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Harvard, Chicago and Transaction Cost Economics in Antitrust Analysis

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Harvard, Chicago, and Transaction Cost Economics

in Antitrust Analysis

Herbert Hovenkamp[*]

I.   Introduction

This article offers some thoughts about the present place of transaction cost economics (TCE) in antitrust law, focusing particularly on contract arrangements involving vertically related firms or complementary products. At this writing, thirty-five years have passed since Oliver E. Williamson published *Markets and Hierarchies: Analysis and Antitrust Implications*.[1] At that time vertical price and nonprice restraints as well as tying were unlawful per se.[2] While not per se unlawful, both exclusive dealing and vertical mergers were treated much more harshly than they are now, and so was vertical integration by dominant firms.[3] TCE analysis of these practices lay largely in the future, but it was destined to develop a line of thinking that avoided the extreme positions of the two reigning schools of antitrust policy.

At one extreme was the "structural" school, which drew its impetus from a number of sources, including the passage of the Clayton Act in 1914 and the expansion of section 7 of that statute in 1950 to cover vertical mergers.[4] At its origins lay the

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[1] OLIVER E. WILLIAMSON, MARKETS AND HIERARCHIES: ANALYSIS AND ANTITRUST IMPLICATIONS (1975). One of Williamson's best pieces on the use of transaction cost economics in antitrust was actually published a year earlier. Oliver E. Williamson, *The Economics of Antitrust: Transaction Cost Considerations*, 122 U. PA. L. REV. 1439 (1974).

[2] Dr. Miles Med. Co. v. John D. Park & Sons Co., 220 U.S. 373 (1911) (RPM unlawful per se), *overruled by* Leegin Creative Leather Prods., Inc. v. PSKS, Inc., 551 U.S. 877 (2007) (RPM to be governed by rule of reason); Albrecht v. Herald Co., 390 U.S. 145 (1968) (maximum RPM unlawful per se), *overruled by* State Oil Co. v. Khan, 522 U.S. 3 (1997) (maximum RPM brought under rule of reason); United States v. Arnold, Schwinn & Co., 388 U.S. 365 (1967) (vertical nonprice restraints unlawful per se), *overruled by* Cont'l T.V. v. GTE Sylvania, Inc., 433 U.S. 366 (1977) (vertical nonprice restraints governed by rule of reason); Times-Picayune Publ'g. Co. v. United States, 345 U.S. 594 (1953) (stating per se rule for tying arrangements in the presence of tying market power); Jefferson Parish Hosp. Dist. v. Hyde, 466 U.S. 2 (1984) (dicta reaffirming per se tying rule).

[3] Standard Oil Co. (Cal.) v. United States, 337 U.S. 293 (1949) (condemning exclusive dealing under harsh test); Brown Shoe Co. v. United States, 370 U.S. 294 (1962) (condemning vertical merger on modest market shares). On vertical integration de novo, see United States v. Am. Tobacco Co., 221 U.S. 106 (1911) (condemning vertical integration into collateral goods such as foil used in manufacturing tobacco products); United States v. Yellow Cab, 332 U.S. 218 (1947) (reversing dismissal of complaint challenging cab manufacturer's acquisition of operating licenses); United States v. Paramount Pictures, 334 U.S. 131 (1948) (same; vertical integration from motion picture production into distribution).

[4] 15 U.S.C. § 18 (2006); Cellar–Kefauver Act of 1950, Pub. L. No. 81-899, 64 Stat. 1225. On the amendments, see Derek C. Bok, *Section 7 of the Clayton Act and the Merging of Law and Economics*, 74

Great Depression and the rise of monopolistic competition theory in the early thirties,[5] which in different ways undermined our confidence that markets for manufactured, product-differentiated goods would perform competitively. The industrial organization theory of the structural school developed the structure-conduct-performance (S-C-P) paradigm, which saw firm structure as the principal determinant of anticompetitive behavior and poor economic performance.[6] Under the model, structure entailed conduct of a certain kind, and the conduct entailed poor performance. As a result conduct dropped out as a variable of interest and one could reason directly from structure to performance.

The promoters of the S-C-P paradigm tended to believe that monopoly power was widespread, as were the opportunities for its exercise.[7] Building on a neoclassical model in which sellers placed their goods on the market and purchasers bought them mainly in single-shot transactions, they were suspicious of any type of "irregularity" or deviation from common law contract models for distribution, generally seeing these as instances of monopolistic conduct. This animosity showed up in competition policy in various ways. One was discomfort with product differentiation and the blunting of competition that was commonly thought to attend it.[8] Another was elevated suspicion about both ownership vertical integration and vertical contractual practices such as tying, exclusive dealing, resale price maintenance or related restraints. Antitrust policy became hostile toward all of them. At its core lay the "leverage" theory, which feared that a monopolist could easily "exploit[] his dominant position in one market to expand his empire into the next."[9]

Much, although certainly not all, of this theory originated in the Harvard economics department.[10] Further, while structuralism is sometimes associated with a Harvard school of antitrust, Harvard's own economists and antitrust scholars abandoned most of it more than thirty years ago, prior to the time that TCE became well

HARV. L. REV. 226, 234–36 (1960); Herbert Hovenkamp, *Derek Bok and the Merger of Law and Economics*, 21 U. MICH. J.L. REFORM 515, 516 (1988).

[5] EDWARD CHAMBERLIN, THE THEORY OF MONOPOLISTIC COMPETITION (1933).

[6] *See* Herbert Hovenkamp, *The Neal Report and the Crisis in Antitrust*, 5 COMPETITION POL'Y INT'L 217 (2009).

[7] *See, e.g.*, CARL KAYSEN & DONALD F. TURNER, ANTITRUST POLICY: AN ECONOMIC AND LEGAL ANALYSIS (1959); JOE S. BAIN, INDUSTRIAL ORGANIZATION (1959); JOE S. BAIN, BARRIERS TO NEW COMPETITION: THEIR CHARACTER AND CONSEQUENCES IN MANUFACTURING INDUSTRIES (1956).

[8] See Herbert Hovenkamp, *The Law of Vertical Integration and the Business Firm: 1880–1960*, 95 IOWA L. REV. 863, 911 (2010) (describing increasing ambivalence about product differentiation). *See, e.g.*, CHAMBERLIN, *supra* note 5, at123 (product differentiation as leading to excessive vertical integration); BAIN, BARRIERS, *supra* note 7, at 142–43, 212 (1956) (product differentiation as barrier to entry).

[9] Eastman Kodak Co. v. Image Tech. Servs., Inc., 504 U.S. 451, 479 n.29 (1992) (quoting Times-Picayune Publ'g Co. v. United States, 345 U.S. 594, 611 (1953), which in turn was paraphrasing United States v. Griffith, 334 U.S. 100, 108 (1948) ("When the buying power of the entire circuit is used to negotiate films for his competitive as well as his closed towns, he is using monopoly power to expand his empire.")).

