available at http://www.ftc.gov/os/caselist/d9305.htm.

[41] FTC/DOJ hearings on intellectual property: available at http://www.ftc.gov/opp/intellect/index.htm.

concern with "patent quality," *i.e.*, concern patents may too frequently be "inappropriately" granted. Of course the solution to this problem, if it exists, lies with the Patent and Trademark Office, and perhaps legislation in intellectual property (IP)law. But in limited circumstances, the antitrust (and perhaps other) laws can, and should, attack anticompetitive use of patents.

In any event there is little reason to use many enforcement resources to search for suitable and significant potentially anticompetitive RRC cases. The "beauty" of RRC is that it is likely to leave its fingerprints on a disadvantaged rival, whether or not the conduct is anticompetitive, and disadvantaged rivals are not shy about suing and/or complaining to enforcement agencies. The problem is sorting through what are mostly complaints about competition and competitive advantage to find the few "nuggets." More empirical research is needed to develop reliable empirical analyses that facilitate the evaluation of the nuggets.[42]

Of course the great weakness in trying to apply RRC is that there are so many false positives. Competition on the merits often injures rivals and potential rivals. It cannot be stressed enough that allegations of injury to rivals and potential rivals should not "pass Go" unless there is a credible concern that the result is anticompetitive. We agree with Tim Muris that credible anticompetitive effects must be required for any viable RRC-theory case.[43]

This is another area in which economic research could be helpful. Unfortunately, most economic models of competition have at their core market power and the creation or enhancement of market power, and its effects are the focus of the papers using these models. But the models are much too simplistic to be able to provide much guidance on real world competition. Much more economic research that develops models of competition that demonstrate the obvious fact that conduct that harms rivals is generally not going to be anticompetitive would be a big advance. Only with such models is it possible to try to seriously address as a matter of theory distinguishing competition on the merits from anticompetitive conduct.

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[42] Judge Easterbrook (Frank H. Easterbrook, *When Is It Worthwhile to Use the Courts to Search for Exclusionary Conduct*?, COLUMBIA BUS. L. R. (forthcoming)) stresses the inherent difficulties in evaluating situations that appear to be procompetitive in the short run but potentially anticompetitive in the longer run. We agree that we are a long way from having any research that could provide significant assistance in complex cases involving product innovation, *etc*. However, many cases, *e.g.*, the allegations in *JTC Petroleum* and in *Conwood*, discussed below, do not involve such tradeoffs. These types of cases also often involve conduct that is at best complex to analyze (see our discussion of *Conwood* below), and empirical economic research could have quicker payoffs for this more modest task.

[43] Timothy J. Muris, *The FTC and the Law of Monopolization*, 67 ANTITRUST L.J., 693-723 (2000).

V. RRC "In Action"[44]

Between my stints at the FTC, I was involved in several private monopolization cases. In this section I will briefly discuss two of them. These two were notable because they for various reasons had high visibility. The purpose of this discussion is to highlight what the role of economics and RRC, specifically, was in these cases. I believe there are lessons to be drawn from these two cases that have broader implications.

The two cases are *JTC Petroleum Company v. Koch Materials Company, et al.*, and *Conwood Company, L.P. et al. v. USTC, et al.*

A. *JTC Petroleum Company v. Koch Materials Company, et al.*[45]

I served as an economic expert for the plaintiff in this case. This is an interesting case in that it involved allegations of horizontal and vertical conspiracies aimed at raising prices at one or both levels and foreclosing competition through various cost-raising strategies. It is also interesting because judges Posner and Easterbrook sat on the appeals court panel, reversing a lower court's decision denying standing for the plaintiffs,[46] and the decision looked favorably upon what was a relatively complex RRC theory.[47] Briefly, the case involved allegations that applicators of road surface "emulsion" (crudely speaking, road sealant) conspired among themselves to divide markets and rig bids, and that they also conspired with (or coerced) suppliers of emulsion to deny supply of emulsion to the plaintiff, who attempted to enter and bid for business in emulsion application. Of course, a key issue is why the emulsion suppliers would act to defend the alleged cartel of their customers. As explained in the decision:

> So what JTC has tried to show is that the applicators enlisted the producers in their conspiracy, assigning them the role of policing the applicators' cartel by refusing to sell to applicators who defied the cartel--such as JTC, which has bid for jobs that the cartel had assigned to other applicators. JTC, a maverick, was a threat to the cartel--but only if it could find a source of supply of emulsified asphalt. The claim is that the applicators got the producers to deny JTC this essential input into its business, and as a result

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[44] This section is based on Dr. Scheffman's opinions about these cases in which he served as an expert.

[45] In the United States Court of Appeals for the Seventh Circuit Nos. 98-3919, 98-4251.

[46] The defendant emulsion suppliers had settled out, so the remaining defendants were competitors of the plaintiff.

[47] After the plaintiffs won the appeal, the rest of the defendants settled.

injured it. The producer was the cat's paw; the applicators were the cat.

Matsushita Electric Industrial Co. v. Zenith Radio Corp., supra, 475 U.S. at 587, however, teaches that an antitrust claim which makes no economic sense can on that ground be dismissed on summary judgment. See also In re Brand Name Prescription Drugs Antitrust Litigation, 123 F.3d 599, 614 (7th Cir. 1997). And it might seem to make no sense from the producers' standpoint to shore up a cartel of their customers. Cartels, as we have pointed out, raise price above the competitive level and by doing so reduce the demand for their product. The less asphalt the members of the applicators' cartel sell (perhaps because the higher, cartel price induces municipalities to defer road maintenance), the less they will buy, and so the producers will be hurt. But if the producers have nowhere else to turn to sell their product, as may be the case here because of the specialized character of their plants and the limited radius within which they can ship their product from the plant, the applicator defendants may be able to coerce them into helping to police their cartel by threatening to buy less product from them or pay less for it, as in the well-known case of Eastern States Retail Lumber Dealers' Ass'n v. United States, 234 U.S. 600 (1914); see also Business Electronics Corp. v. Sharp Electronics Corp., 485 U.S. 717, 730 n. 4 (1988); United States v. General Motors Corp., 384 U.S. 127(1966); Morrison v. Murray Biscuit Co., 797 F.2d 1430, 1438 (7th Cir. 1986); Rossi v. Standard Roofing Co., 156 F.3d 452, 462 (3d Cir. 1998).