[10] *See* Herbert Hovenkamp, *United States Competition Policy in Crisis: 1890–1955*, 94 MINN. L. REV. 311 (2009).

established in the economics literature.[11] The leverage theory itself never dominated Harvard industrial organization theory or competition policy. Rather the concern was foreclosure, or the idea that firms could use pricing, vertical restrictions or intellectual property (IP) licensing practices to exclude rivals from otherwise profitable markets.[12]

At the other extreme was the Chicago school position, whose theory of vertical integration began with the collapse of the "leverage" theory in the 1950s,[13] and developed into a more general argument that vertical ownership and contract integration should be lawful per se, with perhaps an exception for practices shown to facilitate horizontal collusion.[14] As did the Harvard school, the Chicago school tended to see the economic landscape in terms of competition and monopoly. They saw far fewer situations where monopoly could be created or maintained for long periods, however, and they disputed the notion that a monopolist in one market could readily leverage its monopoly position into related markets.[15]

The critique of the leverage theory showed that in a basic tying situation a firm with market power and the ability to charge prices above cost could not increase its overcharge by tying or other forms of vertical integration. To the contrary, in the case of successive or complementary firms with market power, combining two products or process stages into a single firm would actually increase output and reduce price by eliminating double marginalization.[16] The dominant Chicago view about tying established in the critique of leveraging was that it was a form of price discrimination, which permitted a monopolist to extract more profits but also typically increased output.[17] As a result there was no reason based on economic welfare grounds for condemning ties.

Since the 1970s both the old Harvard and the traditional Chicago positions have moved from opposite directions toward the center, partly as a result of the influence of transaction cost analysis. Today their differences on many issues are not all that considerable. In 1978, only three years after *Markets and Hierarchies* was published, Areeda and Turner produced the first three volumes of the *Antitrust Law* treatise, whose

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[11] *See infra* text accompanying notes 18–28. One exception is Einer Elhauge, who favors bringing back the leverage theory of tying. *See, e.g.*, Einer Elhauge, *Tying, Bundled Discounts, and the Death of the Single Monopoly Profit Theory*, 123 HARV. L. REV. 397 (2009).

[12] *See* Hovenkamp, *United States Competition Policy*, *supra* note 10, at 362–67. On foreclosure, see *infra* text accompanying notes 139–47.

[13] *See, e.g.*, Ward Bowman, Jr., *Tying Arrangements and the Leverage Problem*, 67 YALE L.J. 19 (1957).

[14] These views were consolidated and popularized by ROBERT H. BORK, THE ANTITRUST PARADOX: A POLICY AT WAR WITH ITSELF (1978); *see also* Richard A. Posner, *The Next Step in the Antitrust Treatment of Restricted Distribution: Per Se Legality*, 48 U. CHI. L. REV. 6 (1981); RICHARD A. POSNER, ANTITRUST LAW: AN ECONOMIC APPROACH (1976).

[15] *See, e.g.*, Richard A. Posner, *The Chicago School of Antitrust Analysis*, 127 U. PA. L. REV. 925 (1979).

[16] *See, e.g.*, Joseph Spengler, *Vertical Integration and Antitrust Policy*, 58 J. POL. ECON. 347 (1950); *see also infra* text accompanying notes 74–75.

[17] Bowman, *supra* note 13.

second volume entirely repudiated the leverage theory,[18] and whose third volume very substantially repudiated the structuralist position on vertical integration.[19] The recommendations offered by Areeda and Turner were starkly different from those offered by Turner and Carl Kaysen two decades earlier in *Antitrust Policy*, indicating that Turner himself had undergone a remarkable conversion experience.[20]

The *Antitrust Law* treatise originated at Harvard Law School in the 1970s with the work of Phillip E. Areeda and Donald F. Turner. *Antitrust Law* is fundamentally a resource for antitrust lawyers and legal scholars. It is not a work of economics, and it has never explicitly embraced any particular economic "school." At no time in its history could it be identified with the old Harvard school, which was closely associated with the structure-conduct-performance paradigm in industrial organization, and it has consistently opposed applications of the leverage theory.[21] Nor has it ever explicitly embraced the Chicago school. The *Antitrust Law* treatise is in fact something of an economics scavenger, picking and choosing among economics' diverse theories for doctrine that is both theoretically defensible and administratively useful. Its economics reflects the fact that both the Harvard and Chicago schools have moderated their views toward the center. To a significant extent it has embraced transaction cost analysis of such things as vertical restraints, tying, exclusive dealing, exclusionary practices by dominant firms, mergers, joint ventures, and enforcement costs. In sum, it has taken advantage of the fact that transaction cost analysis does two things at the same time. First, unlike the traditional leverage or "hostility" theory, it rejects the notion that the practices in the list are inherently suspicious. Most of the time they are beneficial because they reduce either production or transaction costs. At the same time, it also rejects many assumptions about costless and instantaneous entry, easy resource mobility, and limitlessly rational market participants that characterized the neoclassical price theory approach to antitrust and have been attributed to Chicago school antitrust analysis.

On tying and leverage, Areeda and Turner's 1978 volumes completely accepted the Chicago school critique of the leverage doctrine. They concluded that a firm with market power in a tying product could charge an above-market price for a tied product only by making a corresponding reduction in the tying product's price. Otherwise a rational person would not purchase.[22] As a result, they concluded, the purchaser of the tied-up package "was not injured" by an overcharge. Indeed, the authors somewhat optimistically opined that the Supreme Court, given its recent decision in *Fortner II*, was

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[18] 2 PHILLIP AREEDA & DONALD F. TURNER, ANTITRUST LAW: AN ANALYSIS OF ANTITRUST PRINCIPLES AND THEIR APPLICATION ¶ 347a, b (1978).

[19] *See* 3 *id.*, ch. 7D.

[20] *See* KAYSEN & TURNER, *supra* note 7 (advocating harsh rules for tying, exclusive dealing, and vertical mergers). *See* Walter Adams & James W. Brock, *Areeda/Turner on Antitrust: A Hobson's Choice*, 41 ANTITRUST BULL. 735 (1996).

[21] *See* Hovenkamp, *supra* note 10.