Alternatively, and more plausibly (at least on this record), the cartelists may have been paying the producers to perform the policing function, rather than coercing them, by threats, to do so. In re Brand Name Prescription Drugs Antitrust Litigation, supra, 123 F.3d at 614. If by refusing to sell to mavericks the producers increase the profits of the applicators' cartel, they create a fund out of which the cartel can compensate them, in the form of a higher price for the purchase of the product, for their services to the cartel. Cf. Elizabeth Granitz & Benjamin Klein, "Monopolization by 'Raising Rivals' Costs': The Standard Oil Case," 39 J. Law & Econ. 1 (1996). The record reveals that the producers obtained from the applicator defendants prices 3 to 18 percent higher than the prices they obtained from presumably noncolluding applicators in the adjacent region, though there is no suggestion that their costs were any higher in that region. There is also evidence that the reasons the producers gave for refusing to sell to JTC were pretextual, as in Eastman Kodak Co. v. Image Technical Services, Inc., 504 U.S. 451, 484 (1992); cf. Blomkest Fertilizer, Inc. v. Potash Corp. of Saskatchewan, Inc., No. 97-1330, 1999 WL280497, at *4-5, 10 (8th Cir. May 7, 1999); McDonnell Douglas Corp. v. Green, 411 U.S. 792 (1973)--for example, that JTC was not a good credit risk, even though when JTC offered to pay cash the producers still refused to sell to it. This suggests that the real reason for the refusal was one that the producers didn't want to acknowledge--namely that they were being compensated by a cartel for

refusing to sell to a customer whom otherwise they would have been happy to sell to. The combination of the price difference with the evidence of pretext support an inference that the producers were indeed being compensated by the applicators for shoring up the cartel by boycotting an applicator that was competing with the cartel. If so--if the producers were working for the cartel--they were part of the applicators' conspiracy, and for the injury that they inflicted on JTC as agents of the applicators' cartel by denying JTC a source of supply the members of the cartel, three of which are the remaining defendants, would be culpable under elementary principles of both conspiracy law and agency law. E.g., Valley Liquors, Inc. v. Renfield Importers, Ltd., 678 F.2d 742, 743 (7th Cir. 1982); Rossi v. Standard Roofing Co., supra, 156 F.3d at 472.

There may be innocent reasons why the producers were charging lower prices elsewhere, or why they refused to sell to JTC. But the only issue for us, in reviewing the grant of summary judgment for these defendants, is whether a rational jury, having before it the evidence developed to date, could conclude (construing the evidence as favorably to the plaintiff as the record permits) that the reason for the producers' refusal to deal with JTC was that they were in cahoots with the cartel to discourage competition in the applicator market. Given the evidence of cartelization at both the applicator and producer level, the suspicious price behavior of the producers (indicative of their being "paid off" by the cartel to boycott JTC and other upstarts), and the pretextual character of the reasons the producers gave for the refusal to deal, a rational jury could conclude that JTC was indeed the victim of a producers' boycott organized by the applicator defendants. All the evidence that we have discussed is circumstantial, but of course an inference of conspiracy--of, in this case, an informal agreement among the applicators and the producers to deny supply to firms that tried to break into the applicators' cosily divided market--can be drawn from circumstantial evidence as well as from admissions or other direct testimony of the conspirators' communications with each other. Monsanto Co. v. Spray-Rite Service Corp., 465 U.S. 752, 764 (1984); Market Force, Inc. v. Wauwatosa Realty Co., 906 F.2d 1167, 1171-73 (7th Cir. 1990); Blomkest Fertilizer, Inc. v. Potash Corp. of Saskatchewan, Inc., supra, at *4-5; Petruzzi's IGA Supermarkets, Inc. v. Darling-Delaware Co., 998 F.2d 1224, 1233 (3d Cir. 1993). JTC has some direct evidence as well. It strikes us as equivocal, and we have not thought it necessary to discuss it; but we do not mean to suggest that it should not be admitted at the trial to which, we conclude, JTC was entitled.

This case involved striking circumstantial evidence consistent with a conclusion that the

applicators were involved in bid rigging and market division.[48] One of the lessons I have drawn from this and other cases, is that strong evidence pointing to "bad acts" is a key element for a plaintiff to prevail in a complex monopolization case. The other lesson is that, as discussed above, as a matter of theory alone, this case could not, as an economic matter, be conclusive. Any *general* economic model of the combined horizontal/vertical conspiracies would have ambiguous results. But theory does demonstrate that it is possible for the alleged vertical conspiracy to be rational, and with the richness of facts available in a case, the theoretical modeling can be much more specific, and determinate. Of course, as always, the facts are critical. There was not (in my opinion) strong evidence directly bearing on agreement between the applicators and suppliers. The 7th Circuit opinion points to the relevance and importance of quantitative evidence indicating that the applicators benefitted from the conspiracy.

B. *Conwood Company, L.P. et al. v. United States Tobacco Company, et al.*[49]

This case is notable, among other reasons because of the size of the judgment. I was the economic expert for the defendant. Market definition and the existence of monopoly power were not an issue in the case.[50] The case involved allegations of widespread tortious behavior including allegations that the defendant removed its competitors' products and point-of-sale merchandise from retail locations and that this conduct was widespread. The core theory of the plaintiff was that point-of-sale displays, POS, (product racks and signage) are very important in the wet snuff industry because of restrictions on advertising, and that defendant USTC sought to exclude defendant's ability to use effectively its POS materials.[51] The other allegations involved vertical conduct that would and should have been very difficult to assess under the rule-of-reason (*e.g.*, convincing retailers to use "exclusive"

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[48] Applicators located near to one another generally did not bid against one another, and for most county bid occasions there was generally a single bid.