[22] *See* 2 AREEDA & TURNER, *supra* note 18, ¶ 347, at 251 ("[U]nless the benefit equaled or exceeded the increment, a rational person in the plaintiff's position would not have entered into the arrangement at all.").

on the verge of recognizing that fact.[23]   In the same discussion Areeda and Turner acknowledged that a principal use of variable proportion ties, as in franchises, is price discrimination.   Once again they rejected leveraging and argued that such ties are nothing more than substitutes for a royalty based on sales for use of the franchisor's "name and methods."[24]   In this case "[t]he defendant was certainly entitled to charge a franchise fee, and the plaintiff's voluntary entry into the . . . business demonstrated that the incremental charge for the tied item was what the plaintiffs were willing to pay for the franchise."[25]   Areeda and Turner then concluded:

> Now there is one ground on which the plaintiff might claim that he was injured by the tie.   In cases like *Chicken Delight*,[26] the tie facilitates price discrimination.   By requiring the franchisee to pay an incremental price on some product whose use varies in proportion to his business, the franchisor collects more from the more successful franchisee than from the less successful—just as is customarily and lawfully done through a franchise fee based on the franchisee's gross (or net) revenues."[27]

They concluded, however, that even the successful franchisee forced to pay more for the franchise as a result of a price discrimination tie suffers no antitrust injury.   A franchisee fee based on revenues would clearly have been lawful and would have caused no greater harm.[28]

Speaking more generally of vertical integration by the monopolist, Areeda and Turner largely repudiated a half-century of hostility toward vertical integration in the structuralist economic literature, concluding:

- "Without substantial market power at any one production or distribution stage, vertical integration lacks antitrust significance.   It is either competitively neutral or affirmatively desirable because it promotes efficiency."[29]

- On leveraging: "There is a maximum monopoly profit to be earned from the eventual sale of an end product . . . .   Unless there are diseconomies of integration, monopolization of a second stage would not ordinarily lead to higher prices or lower output . . . .   Vertical integration by a monopolist can lead to lower prices, higher output, and other economic benefits where the

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[23]*Id.* at 252 ("The Supreme Court may thus be ready to recognize, when it focuses on the question, that such plaintiffs as Fortner have not suffered injury," speaking of the Supreme Court's two decisions in *Fortner Enters. v. U.S. Steel Corp.*, 394 U.S. 495 (1969), and 429 U.S. 610 (1977)).   The *Fortner* cases involved tying of expensive homes with below market rate financing.

[24]2 AREEDA & TURNER, *supra* note 18, ¶ 347, at 253. [HH: can you leave date in here? Point is that this was stated in the original edition, not the current edition]

[25] *Id.*

[26] Siegel v. Chicken Delight, Inc., 448 F.2d 43 (9th Cir. 1971) (condemning a franchise tie of common consumable goods by a nonmonopolist without requiring any showing of market power other than the franchisor's trademarks).

[27] 2 AREEDA & TURNER, *supra* note 18, ¶ 347, at 253–54.

[28] *Id.* ¶ 347, at 254.

[29] 3 AREEDA & TURNER, *supra* note 18, ¶ 724, at 195.

second stage had previously been monopolized or otherwise characterized by non-competitive performance."[30]

- On double marginalization,[31] Areeda and Turner recognized that "[i]ntegration of two successive monopolies can lead to a higher output and a lower end-product price."[32] Further, if successive monopolists were able to agree with each other they could reach the joint maximizing level, resulting in lower prices and higher output. In Coasean fashion they concluded that upon recognizing double marginalization, "rational successive monopolists would treat themselves as a unit in order to set that end-product price and output that maximize aggregate profit . . . ." Further, when such an agreement was impossible, "forward integration into what was previously a monopoly or oligopoly stage is likely to improve matters."[33]

Additionally, in both the original and current editions the *Antitrust Law* treatise has opposed the recognition of a Sherman Act section 2 "monopoly leveraging" offense, involving the use of monopoly power in one market to leverage a competitive advantage in a second market.[34]

Perhaps Areeda's and Turner's greatest sensitivity to transaction costs lay in their attempt to formulate antitrust rules so as to reduce administrative and error costs. For example, they repeatedly argued that antitrust lacks the machinery to consider long run problems or engage in fine theoretical analysis. Thus, for example, they argued for the average variable cost test in predatory pricing,[35] a proposal that Williamson later faulted for creating a "defendant's paradise"[36] and that the Chicago school's Richard A. Posner has characterized as "toothless."[37] In subsequent years the *Antitrust Law* treatise increasingly embraced transaction cost analysis in ad hoc fashion, noticeably in its analysis of vertical integration by the monopolist, vertical and conglomerate mergers, vertical price and nonprice restraints, tying, exclusive dealing, joint ventures and IP licensing.[38]

Robert Bork's *Antitrust Paradox*, which was published the same year as Areeda's and Turner's original volumes, clung to a more orthodox Chicago position. Bork cited Williamson's work several times, although on merger efficiencies rather than transaction

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[30] *Id.* ¶ 724, at 198; *see also id.* ¶ 725b at 199 (against leveraging; "[n]o 'double' monopoly profit").

[31] For an explanation, see *infra* text accompanying notes 74–75 and accompanying figure.

[32] 3 AREEDA & TURNER, *supra* note 18, ¶ 725c, at 200-201..

[33] *Id.*

[34] In the original edition, see*id.*, ¶626d-g, at 79-83; In the current edition, see ¶652 at 130-142 (3d ed. 2008).

[35] 3 *id.,* ch. 3C.

[36] Oliver E. Williamson, *Predatory Pricing: A Strategic and Welfare Analysis*, 87 YALE L.J. 284, 305 (1977).

[37] RICHARD A. POSNER, ANTITRUST LAW 217–23 (2d ed. 2001).

[38] *See* PHILLIP E. AREEDA & HERBERT HOVENKAMP, ANTITRUST LAW ch. 7D (vertical integration by monopolist), ch. 16 (vertical price and nonprice restraints), ch. 17 (tying), ch. 18 (exclusive dealing), chs. 19–22 (horizontal agreements; licensing practices; joint ventures) (2d & 3d eds. 2004–2010).

cost economics.[39]   Nevertheless, certain positions that we instinctively associate with the Chicago school, such as Lester Telser's free rider explanation for resale price maintenance (RPM), are in fact a form of transaction cost analysis. While Telser did not explicitly rely on Coase, his well-known essay on RPM is about the costs of alternative mechanisms for provision of retailer services. For example, Telser concluded that a firm would choose self-distribution or distribution through independent agents depending on the relative costs of doing so.[40]   Further, he argued, in the absence of RPM retailers would offer differing levels of service depending on their own individual cost and demand functions. The manufacturer might try to use contract provisions to require optimal dealer services, but monitoring and enforcement costs would make these unattractive.[41]   As a result, RPM was often the best solution, permitting dealers to compete with each other in service provision until their costs rose to the maintained price.[42]   Further, this investment in RPM performed a consumer education function that, at the margin, was a substitute for direct national advertising to consumers.[43] These were distinctively transaction cost arguments, as Oliver Williamson himself would later recognize.[44]

Interestingly, Bork's chapter on vertical restraints and RPM[45] says almost nothing about transactions costs and makes very brief mention of free-rider problems,[46] which by that time had a well-established Chicago School literature. He concluded, largely from an analysis of market power and the severely limited opportunities for expanding it by vertical contracting, that "every vertical restraint should be completely lawful."[47] Of course one must not forget that Ronald Coase, who must be considered the grandparent of TCE if Williamson is the parent, himself spent the greater part of his career at the University of Chicago. Bork did not cite him. For Bork, monopoly is what it is, cannot be expanded contractually, and is readily dissipated by new entry.

To say that the rise of transaction cost economics is solely responsible for the re-alignment of antitrust policy that has occurred since the 1970s is certainly an exaggeration. However, TCE has helped antitrust develop a new "center," which has influenced both the case law and the academic literature in ways that are difficult to exaggerate. TCE's powerful analytic tools function simultaneously as a critique of both

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[39] *See* BORK, *supra* note 14, at 107–12 (merger efficiencies); at 123–25 (efficiencies as an antitrust defense generally); at 127–32 (same, focusing on mergers); at 179, 196, 219 (same).

[40] *See* Lester Telser, *Why Should Manufacturers Want Fair Trade?*, 3 J.L. & ECON. 86, 87 (1960).

[41] *Id.* at 94 ("[I]t is easier to police violations of minimum prices than to survey retailers to see that they do indeed provide the special services.").

[42] *Id.* at 90.

[43] *Id.* at 94–95.

[44] See Oliver E. Williamson, *Assessing Vertical Market Restrictions: Antitrust Ramifications of the Transaction Cost Approach*, 127 U. PA. L. REV. 953, 959 n.26, 983 & n.101 (1979) (disputing Posner's memory of the *Schwinn* litigation and recognizing Telser's free rider argument as a transaction cost approach).

[45] BORK, *supra* note 14, at 280–98.

[46] *Id.* at 290. Bork does mention free rider problems again in an appendix on market division and price fixing. *Id.* at 430–31, 435.

[47] *Id.* at 288.

the leverage theory and the belief that pricing and vertical practices are virtually never anticompetitive. The result has been to position antitrust analysis somewhere in the middle, although somewhat closer to the Chicago "benign" position than to the inherent hostility position reflected by structuralism and the traditional leverage theory.

II.   Antitrust, Markets, and TCE

Antitrust policy must make reasonable assumptions about both the goals of business firms and their capabilities. We generally assume that business firms organize their activities so as to maximize their value, which they can do both by economizing, or reducing costs, and also by obtaining profits from sales at prices in excess of cost. Today we largely accept Coase's position that a firm's structure is determined by its continuous comparison of the costs and benefits of internal production against those of market procurement. Perhaps departing from Coase, however, sensible antitrust policy recognizes that both advantageous contracting and monopoly can be profitable to a firm, and it can be expected to pursue both when they are available. Nevertheless, the opportunities for economizing are many, while those for monopoly are relatively few.

Further, firms always make decisions from the perspective of their present position, which necessarily includes the consequences of decisions made in the past. The movement of resources from the current position is costly, and one of these costs is that of relying on the market. One of the first choices firms must make is whether to use internal production or external procurement for a particular input or process. Economizing on this decision requires selection of the alternative that will produce the greatest marginal value, and the aggregation of these decisions will determine the firm's boundaries. The boundary of the firm lies along the line where the marginal cost of internal production and that of market procurement are in equipoise.[48]

Remaining business must be conducted by reaching agreements with others. When products and distribution are specialized, many of a firm's contractual arrangements with others must necessarily be of long term and somewhat open ended, in the sense that they do not anticipate every conceivable circumstance. As a general matter, product differentiation specializes firms at all levels and this has two effects. First, it tends to make firms larger vertically, because the cost of internal production is relatively lower and the cost of market procurement relatively higher. Secondly, insofar as a firm uses external procurement its contractual relationships become more durable and more complex because the parties must often make substantial commitments to the technologies and product designs of their trading partners.[49] For all such agreements, however, the firm assumes that trading partners are rational maximizers of their own value and will exploit every value-creating opportunity that the market presents. While all participants are rational, they do not have perfect information and they almost always know more about themselves than about others. A rational firm anticipates that, to the

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[48] *See* Ronald H. Coase, *The Nature of the Firm*, 4 ECONOMICA (n.s.) 386 (1937); Herbert Hovenkamp, *Coase, Institutonalism, and the Origins of Law and Economics*, 85 IND. L.J. (forthcoming 2010), *available at* http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1538279.

[49] OLIVER E. WILLIAMSON, THE MECHANISMS OF GOVERNANCE 66, 93–119 (1996).

extent uncertainty exists, everyone in the market will try to use new situations to their own advantage, itself included.

Finally, and significantly, one of the many costs of resource movement is the administrative cost of the cumbersome and imperfect machinery antitrust uses to analyze and deter anticompetitive practices. To the extent that the goal of competition policy is to increase wealth, administrative costs may counsel that certain practices be left unchallenged because the gains from enforcement will not exceed losses when enforcement costs themselves, including error costs, are included.[50]

This framework generally produces antitrust rules that are far more benign than the old "hostility" tradition, but somewhat more aggressive than the Chicago school promoted. Most importantly, while transaction costs and other resource movement costs provide benign explanations for many practices that the hostility tradition condemned, they can occasionally have the opposite effect. For example, transaction costs can create entry barriers or make other forms of market movement sticky and thus increase both the possibility and duration of monopoly. In a well functioning market a manufacturer and its dealers will bargain to the maximizing position, which is also the position that benefits consumers. In the real world, however, transaction costs may enable dealer cartels or powerful individual dealers to impose restraints that are competitively suboptimal for both the manufacturer and consumers. In that case, antitrust has a role to play.[51]

One important conceptual tool for antitrust analysis is what might be called a "Coasean," as opposed to neoclassical, market. Williamson has repeatedly noted that the fundamental unit of analysis in TCE is the transaction: "The transaction is the basic unit of analysis, whereas orthodoxy [neoclassicism] is concerned with composite goods and services."[52] While that is true, it assumes away the critical question of *who* transacts with *whom*. A distinctive feature of TCE is that it does not assume that each trader has a range of trading partners that is coextensive with the product and geographic market at issue. Rather, transactions occur in a setting that limits the range of trading partners depending on knowledge, previous investment or technological commitment, and past history. This limited range in turn affects the types of contracts that the partners make with one another. In sum, the question of who can trade is at least as important as the question of the terms of trading.

Ronald Coase's famous essay, *The Problem of Social Cost*, examined economic relationships in very small markets.[53] The best-known example in that article is the bargaining that occurred between Sturges and Bridgman, a physician and confectioner

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[50] *See* HERBERT HOVENKAMP, THE ANTITRUST ENTERPRISE: PRINCIPLE AND EXECUTION 54–56 (2005).

[51] *See infra* text accompanying notes 84–90.

[52] WILLIAMSON, *supra* note 49, at 6; *see also id.* at 26, 45, 235; OLIVER E. WILLIAMSON, THE ECONOMIC INSTITUTIONS OF CAPITALISM 15–42 (1985).