[49] 290 F.3d 768; 2002 U.S. App. LEXIS 9158; 2002 FED App. 0171P (6th Cir.); 2002-1 Trade Cas. (CCH) P73,675; 58 Fed. R. Evid. Serv. (Callaghan) 1566.

[50] "In the instant case, USTC does not challenge that it has monopoly power; nor is there an issue as to the relevant product (moist snuff) and geographic markets (nationwide)." (footnote omitted).

[51] "The parties agree that POS in-store advertising is critical in the moist snuff industry because unlike with other products, such as soft drinks or snacks, tobacco advertising is restricted. Tobacco products cannot be advertised on TV or radio, and some places have restrictions on other forms of advertising outside of a retail store, such as on billboards. Further, the number of people who use smokeless tobacco products is relatively small in relation to those who consume other tobacco products. ... It is undisputed that POS advertising and a manufacturer's ability to sell its moist snuff from its own racks are critical to success in the moist snuff market."

racks,[52] "inappropriate" use of category management,[53] promotional programs offered to retailers[54]) – especially since the defendant's share fell, market output increased, and there was successful introduction of new products by competitors.

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[52] "Kroger's Steven Luckett testified that while his store permits each moist snuff company to have its own rack, an advantage of allowing only one rack to store all similar products is uniformity. It also allows retailers to stack products in a manner that looks more attractive and neat. According to Alan Hart, a former USTC salesman, less than 10 percent of stores carried USTC racks exclusively, and of those that did, "most all of them" did so because the store authorized it. Several retailers testified that they requested exclusive racks. ... USTC also points out that in 1996, Wal-Mart asked it and other moist snuff manufacturers to design a rack for the store to use for its moist snuff products. (J.A. at 492.) Conwood decided not to participate in the contest. Id. USTC's design won. Id. Swisher also won similar competitions for exclusive rack systems in K-Mart and Tom Thumb stores. (J.A. at 2859, 518-19, 1447-48.)."

[53] "During the 1990s, many retailers adopted the practice of category management. ... Manufacturers support the efforts of retailers by presenting to them products or a combination of products that are more profitable and "plan-o-grams" describing how, and which, products should be displayed. At Wal-Mart, Swedish and USTC were involved with category management, which entailed suggesting which items should be on the racks. Swisher at one point was also involved in the process. ... Larry Luckett, who decides which moist snuff products will be sold at Kroger Company, testified that any supplier trying to use category management practices to control competition, in his store anyway, would be "committing suicide." USTC points out that no retailer testified that the company required shelf space allocations equal to its market share. Apparently, Wal-Mart rejected such a request from USTC. ... There is also documentary evidence that USTC sought to use its position as category manager to control and limit the number of price value products introduced in stores and to control the merchandising and POS placements in stores. ... Conwood does not appear to challenge USTC's role as category manager per se, but rather the manner in which it used its position as a monopolist providing category management services, i.e., to exclude it from competition."

[54] "In 1998, USTC introduced its Consumer Alliance Program ("CAP"), which entails granting retailers a maximum discount of .3% for providing USTC with sales data, and participating in USTC promotion programs, and/or giving the best placement to USTC racks and POS. According to Conwood, however, CAP is another means by which USTC excludes competition. For example, in "a monthly competitive letter" dated March 27, 1998, a USTC employee stated that the CAP "has become a great incentive in securing space for our vendors and for the elimination of competition products." ... There was testimony that the CAP can be used to exclude competitive POS advertising, and that USTC was extremely successful in signing up retailers to enter into these agreements. In the first couple of months of the program, USTC was able to sign 37,000 retailers to the CAP, which represents 80 percent of its overall volume in moist snuff sales."

It is difficult to judge whether absent the allegations of tortious conduct, the judge would have let the matter go to a jury or whether the jury would have found liability. One would hope that the jury would see through allegations that involved claims that the defendant manipulated large sophisticated retailers, many if not most of which were much larger and more sophisticated than the defendant, to the detriment of those retailers. However, the judge allowed the experts great latitude, much broader than is typically allowed of economic experts, to "interpret" the documents as to both intent and competitive implications.[55] The judge also allowed the jury great latitude in performing what was required – *i.e.*, at best, a highly complex rule-of-reason analysis of the non-tortious conduct.[56] At a minimum, without the allegations of tortious conduct that was on its face, if true, harmful to the plaintiff (if not anticompetitively exclusionary), the case would have been very difficult. My reading of the appeals court decision is that what they viewed from the limitations of an appeals court perspective as unrebutted allegations of widespread tortious conduct at a minimum made the case much easier to uphold for the plaintiff.

In any event, *Conwood* is consistent with my view that a viable (if not "correct") RRC case likely must have at its core an allegation of market power and allegations of relatively egregious conduct that harmed the plaintiff, *not* subtle allegations of cost raising strategies. If these two conditions are present, a court (and juries and appeals courts) may be willing to "bundle" other conduct that would otherwise be difficult to properly assess under the rule of reason into a bundle of conduct viewed as exclusionary. If this is right, this is not a prescription for correctly decided cases, because the focus and perhaps determinative factor is allegations of injury to competitors rather than injury to consumers. I agree with Bork that allegations of business torts should not be the linchpin of a case unless the business torts can be shown to be than linchpin of anticompetitive (harm to consumers) exclusion.[57] This is another area in which more economic research could be helpful.

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[55] "USTC complains that Conwood was allowed to rely on numerous hearsay documents that detailed conduct that is routinely rejected as not being very probative of anti-competitive intent and that showed nothing more than statements about competitive objectives. However, [HN13] experts are entitled to rely on documents, even hearsay documents that are otherwise inadmissible. Kingsley Associates, Inc. v. Del-Met, Inc., 918 F.2d 1277, 1286-87 (6th Cir. 1990) (holding that Federal Rules allow experts to base their opinions on hearsay and other evidence otherwise inadmissible at trial)."

[56] "To the extent that USTC complains that evidence of its unlawful anti-competitive conduct, and its lawful conduct to take advantage of scale of economies, offer category management services or engage in other promotional activity in general were commingled, the district court properly instructed the jury that USTC could not be held liable for conduct that was part of the normal competitive process. The jury is deemed to have followed these instructions. Aspen, 472 U.S. at 604-05."

[57] Robert H. Bork, THE ANTITRUST PARADOX: A POLICY AT WAR WITH ITSELF (1978).

VI. Vertical Mergers

A. Recent Literature

For the past several years, the focus of what we would generally call the RRC literature has been vertical mergers.[58] (See Riordan and Salop (1995), Ordover, Saloner and Salop (1990) (hereafter, OSS) and Higgins (1997)). There is a long history of research on the potential competitive effects of vertical mergers. The older literature typically featured a monopolist or dominant firm at one level and made important contributions to our understanding of monopoly "leveraging." The RRC literature stimulated a renewed interest in this topic, with the focus changing from whether a vertical merger could lead to increased prices at one level to whether prices would be raised anticompetitively because rivals' costs were raised or rivals' were foreclosed. RRC in the context of a vertical merger necessarily demanded more attention to potential counter strategies by rivals (*e.g.,* why would rivals not compete to purchase what was being acquired in the merger). In addition, RRC in a vertical merger context raised in a more pointed way the issue of *credibility*, *i.e.*, whether it was rational after the merger for the merged entity to raise rivals' costs, refuse to deal, *etc*. This issue is discussed below.

Finally, it is well established in economics (if not in the law) that injury to rivals cannot, itself be the basis of concern with a vertical merger. Along with the potential efficiencies arising from a vertical merger, economic theory shows that the welfare gains from vertical merger can require the foreclosure of rivals.[59]

It has long been known that, in principle, a vertical merger could anticompetitively foreclose or raise prices to rivals at one level. Prior to the RRC literature, however, it was well settled among most economists (both so-called Chicago-school and "non"Chicago-school economists) that as a general matter the competitive effects of vertical mergers are ambiguous. Until recently, most of the literature on vertical mergers assumed the existence of market power at one or both levels. This literature demonstrated that the competitive effects of vertical mergers are theoretically ambiguous, depending on the presence or absence before and after the merger of numerous factors, including: (1) the degree of

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[58] See M. Riordan and Steven Salop, *Evaluating Vertical Mergers: a Post-Chicago Approach*, ANTITRUST LAW JOURNAL (1995); Janusz Ordover, G. Saloner and Steven Salop *Equilibrium Vertical Foreclosure* AMERICAN ECONOMIC REVIEW 127 - 143 (1990); Richard Higgins, R. *Diagonal Merger* REVIEW OF INDUSTRIAL ORGANIZATION 609 - 623 (1997).

[59] *See* David Reiffen and Michael Vita, *Comment: Is There New Thinking on Vertical Mergers*, ANTITRUST LAW JOURNAL 917 - 941 (1995).

vertical integration (whether "partial" or "full"); (2) factor substitution[60]; (3) the presence of transactions or contracting costs[61]; (4) the degree and type of competition at each vertical level[62]; (5) the ability to price discriminate[63]; (6) the feasibility of non-linear pricing.[64,65]

The original RRC papers demonstrate that vertical integration upstream [downstream] by a downstream [upstream] firm with market power can, in some circumstances, lead to anticompetitive price increases or foreclosure of upstream [downstream] rivals. The more recent literature has worked to develop conditions under which, as a matter of theory, a vertical merger involving firms that do not have "unilateral market power" (beyond facing a downward sloping demand for their products because of product differentiation) might be anticompetitive. In essence, this literature has been looking for

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[60] See Frederick Warren-Bouton, *Vertical Control with Variable Proportions,* JOURNAL OF POLITICAL ECONOMY 783 - 802 (1974); F M Westfield, *Vertical Integration: Does Product Price Rise or Fall?* 71 AMERICAN ECONOMIC REVIEW 334–346 (1981).

[61] See Roger Blair and David L. Kaserman, *Vertical Integration, Tying and Antitrust Policy* AMERICAN ECONOMIC REVIEW 397 - 402 (1978); Oliver Williamson, *Assessing Vertical Market Restrictions: Antitrust Ramifications of the Transaction Cost Approach,* University of Pennsylvania Law Review 973 - 993 (1979); Benjamin Klein and Kevin M. Murphy, *Vertical Restraints as Contract Enforcement Mechanisms* JOURNAL OF LAW & ECONOMICS 265 - 297 (1988).

[62] See Joseph Spengler, *Vertical Integration and Antitrust Policy,* JOURNAL OF POLITICAL ECONOMY, 347 - 352 (1950); Michael A. Salinger, *The Meaning of 'Upstream' and 'Downstream' and Implications for Modeling Vertical Mergers,* 373 - 387 JOURNAL OF INDUSTRIAL ECONOMICS (1989); Gerard Gaudet and Ngo Van Long *Vertical Integration, Foreclosure, and Profits in the Presence of Double Marginalization*, JOURNAL OF ECONOMICS AND MANAGEMENT STRATEGY, 409 - 432 (1996).

[63] See Martin K. Perry *Price Discrimination and Forward Integration* BELL JOURNAL OF ECONOMICS 209 - 217 (1978).

[64] See Oliver Hart and Jean Tirole *Vertical Integration and Market Foreclosure* in Martin Baily and Clifford Winston, eds. Microeconomics, Brookings Papers on Economic Activity 205 - 276 (1990).