[53] Ronald H. Coase, *The Problem of Social Cost*, 3 J.L. & ECON. 1 (1960); *see* Herbert Hovenkamp, *Coasean Markets*, 29 EUR. J.L. & ECON. (forthcoming 2010), *available at* http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1580059.

who were the parties to a now-famous common law nuisance suit.[54] The two owned adjacent businesses connected by a party wall in the same building. Physician Sturges complained that when Bridgman operated his mechanical mortar and pestle the thumping noise made it impossible for Bridgman to practice medicine—in particular, to use his stethoscope.[55] Bridgman brought a successful nuisance action against Sturges, but Coase used the case as a vehicle to explain that the common law of nuisance is not about wrongdoers, but rather about inconsistent uses and the assignment of legal rules to decide which one should be favored. Coase famously argued that in the absence of transaction costs the parties would reach a bargain that was both efficient, in the sense that it maximized the parties' joint wealth, and invariant to the underlying legal rule. This latter statement meant that if the parties were able to bargain their way to a settlement, the more valuable use would survive whether or not the law deemed it a nuisance. By contrast, if transaction costs were sufficiently high, the choice of the initial legal rule might be the one that prevailed even if it were not the most efficient. In sum, transaction costs are what give the common law legal system its relevance.

None of this exercise had much to do with antitrust. However, Coase did identify a rather special and very small market for purposes of economic analysis. At the time *Sturges v. Bridgman* was decided London undoubtedly contained hundreds if not thousands of physicians and at least as many confectioners. Further, there were certainly thousands of locations from which the two trades could be practiced. Nevertheless, the relationship between Sturges and Bridgman was unquestionably a "market" in which the two were forced to bargain with one another. This market existed by virtue of previous commitments. Sturges and Bridgman had locked themselves into a situation from which extraction was costly. If either Sturges or Bridgman could costlessly have relocated to another location that was equally satisfactory in every way then no dispute would ever have gone to court. These "Coasean markets" are in fact a form of bilateral monopoly.

At the most general level, the use of transaction cost economics in antitrust is an exercise in examining conduct by reference to Coasean markets, while power is assessed by reference to neoclassical markets. Indeed, for Williamson market power becomes the defining characteristic and a strong prerequisite for anticompetitive vertical arrangements.[56] Analyzing business firm conduct in a Coasean market is important for understanding its rationales and the full range of possible effects, but analyzing it in relation to the larger neoclassical market is essential to determining whether the conduct poses a threat to the economy generally. As long as antitrust policy has kept these two kinds of markets distinct, transaction cost analysis has provided a powerful tool for antitrust analysis. Occasionally, as in the 1992 *Kodak* decision,[57] the courts have confused one type of market with the other and sent antitrust policy off in the wrong direction.

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[54] Sturges vs. Bridgman, LR 11 Ch. D. 852 (1879).

[55] *See* A.W. Brian Simpson, Coase v. Pigou *Reexamined*, 25 J. LEGAL STUD. 53 (1996).

[56] WILLIAMSON, *supra* note 49, at 287–95.

[57] Eastman Kodak Co. v. Image Tech. Servs., 504 U.S. 451 (1992).

III.   Coasean Markets and the Boundaries of Firms

Antitrust's central behavioral concern is with business firm structure and business firm conduct that threaten to reduce marketwide output. Coasean markets are interesting from an antitrust perspective because Coasean markets have precisely the same boundaries as Coasean firms. In his 1937 essay, *The Nature of the Firm,* Coase argued that the costs of using the market determine the boundaries of the firm.[58] Or, to say it differently, internal production and external procurement both impose costs, although the costs differ. A firm intent on maximizing its value chooses internal production right up to the point that the marginal cost of producing internally equals the marginal cost of external procurement, and vice versa.[59] The firm's boundaries are defined by the line at which the two are in equipoise. Precisely the same thing is true of Sturges and Bridgman, the physician and confectioner in Coase's example.[60] They maximize value by bargaining with each other up to the point that the marginal value of reaching a bargain equals the marginal value of moving away.

Transaction cost economics builds on this insight, which simultaneously tells us not only what a firm's boundaries will be, but also who are likely to be its bargaining partners in outside markets and what those bargains will look like. For example, an exclusivity provision in a contract permits a firm to retain some of the control and disciplinary advantages of internal production, while sharing investment costs and risk. When analyzed in this way a wide variety of practices, including but not limited to exclusive dealing, tying, loyalty discounts, and price and dealer placement restrictions, are nothing more than devices for permitting Coasean markets to behave more like firms.

Coase's *Nature of the Firm* applied transaction cost analysis to determine when a firm uses internal coordination or the external market in order to procure certain inputs or distribution. However, that article tended to treat the market itself as a kind of "black box," in the sense that the only relevant decision was whether to make or to buy. By contrast, *The Problem of Social Cost* focused on the problem of how bargaining results are achieved. The subsequent work of Williamson and others discerned that the array of market choices are in fact incredibly diverse, ranging from simple one-shot "classical" contracts to long-term relational contracts capable of specifying everything that internal managers could specify. *The Problem of Social Cost* also assumed that firms' previous commitments determine the range of bargaining partners and the kinds of bargains that will maximize joint value. Sturges and Bridgman are not forced to bargain with each other because of the particular goods and services that they produce; those are sold in competitive markets by hundreds of firms. Rather, they are locked together by asset specificity—the fact that each has invested in a particular business at a particular location, making extraction more costly than reaching a deal. The relation between Sturges and Bridgman was the same as the relationship that existed between General Motors and Fisher Body Works when the two were independent firms. They were

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[58] Coase, *supra* note 48.

[59] *See* Hovenkamp, *supra* note 53.

[60] *See supra* text accompanying notes 54–55.

specialists locked to each other by previous commitments.[61]   Indeed, for Williamson asset specificity is the "most important and most distinctive" attribute of transaction cost economics.[62]

This analysis explains both firm structure and bargaining behavior without reference in the first instance to monopoly power. The firm maximizes its own value by deciding whether to produce inside or procure outside; the participants in a Coasean market maximize joint value by bargaining that takes their previous commitments and long term goals into account. Nothing need be said about output reduction or higher prices outside. At the same time, however, efficient bargaining sometimes breaks down, leading to lower output and higher prices. In those cases antitrust can have a role to play.