[65] For a detailed discussion of the potential competitive effects of vertical merger under these various conditions and others involving incomplete and imperfect information not cited here, see Martin K. Perry *Vertical Integration: Determinants and Effects* in Handbook of Industrial Organization, Volume I, Edited by R. Schmalensee and R. D. Willig, Elsevier Science Publishers B. V. Amsterdam, 185 - 250 (1989). .

theoretical foundations for a structural approach to vertical mergers analogous to the Horizontal Merger Guidelines.[66]

In our opinion, this has not been a fruitful approach. Not surprisingly, there is even greater theoretical ambiguity about the effects of vertical mergers involving firms that do not have unilateral market power at either level than there is for RRC strategies by a dominant firm. That is not to say that there are no circumstances in which a vertical merger between firms without unilateral market power may be anticompetitive, but that such situations would be extremely rare. Certainly there is no basis in economic theory for a structural approach to vertical mergers, although, as we explain below, in some situations there is a basis for concern with some vertical mergers involving dominant firms.

First, we briefly explain why the theoretical models in recent papers we have cited "produce" anticompetitive vertical mergers. To begin, the models allow only a very limited role for efficiencies, and in some cases assume away one of the potential bases of vertical merger efficiencies, *i.e.*, the existence of so-called "double-marginalization." It has long been accepted by most if not all economists that as a general matter, vertical mergers are more likely to generate efficiencies than horizontal mergers.[67] Of course any significant efficiencies would make the results of these models ambiguous.

Beyond efficiencies, why do these models come up with anticompetitive vertical mergers? Consider first Salinger.[68] This model has homogenous product Cournot competitors selling to homogeneous product Cournot competitors downstream. One upstream Cournot competitor merges with one downstream competitor and refuses to deal with downstream rivals. This has the effect of reducing competition for downstream business among the merged input supplier's upstream rivals, because downstream rivals now face N-1 instead of N Cournot competitors. However, because Cournot competition downstream leads to double marginalization, competitive effects are still ambiguous.

In OSS[69] there is a homogeneous product in the upstream market but the competition is modeled as Bertrand – which is more competitive than the Salinger Cournot assumption. However, the upstream market is a duopoly, so that with a vertical merger and the merged entity refusing to sell to

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[66] *See*, for example, Riordan and Salop (1995).

[67] *See* David Reiffen and Michael Vita, *Comment: Is There New Thinking on Vertical Mergers*, ANTITRUST LAW JOURNAL 917 - 941 (1995) for a recent statement.

[68] Michael A. Salinger *Vertical Mergers and Market Foreclosure*, QUARTERLY JOURNAL OF ECONOMICS 345- 356 (1988).

[69] See Janusz A. Ordover, Garth Saloner, and Steven C. Salop, *Equilibrium Vertical Foreclosure: Reply*, AMERICAN ECONOMIC REVIEW 698 - 702 (1992).

downstream rivals, those rivals now face an upstream monopolist. The resulting higher input cost for the non-merged firms reduces the price discipline these firms provide for the merged firm's downstream affiliate and, as a result, the merged firm achieves additional market power downstream.[70] The Bertrand assumption upstream removes the double-marginalization problem. Thus, we have model in which a *perfectly* competitive upstream market that is turned into a “monopoly” market (for the downstream competitors) because of a vertical merger – clearly a model that is contrived.

In both models, the anticompetitive effects flow directly from the built-in foreclosure assumption – the assumption that a first-mover commits not to compete in the input market after merger. However, Reiffen[71] shows that if the merged firm in the OSS model were to compete in the merchant input market post-merger, there would be no anticompetitive effect of vertical merger. In their reply, OSS maintain that it is senseless for the vertically integrated input supplier to compete against itself. But, this misses the point. If the result depends on a commitment to foreclose, why can the upstream first mover not make such a commitment without merging? In other words, “what's merger got to do with it?” For example, in other models, the focus of the analysis of vertical mergers is price discrimination, but the effects of price discrimination should not be attributed to vertical merger when the same price discrimination is feasible without vertical integration. This same criticism is made of Salinger's results in Higgins,[72] where it is shown that in the Salinger model, without the foreclosure assumption and with linear demand and constant marginal cost, a vertical merger is always procompetitive.

However, as emphasized by Riordan and Salop,[73] the vertical merger does change incentives. Thus, in the OSS model, the profit accruing to a vertically integrated firm committed to foreclosure exceeds the sum of the profit for a non-vertically integrated input supplier committed to foreclosure and the profit of the downstream target prior to merger. This consequence of vertical merger would be relevant, of course, if the commitment sought entails cost since, in this case, the potentially anticompetitive action may only occur because of vertical merger. In contrast, if the competitive benchmark contained a commitment to foreclose without vertical merger, the competitive effects of

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[70] Krattenmaker's and Salop's “Frankenstein Monster” appears here in different guise (see Thomas Krattenmaker and Steven C. Salop *Anticompetitive Exclusion: Raising Rivals' Costs to Achieve Power Over Price*, THE YALE LAW JOURNAL 215 - 291 (1986)).

[71] See David Reiffen, *Equilibrium Vertical Foreclosure: Comment*, AMERICAN ECONOMIC REVIEW 694 - 698 (1992).

[72] See Richard Higgins *Diagonal Merger* REVIEW OF INDUSTRIAL ORGANIZATION 609 - 623 (1997).

[73] See Michael H. Riordan and Steven C. Salop, *Evaluating Vertical Mergers: a Post-Chicago Approach*, ANTITRUST LAW JOURNAL (1995).

vertical merger would be ambiguous just as in the dominant firm case.[74] In summary, only if vertical merger is required to make the critical commitment to foreclose feasible are the Salinger and OSS models cogent. In any event, these models are in many ways quite contrived, and assume away any efficiencies, and so they certainly do not provide a theoretical basis for a structural approach to vertical mergers.

Riordan and Salop[75] do not provide any new analysis of vertical mergers. Instead, their focus is on establishing guidelines for separating anticompetitive vertical mergers from procompetitive ones. They emphasize the changed incentives that accompany vertical merger. It is unclear from their discussion whether they think the refusal to deal so critical to the OSS conclusions qualifies as changed incentives caused by vertical merger. If not, then the analysis underlying their guidelines is the same analysis laid out in Salop and Scheffman.[76] There, it is demonstrated that as a matter of theory under some conditions vertical merger will raise rivals' costs – i.e., harm competitors – and, at the same time, harm competition as well. For example, one of the implications of their analysis is that a vertically integrated dominant input producer is more likely to find RRC profitable when its downstream affiliate uses the input less intensively than do its downstream rivals. This proposition proves to be true even when there is competition at both stages.[77] Beyond this single proposition about relative input usage, to date no empirically verifiable conditions for anti- *vs.* pro-competitive vertical mergers have been devised. The situation remains much as it did when it was recognized that even without efficiencies (other than removal of double-marginalization) with variable input proportions, it is possible that the

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[74] See Steven C. Salop and David Scheffman, *Cost-Raising Strategies*, 36(1) JOURNAL OF INDUSTRIAL ECONOMICS 19-34 (September 1987).

[75] See Michael H. Riordan and Steven C. Salop, *Evaluating Vertical Mergers: a Post-Chicago Approach*, ANTITRUST LAW JOURNAL (1995).

[76] See Steven C. Salop and David Scheffman, *Cost-Raising Strategies*, 36(1) JOURNAL OF INDUSTRIAL ECONOMICS 19-34 (September 1987).

[77] Richard Higgins, *Competitive Vertical Foreclosure*, MANAGERIAL AND DECISION ECONOMICS 229 - 237 (1999) shows that when there is Cournot competition upstream and Cournot competition downstream in two separate but interrelated markets, one of which uses the upstream input and one of which does not, a "diagonal" merger between an input supplier and one of the downstream rivals that does not use the input can result in anticompetitive RRC. The intuition is simple. Before merger, an increase in the input price causes demand to shift to the downstream rivals that do not use the input; after diagonal merger, some of the runoff is captured by the input producers. That is, a diagonal merger can in some circumstances change incentives to the detriment of competition. A hypothetical example is fabricated metal products made of steel or aluminum. A Cournot competitor that produces only aluminum would produce more than a Cournot competitor that produced both aluminum and fabricated steel products.

gains from internalizing the costs of inefficient input usage through vertical merger are outweighed by the social costs of the additional power over final price afforded by merger.[78]

Although we do not favor the Riordan and Salop approach to guidelines, it is important to note that in their view, harm to rivals is not sufficient to justify challenging a vertical merger – an output restriction in the final goods market is necessary. Further, according to their proposal, even the latter is not sufficient as there may be offsetting efficiencies. While their guidelines provide a description of theories of raising rivals' costs through vertical mergers, they fail to provide workable tests for the presence of likely anticompetitive effect.

The guidelines proposed by Riordan and Salop[79] are likely to be helpful in just one instance of raising rivals' costs, one that under different names is embraced by both the "Chicago School" and the"post-Chicago School." Specifically, a vertical merger (or, more generally, a vertical relationship) may facilitate coordinated interaction among firms at that level in the input/output chain where the threat of entry is minimal. Salop and Krattenmaker[80] dubbed this the case of the "Cartel Ringmaster;" Grannitz and Klein[81] refer less colorfully to the 'essential horizontal aspects of foreclosure facilitated by the vertical relationship.' Regardless of the language of typology, the present DOJ/FTC Horizontal Merger Guidelines treatment of vertical mergers[82] is likely to be more than adequate to discover an anticompetitive effect in such cases.

To sum up, the recent literature on vertical mergers does not change presumptions about the potential competitive effects of vertical mergers. That is not to deny, of course, that in some specific circumstances, a vertical merger can be shown to be likely to be anticompetitive. We discuss such circumstances in the next section.

B. Policy Recommendations

A structural approach to vertical mergers is not supported by economic theory (or empirical research) and is not necessary to "catch" those few vertical mergers that are anticompetitive. The

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[78] *See* Frederick Warren-Bouton, *Vertical Control with Variable Proportions,* JOURNAL OF POLITICAL ECONOMY 783 - 802 (1974); F M Westfield, *Vertical Integration: Does Product Price Rise or Fall?* 71 AMERICAN ECONOMIC REVIEW 334–346 (1981).

[79] *Op cit*

[80] *Op cit*

[81] *Op cit*

[82] NON-HORIZONTAL MERGER GUIDELINES.

approach is not necessary, because vertical mergers that have a significant potential for being anticompetitive (and unfortunately, many more) will necessarily stimulate complaints by competitors and customers at one or both levels. Customers who view the upstream entity of the vertical merger as an important supplier will generally be apprehensive (for reasons that include but are broader than antitrust issues) about a supplier that is important to them entering into competition with them through a vertical merger. Such concerns, if not addressed, are likely to stimulate complaints to the antitrust agencies. Similarly competitors at either level are likely to have concerns if the merger is going to strengthen competition or be anticompetitive, or if the downstream entity is an important customer of some or all of them. Again, those concerns are likely to be communicated to the antitrust agencies. These types of complaints are generally more likely to surface than customer complaints about horizontal mergers – a competitor becoming a supplier, or losing a major customer due to the acquisition by a rival is generally going to be a more pointed circumstance than a reduction in the number of competitors. What is important is not finding potential anticompetitive mergers, but sorting out those for which business rather than antitrust concerns are the real issue.

The existing treatment of vertical mergers in the DOJ/FTC Merger Guidelines (which has not been revised since 1984) have three theories of anticompetitive vertical mergers - facilitating tacit coordination, evasion of regulation, and two-level entry.[83] If carefully applied, these are valid bases for concerns. However, the facilitating coordination theory should be applied with great care, based on hard evidence rather than hand-waving about the "check list" of factors facilitating collusion.[84] The two-level entry theory sketched in the Non-Horizontal Merger Guidelines probably has few valid applications. The FTC has often used the regulatory evasion theory in natural gas and gasoline transportation industries where, until the mid-eighties, FERC applied cost-of-service regulation of pipeline transportation but not gas prices.[85] More prevalently, the regulatory evasion theory has been applied in telecommunications beginning with the 1984 break-up of the Bell System, with restrictions on the old regional Bell operating companies (the RBOCs) on entering long-distance service, principally for fear of foreclosure of non-affiliated long-distance companies.[86]

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[83] See Department of Justice Vertical Merger Guidelines, (1984). 49 Fed. Reg. 26, 824.