IV.   The Many Faces of Bilateral Monopoly; Double Marginalization

A.   *TCE and bilateral monopoly*

Coase's *The Problem of Social Cost*[63] is an extension of the bilateral monopoly problem. By virtue of previous commitments (asset specificity), pairs of firms are thrust into a position where the potential net payoff of reaching a further bargain is greater than the payoff of abandoning this position and starting over. What makes these situations interesting is that firms seek them out because there are gains to be had from joint specialization. I have used the term "Coasean market" rather than "bilateral monopoly" because these markets are not necessarily bilateral at all. Often they involve many participants, such as the smokestack and the 100 downwind business- and home-owners, or the national franchisor with 1000 franchisees. Further, the term monopoly suggests something that these relationships are not. In most cases, as in *Sturges v. Bridgman*, the bargainers have little or no market power in the various markets in which they sell their products or services. They are monopolists only in the unique and very limited sense that efficient bargaining forces them to make deals with each other and no one else. At the same time they are "markets" in the sense that the persons in them have a profit-based incentive to bargain with each other rather than moving outside. Coase implicitly assumed the existence of such markets in his writing, as has the extensive literature on transaction cost economics and the business firm.[64]

Bargaining in Coasean markets typically yields arrangements and practices that seem inconsistent with perfect competition—transfer prices that are above cost, price discrimination and nonlinear pricing, exclusivity provisions, tying and bundling, and contractual impositions on the prices, locations, and practices of trading partners. In

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[61] *See* Ronald H. Coase, *The Acquisition of Fisher Body by General Motors*, 43 J.L. & ECON. 15 (2000); se*e also* Benjamin Klein, *Vertical Integration as Organizational Ownership: The Fisher Body-General Motors Relationship Revisited*, 4 J.L. ECON. & ORG. 199 (1988).

[62] WILLIAMSON, *supra* note 49, at 45.

[63] Coase, *supra* note 53.

[64] *E.g.*, WILLIAMSON, *supra* note 49, at 59–70; Benjamin Klein, Robert G. Crawford & Armen A. Alchian, *Vertical Integration, Appropriable Rents, and the Competitive Contracting Process*, 21 J.L. & ECON. 297 (1978).

classical political economy goods were generic and distribution was unspecialized. As a result, everyone traded with everyone else. Building on this premise, the leverage theory was inclined to be suspicious of situations where specific buyers and sellers in the distribution process were locked in to one another by long term contractual requirements. This suspicion accounts for many of the harsh rules that antitrust applied to vertical contractual practices as well as vertical ownership integration through the 1970s.[65]

By contrast, the Chicago school understood that these practices are perfectly consistent with general competitive conditions, but its focus on the impossibility of leveraging inclined it not to see any opportunities for harm whatsoever. That is, they tended to believe that no contract a monopolist or dominant firm made, other than collusion with rivals, would enable it to reduce output profitably more than it was already doing.

For example, as noted above, free-riding—a transaction cost explanation—plays a very minor role in Bork's analysis of RPM.[66] The free rider explanation is a "defense" or at least an "explanation," in the sense that it gives a benign accounting of a practice that is prima facie suspicious. But Bork never got to that second point. Rather, he tried to show that, however much power a firm had to begin with, it could not get more by RPM. By contrast, the economics of transaction costs has produced a significant literature on the manifold nonmonopolistic rationales for RPM.[67] Nevertheless, certain instances of RPM, particularly when instigated by dealers, represent opportunities for either monopoly or double marginalization, and both of those can cause real consumer losses. As a result, as developed briefly below, antitrust intervention is sometimes appropriate.

Coasean markets behave like bilateral monopolies in the sense that within them price is indeterminate. As in any orthodox Coase theorem story, even if the firms are able to agree on the joint maximizing output, the price has to be bargained and there is no structurally "correct" single answer. For example, if a manufacturer with market power has costs of $4, distribution costs of $3, and the profit-maximizing price is $10, there are $3 in economic profits to be made. If the manufacturer can sell efficiently through a competitive dealer network it will retain the markup for itself, permitting the dealers only a competitive return. However, if the dealership market is limited, the dealers themselves may have market power and may be in a position to bargain with the manufacturer over how the overcharge is distributed among them. In an unstructured setting this lack of a determinate price can lead to cycling and instability

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[65] On this point, see Herbert Hovenkamp, *The Law of Vertical Integration and the Business Firm*, 95 Iowa L. Rev. 863 (2010).

[66] *See supra* text accompanying notes 45–46.

[67] *See, e.g.*, Williamson, *supra* note 44; Alan J. Meese, *Exclusive Dealing, The Theory of the Firm, and Raising Rivals' Costs: Toward a New Synthesis*, 50 ANTITRUST BULL. 371 (2005); Alan J. Meese, *Intrabrand Restraints and the Theory of the Firm*, 83 N.C. L. REV. 5 (2004); Alan J. Meese, *Tying Meets the New Institutional Economics: Farewell to the Chimera of Forcing*, 146 U. PA. L. REV. 1 (1997).

problems.[68] In most vertical business contracting settings, however, the contractual form establishes a "hierarchy" that imposes stability. For example, in the typical franchise setting the franchisor establishes a contract form and bargains with each franchisee individually. The franchisees may have little opportunity to collaborate with each other or cycle through counteroffers. In this respect the structure of the franchise arrangement resembles a business firm more than a market.

Fisher Body and General Motors represent an extreme case of cospecialization, where each firm's previous commitments locked it into doing business with the other. However such situations are hardly rare. Franchising is another, where often the franchisee firm lacks any identity apart from the name, business format and products of the franchisor. For example, consider the vast number of independently owned McDonald's franchises across the country, whose business methods, outward appearance and menus are virtually identical. But even in less extreme situations dealers make investments that are specific to a particular manufacturer's product, and manufacturers for their part make investments in these dealers. This is how bilateral monopoly relationships get started, but both manufacturers and dealers embrace such opportunities in any event. Indeed, the entire principle behind the development of modern contractual distribution systems is that the gains more than offset any transaction problems that arise from this form of co-investment.[69]

Simple bilateral monopoly is not an antitrust problem because bilateral monopoly has no consequences for market prices and output. For example, the relationship between physician Sturges and confectioner Bridgman is a bilateral monopoly even though physicians' services, confectionary, and the buildings suitable to these professions are all sold in perfectly competitive markets. In that case the parties might engage in costly bargaining or one of them might take advantage of the other in ways that implicate contract or perhaps tort law. But no arrangement that they make has antitrust significance because the market output and price of medical services, confectionary, or commercial real estate will not be affected. This was the error that the Supreme Court majority made in the 1992 *Kodak* case. The customers' purchase of durable Kodak photocopiers placed them into a bilateral monopoly relationship with Kodak to the extent that the customers needed aftermarket parts that only Kodak could supply. In his dissent Justice Scalia likened the situation to one in which a swimming pool contractor discovers a five-ton boulder buried in the customer's yard after excavation is well under way. Unless this contingency has been specified in the contract the parties are now locked into a bilateral monopoly situation.[70] However, residential back yards and swimming pool contractors are both competitive, and the resolution of this dispute will have no impact on the market price or output of homes, homes with swimming pools, contracting services, or any other antitrust market that might be relevant to the dispute. It might, however, affect how wealth is distributed as between the contractor and the homeowner, and if bargaining breaks down it might

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[68] *See* Hovenkamp, *supra* note 53. On the economics of bilateral monopoly, see ROGER D. BLAIR AND JEFFREY L. HARRISON, MONOPSONY IN LAW AND ECONOMICS 123-145 (2d ed. 2010) (in press).