[84] David T. Scheffman and Mary Coleman, *Quantitative Analyses of Potential Competitive Effects from A Merger*, THIS ISSUE OF GMULR.

[85] See, e.g., Occidental Petroleum Corp., 109 F.T.C. 167 (1986). FTC v. Questar Corp., No. 2:95CV 1137S (D.Utah 1995) (transaction abandoned). {OR San Diego Gas & Electric Co. and Enova Energy, Inc., Dkt. No. EC97-12-000 (June 24, 1997) ("Order Conditionally Approving Disposition of Facilities . . . ").

[86] The entry requirements are described generally in the 1996 Telecommunications Act and are further defined in the several lawsuits spawned by the legislation.

What constitutes a viable vertical merger theory not based on facilitating collusion or regulatory evasion, or two-level entry? Two recent FTC cases (*Synopsys/Avant!* and *Cytec/Digene*) provide a good basis for this discussion.[87] The theory in each case involved whether or not the merger would help the combined firm maintain existing market power in one of the vertical levels. Such a theory is similar to foreclosure theory of Whinston's based on tying, and on the "monopoly maintenance" theory that has been discussed in connection with the Microsoft case.[88] In each case, a commitment to tie the complementary goods is necessary. First, consider Whinston's foreclosure paper. The monopolist merges (or builds internally) production of the primary and the complementary goods. The vertically integrated monopolist then commits not to sell the primary good independently of the complementary good. It ties the use of the two goods contractually or physically through integration or design incompatibility. If there are scale economies or network externalities associated with the complementary good, commitment to the tie might deter entry into or induce exit from the complementary good market. If it is further assumed that there are uses for the complementary good independent of the primary good, the primary good monopolist is not able to exploit demand for the complementary good completely absent vertical integration.

More recently, a similar theory has been proffered by Carlton and Waldman in the Microsoft case. In their model, the primary good monopolist is interested in protecting its market power from entry facilitated by entry first into the complementary good market (or, in swinging its present primary good market power into a related burgeoning market). Their model explicitly involves time; the monopolist commits to a tie that denies its potential rival current period sales of the complementary product, which makes entry in the second period unprofitable in subsequent periods.[89] While commitment is essential to deterring entry or inducing exit in these more recent strategic foreclosure

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[87] See Synopsys/Avant!, available at http://www.ftc.gov/speeches/other/021024mergeenforcement.htm; see Cytec/Digene statement, available at http://www.ftc.gov/opa/2002/06/cytyc_digene.htm; see http://www.ftc.gov/opa/2002/07/avant.htm.

[88] See Michael Whinston, *Tying, Foreclosure, and Exclusion*, AMERICAN ECONOMIC REVIEW 837 - 859 (1990); Dennis Carlton and Michael Waldman, *The Strategic Use of Tying to preserve and Create Market Power in Evolving Industries*, RAND JOURNAL OF ECONOMICS 194 - 220 (2002). The analyses in these papers were foreshadowed by those in Ordover and Willig, an earlier version of which appeared in the Salop FTC volume, and of which Scheffman provided an unfavorable review (Janusz A. Ordover and Robert Willig, *An Economic Definition of Predation: Pricing and Product Innovation*, YALE LAW JOURNAL 8 - 53 (1981)).

[89] See Dennis Carlton and Michael Waldman, *The Strategic Use of Tying to Preserve and Create Market Power in Evolving Industries*, RAND JOURNAL OF ECONOMICS 194 - 220 (2002).

models, unlike the models in Salinger[90] or OSS,[91] the credibility of commitment is reasonably dependent on vertical integration. However, it is important to note that here too, as a matter of theory alone, the overall welfare effects are ambiguous. This is particularly true in dynamic settings, such as software development or other high-tech industries.

Whether a monopoly maintenance theory would apply to a particular vertical merger requires a detailed factual analysis of the specific industry in which the merger is occurring, and several conditions must apply:

First, one party to the merger must have "strong" unilateral market power (*i.e.*, not just face a downward sloping demand because of product differentiation). Of course as a *necessary* condition the firm must have a high share in a relevant market, and fringe competitors and/or entry must be incapable of constraining the firm from significantly raising price. These conditions are not *sufficient* to confer significant market power because the firm with a high share may not be able to raise price significantly because of sophisticated customers, including the threat that one or more of them could integrate backwards.[92] Determining whether there is significant actual or potential market power at one level requires several steps: (1) What is the relevant market for assessing the transaction? (2) How should share be measured and what is the share of the merging parties in this market? (3) How readily can fringe firms expand and/or vertically integrate? (4) What are the prospects for entry? and (5) How sophisticated and powerful are customers?

Second, there must be a significant threat to the firm's dominant position in the primary market via expansion or entry from an adjacent market, into which the dominant firm proposes to enter through merger to protect its turf. Alternatively, the vertical merger takes away a competitor who because of

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[90] Michael A. Salinger *Vertical Mergers and Market Foreclosure*, QUARTERLY JOURNAL OF ECONOMICS 345- 356 (1988).

[91] See Janusz A. Ordover, Garth Saloner, and Steven C. Salop, *Equilibrium Vertical Foreclosure*, AMERICAN ECONOMIC REVIEW 127 - 143 (1990).

[92] Pablo Spiller and David Scheffman, Empirical Approaches to Market Power, 32 JOURNAL OF LAW AND ECONOMICS (December 1989), S3-S10. Pablo Spiller and David Scheffman, Geographic Market Definition Under the DOJ Merger Guidelines 30 JOURNAL OF LAW AND ECONOMICS (April 1987) 123-147. David Scheffman and Pablo Spiller, Econometric Market Delineation, MANAGERIAL AND DECISION ECONOMICS, (1996) 165-178. David Scheffman and Pablo Spiller, Buyers' Strategies, Competition, and Entry Barriers, 30 No. 3 ECONOMIC INQUIRY (1992) 418-436.

the threat of vertical integration, is an effective constraint on what otherwise would be a dominant firm.[93] The more immediate is this threat, the more compelling is the potential vertical theory. As is usual in merger analysis, the more distant the potential for competitive harm, the more difficulty we have in assessing whether such harm is likely and whether other factors might intervene in the interim to make harm more or less likely.

Third, the merger must create a credible and significant possibility of foreclosing this threat to the monopoly position or of removing an important constraint on market power. That is, as a result of the merger, the merging party with significant market power is unlikely to face competition in the future that it otherwise would have. This might occur for several reasons. For example, the other merging party might be particularly well positioned to enter into the other vertical level. In some sense, this is a potential competition theory and is more of a traditional horizontal issue. Analysis of this possibility would require review of the potential entrant's future plans and reasons why it would be well suited to entering the other market. As another example, the merging party's product might provide an important potential input to a competitor. That is, without this input (or competitive access to this input), the potential new entrant would not be competitive. In this case, it would be necessary to explain why the owner of this "input" could not extract the rents from its monopoly position without a merger (*i.e.*, the so-called "one monopoly rent" issue).

Fourth, the anticompetitive effects must derive not simply from that there is a vertical merger, but that the vertical merger is likely to lead to specific anticompetitive conduct that could or would not be undertaken absent the merger – for example, a refusal to deal is a credible concern post-merger, and/or rivals can be foreclosed by somehow bundling products at each level. We must stress, however, the importance of the first three conditions. That a vertical merger leads to a refusal to deal or to product bundling that disadvantages rivals cannot be anticompetitive unless the result is to maintain or strengthen pre-merger market power. In addition, of course, potential efficiencies must also be evaluated.

Fifth, the evidence of significant efficiencies from the merger must be weak. For example, the potential efficiencies from vertical merger of eliminating double marginalization are not likely to be significant or by combining the two products, there would only be insignificant improvement in the "quality" of the new, combined product.[94] In cases where the first four criteria hold but there is also evidence of efficiencies, a balancing of the potential for competitive harm versus efficiencies must be made. In such cases, informed customer opinions are likely to be very important, as such customers will have the incentive and ability to make such tradeoffs.

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[93] It is noteworthy that in Microsoft the dominant firm began without a browser share and, instead of vertically integrating into browsers, Microsoft expanded internally.

[94] There are a number of potential sources of inefficiency that in particular instances may only be internalized through vertical merger, *e.g.*, "asset specificity," suboptimal input usage, *etc.*

Sixth, credible, informed, representative customer opinions are very important. If credible, informed, representative customer opinions do not favor blocking a vertical transaction and such customer opinions support a significant (for them) potential for efficiencies, it should be very unusual for a vertical merger to lead to an enforcement action. On the other hand, if such customer opinions strongly disfavor the merger and the opinions are not limited to "normal" business concerns, that should in most cases lead to an enforcement action (assuming that the first four conditions above are satisfied).

As noted above, *Synopsys/Avant!* and *Cytec/Digene* provide good examples of the application of this approach and where the particular facts of the case led to two different outcomes. In both cases, one of the firms had significant market power at one level (Synopsys had market power in logical synthesis software used in chip design and Cytec had market power in liquid PAP tests). In each case, there was also a possible threat to each firm's market power arising from competition at the other level. In the future, integrated solutions might threaten Synopsys' market power. Cytec faced new entry that had received FDA approval in liquid PAP testing, but that competition could be thwarted by interfering with the ability of rivals to have their product interface with Digene's product. It should be noted that Cytec faced a much more immediate and less speculative threat than did Synopsys. The remaining facts of the cases, however, are quite different.

In Cytec/Digene, there was credible evidence that access to Digene's HPV test was necessary for successful entry into liquid PAP testing. In addition, because many liquid PAP tests never actually are used in conjunction with HPV tests (although having that option is important), Digene would not be able to capture the monopoly rents of both markets through its pricing of HPV.[95] By not cooperating with upstream entrants to gain FDA approval for using their tests in combination with Digene's test, the ability of those entrants to compete would be limited. In addition, Cytec/Digene might be able to bundle the two products in a way that increased combined prices and limited upstream competitors from competing, there was no evidence that substantial efficiencies would accrue from the merger, and representative customers were concerned about the transaction for reasons consistent with antitrust concerns, and supported the FTC's challenge.

In Synopsys/Avant!, on the other hand, it was not clear that access to Avant!'s "place and route" product was necessary for backward integration by other firms and it was also not clear that Synopsys would have the incentive to deny access to other firms or to significantly disrupt their ability to interface with the Synopsys product.[96] There was evidence that the merger might speed integration of the products and provide substantial benefits to customers, and this was supported by customer opinions, that did not support the FTC attempting to block the transaction.

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[95] In Whinston's analysis of foreclosure, the assumption that the good complementary to the monopolized product has independent uses is important (see Michael Whinston, *Tying, Foreclosure, and Exclusion,* AMERICAN ECONOMIC REVIEW 837 - 859 (1990)).

[96] The opinions of customers were very important.

VII. Conclusion

Economic theory is obviously important to sound antitrust policy and litigation. However, theory alone is necessarily limited. What is needed as a general matter in antitrust, and for non-price predation and vertical mergers specifically, is much more empirical research that can help us distinguish anticompetitive conduct from conduct that is benign or procompetitive. An obvious candidate for some careful research is the allegations in *Microsoft*. It should also be possible to do retrospective case studies of vertical mergers such as Synopsys/Avant!. Unfortunately, these areas are ones for which conclusive empirical work is going to be very difficult. But if economic research cannot demonstrate clear anticompetitive results that are more broadly applicable, enforcement and case law presumptions necessarily should stay where they are.