[69] *See* Klein, Crawford, & Alchian, *supra* note 64.

[70] Eastman Kodak Co. v. Image Tech. Servs., Inc., 504 U.S. 451, 497 (1992) (Scalia, J., dissenting).

mean a suboptimal resolution. For example, the homeowner might refuse to pay any more causing the contractor to abandon the work and lose her investment. Even if Kodak lacked market power in its photocopy machines, it still might have been able to extract high aftermarket prices from customers who needed repair parts and may have been able to deceive them initially about lifetime ownership costs. But this is a matter for contract law or the tort law of misrepresentation, not of antitrust.

When at least one firm in a distribution market has a serious amount of market power, however, the welfare of consumers depends on how well functioning the market is. At that point, if bargaining breaks down, antitrust may have a role to play. For example, suppose that *A* is a monopoly manufacturer of a product and *B* is its monopoly dealer, or *B* represents a cartel of all of *A*'s dealers in a particular retail market. In a well functioning market *A* and *B* should be able to negotiate themselves to the profit-maximizing output. The division of the profits is indeterminate, but consumers would be indifferent to that outcome as well because the final price would be the same. The extent of monopoly will not be greater because the firm in question uses restrictive contracts to distribute its product, provided that the dominant firm and its dealers reach the joint maximizing agreement.

Nevertheless, this outcome is much less favorable than one alternative possibility, which occurs when *B* represents a group of dealers who are competitive vis-à-vis one another. To be sure, the "optimal" markup remains the same. However, the indeterminacies of bilateral monopoly are such that a great amount of haggling and monitoring may be necessary to achieve it, and given that transaction costs are positive there is no good reason to think that it will be achieved. So both monopolist *A* and consumers are better off if the *dealership* market operates competitively.

Finally, if both the manufacturer and the dealer(s) have market power in their respective output markets the bilateral monopoly situation threatens double marginalization, which does injure consumers. Double marginalization is fundamentally a transaction cost problem.[71] That is, with zero transactions costs vertically related firms with market power would agree on the joint maximizing output, but in fact they frequently do not. As far as antitrust policy is concerned, the best solution in markets where market power is capable of being exercised is to prevent bilateral monopoly situations from occurring in the first place. The second best, where bilateral monopoly already exists, is to distinguish those practices reasonably calculated to permit the firms to reach the joint maximizing result from those which are likely to cause suboptimal bargaining and thus consumer harm.

B.   *Double marginalization*

One situation in which bilateral monopoly raises competitive concerns is when it leads to double marginalization.[72] This is a special case of bilateral monopoly that arises when the two firms also have market power in the greater markets in which they

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[71] *See* part IV.A.

[72] On the basic economics, see W. KIP VISCUSI, JOSEPH E. HARRINGTON, JR., & JOHN M. VERNON, ECONOMICS OF REGULATION AND ANTITRUST 238–41 (4th ed. 2005).

sell. In that case the rest of the economy also has an interest in whether the two participants are able to reach a joint maximizing result.

Double marginalization problems occur in both vertically related markets and markets for complements. The latter the situation is sometimes referred to as the "Cournot complements" problem, but the fundamental analysis is the same.[73] The relationships among the producers of complementary products are akin to bilateral monopoly problems because one assumption is that the two firms involved cannot simply avoid the problem by dealing with someone else. For instance, a gasoline refiner with market power might face a double-marginalization problem if a gasoline retailer downstream had market power in its own retail market as well, but the problem would not exist if the refiner could costlessly switch to a competitive retailer. Importantly, however, firms in a relationship where double marginalization is threatened may be in a position to bargain to the joint maximizing position, which is the single monopoly markup level. That level not only maximizes the two firms' aggregate profits, but it is also better for consumers because it leads to higher output and lower prices. Transaction cost analysis can play a major role in the assessment of Coasean markets (bilateral monopolies) where double marginalization is threatened.

Consider the figure, which illustrates a simple double marginalization problem. The demand curve, D, represents final demand for a good that has one manufacturer and one dealer. The monopoly manufacturer has marginal costs of MC_1 and maximizes its profits by equating marginal cost and marginal revenue, charging a price of P_1 and reducing output to Q_1. The dealer, who is also a monopolist in its downstream market purchases at price P_1 and maximizes its own profits. For simplicity we assume that the dealer has no costs other than the cost of the good being sold. As a result price P_1 also represents the dealer's marginal costs. The dealer then sets a price determined by the intersection of its marginal cost curve with marginal revenue, that is, by engaging in "marginalization" a second time. Now output drops to level Q_1 and price rises to level P_2. If there were a third firm in the distribution chain, output would go down even further and price would rise even more. In sum, the more monopolists in the distribution chain, the more output declines and prices go up. In the figure, the demand curve is linear. As a result each successive monopolist cuts output in half. However, the output reduction could be greater than or less than half depending on the shape of the demand curve. The amount of the price increase with each successive monopolist depends on the price elasticity of demand at the output point.

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[73] *See, e.g.*, Giuseppe Dari-Mattiacci & Francesco Parisi, *Substituting Complements*, 2 J. COMPETITION L. & ECON. 333 (2006).

Figure One

Clearly double marginalization harms consumers. Importantly, however, it is also suboptimal for the two sellers in the figure. Under single monopoly, profits are equal to the rectangle *fbce*. Under double marginalization, however, the manufacturer's profits drop to rectangle *fade* and the retailer's profits are *ghaf.* Further, triangle *hab* represents a second "deadweight loss triangle"—that is, increased consumer harm that is not offset by increased producer profits. Double marginalization both reduces aggregate supplier (manufacturer + dealer) profits and increases the monopoly deadweight loss.

Consumers would be better off if the double marginalization was eliminated. For example, the manufacturer might be able to find a competitively behaving dealer.[74] Alternatively, double marginalization could be eliminated if the manufacturer and dealer could agree with each other to divide up the profits available from rectangle *fbce*, thus restoring output and reducing price back to the single monopoly level. This presents a classic problem in bilateral monopoly bargaining, no different from the one faced by Sturges and Bridgman. The two firms are in a position to maximize value if they can agree about how to divide up the surplus.[75]

However, while the joint maximizing *output* in the figure is clearly identified as quantity Q_1 and price P_1, the question of how the surplus that is available will be divided does not have a determinate answer. As a result the parties may not be able to reach the joint maximizing result on their own.

As noted previously, double marginalization can apply either to vertically related products or else to complements. A precondition is that both firms have some market power and that one firm is not in a position to avoid the power of the other at low cost by dealing with someone else. That is, double marginalization is a special case of bilateral monopoly. In cases of oligopoly there might be more than one firm at each level, but

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[74] Or alternatively, the dealer could find a competitively behaving manufacturer.

[75] The manufacturer's starting point is its possession of surplus *fade*. The dealer's starting point is *ghfa*. Presumably neither will settle for a payoff that is less than those amounts. The surplus to be divided is rectangle *abcd*, less *ghfa*.

each of the firms has some market power.[76] Pricing in excess of marginal cost is common in product-differentiated markets.[77] To that extent, the market power of vertically related firms is simply a cost of using the market as opposed to internal production.

As originally developed in the industrial organization and antitrust literature, the double marginalization problem was treated as one of static monopoly and the principal means of avoiding it was vertical merger or new entry.[78] One very prominent industrial organization economist, Joe Bain, downplayed the problem. He treated all forms of bilateral monopoly, including pairs of firms with power in their sales markets, as examples of countervailing power that would produce more competitive prices than single-level monopoly.[79] Today we are more likely to view double marginalization as a transacting problem in which ownership vertical integration is only one of the alternatives for addressing it. Basically, firms faced with double marginalization have three choices:

(1) accept the consequences of double marginalization, which might be the best alternative if internal production is costly and alternative (3) is unavailable; for example, a manufacturer selling to a market-dominating local dealer may have no choice but to accept that dealer's high markups as a cost of doing business;

(2) the neoclassical solution, which is integrate by ownership into the other production level, whether by merger or new entry; or

(3) the "bargaining" solution, which is to enter into one of many types of contractual arrangements under which the two vertically related firms increase output and cut price to the joint maximizing level.

Recognizing that both options (2) and (3) can result in lower prices and higher output, antitrust would respond with a more benign attitude toward vertical new entry, vertical acquisitions, and vertical contracting, although not necessarily with per se legality. This of course requires examination of the economics of various types of distribution contracts. Perversely, antitrust policy has been counterproductive to the

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[76] For theory and evidence about how many firms must exist in each product grouping in order to avoid double marginalization problems, see Dari-Mattiacci & Parisi, *supra* note 73.

[77]*See, e.g.*, Robert E. Hall, *The Relation between Price and Marginal Cost in U.S. Industry*, 96 J. POL. ECON. 921 (1988).

[78] *See, e.g.*, Spengler, *supra* note 16; Fritz Machlup & Martha Taber, *Bilateral Monopoly, Successive Monopoly, and Vertical Integration*, 27 ECONOMICA (n.s.) 101 (May, 1960); Gerhard Tintner, *The Problem of Bilateral Monopoly: A Note*, 47 J. POL. ECON. 263 (1939). An important departure from that tradition is Roger D. Blair & David L. Kaserman, *A Note on Bilateral Monopoly and Formula Price Contracts*, 77 AM. ECON. REV. 460 (1987). *See also* FREDERIC M. SCHERER & DAVID ROSS, INDUSTRIAL MARKET STRUCTURE AND ECONOMIC PERFORMANCE 537–40 (3d ed. 1990), who compute output in situations where the two firms act independently, where the buyer acts as a Cournot price leader, where the seller does the same, and under ownership integration, but not under bargaining to the profit-maximizing result.

[79] JOE S. BAIN, INDUSTRIAL ORGANIZATION, *supra* note 7, at 140–42, 334–37.

extent that it has prohibited the parties from reaching a bargain that will maximize their joint profits. For example, until *Albrecht* was overruled in 1997,[80] maximum RPM was per se unlawful. The most likely use of maximum RPM is to prohibit dealers from taking greater-than-competitive markups. As a result, antitrust policy made this route toward elimination of double marginalization unavailable. As developed below, a harsh rule against tying and discounting practices can have similar effects.[81]

C.   Eliminating or reducing double marginalization as an antitrust defense

Antitrust is relevant to problems of double marginalization in two ways. First, private contracting practices, both vertical and complementary as well as horizontal,[82] can be devices for eliminating or reducing it, thus benefitting consumers. Second, double marginalization serves to explain why some vertical practices are harmful, and transaction costs may serve to explain why private contracting is inadequate for addressing them. Indeed, in some cases contracts can create or exacerbate double-marginalization problems. In these, antitrust intervention may be appropriate.[83]

1.   MAXIMUM RPM   As noted previously,[84] maximum RPM is readily explained as a bargaining device for eliminating double marginalization. In this case the upstream manufacturer or franchisor simply specifies a price level that will hold the dealer's markup to costs. Assuming that the dealer cannot enlarge its markup in other ways, such as by reducing valuable services, the manufacturer can get back to the single monopoly price level. If the manufacturer is a monopolist that price will reflect no more than the amount of power that it has. If the manufacturer is a competitor, then the output price should be competitive as well. For example, in the *State Oil* case, which overruled previous doctrine and adopted a rule of reason for maximum RPM, the individual dealer may have had power in its local retail market but there is no reason for

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[80]Albrecht v. Herald Co., 390 U.S. 145 (1968) (maximum RPM unlawful per se), *overruled by* State Oil Co. v. Khan, 522 U.S. 3 (1997) (maximum RPM brought under rule of reason); *see* 8 AREEDA & HOVENKAMP, *supra* note 38, ch. 16C.

[81] *See infra* text accompanying notes 93–100.

[82]Various horizontal or quasi-horizontal practices, particularly in intellectual property licensing, can also be used to address double marginalization, or Cournot complement, issues. For example, joint ventures of producers of complements can yield joint maximizing outcomes, as can patent pools. *See, e.g.*, Alan Devlin, *Standard-Setting and the Failure of Price Competition*, 65 N.Y.U. ANN. SURV. AM. L. 217 (2009) (holdup problems in the context of standard setting can lead to double marginalization, which can be addressed through advance disclosure requirements); Mark Lemley, *Intellectual Property Rights and Standard Setting Organizations*, 90 CAL. L. REV. 1889 (2002) (similar); Mark A. Lemley & Carl Shapiro, *Patent Holdup and Royalty Stacking*, 86 TEX. L. REV. 1991 (1996) (double marginalization from royalty "stacking," which occurs when product development requires licenses from two or more independent licensors; in this case the required patents are presumably complements); Josh Lerner & Jean Tirole, *Efficient Patent Pools*, 94 AM. ECON. REV. 691 (2004) (double marginalization problems can be eliminated by means of patent pooling), Carl Shapiro, *Navigating the Patent Thicket: Cross Licenses, Patent Pools, and Standard Setting*, *in* 1 INNOVATION POLICY AND THE ECONOMY (Adam B. Jaffe, Josh Lerner & Scott Stern eds., 2001).

[83] *Cf.* Coase, *supra* note 53; Oliver E. Williamson, *Hierarchical Control and Optimum Firm Size*, 75 J. POL. ECON. 123 (1967).

[84] *See supra* text accompanying notes 80–81.

thinking that State Oil, a relatively small player in the much larger supply market, had significant market power.[85]

    2.   DUAL DISTRIBUTION   Dual distribution occurs when a firm uses independent dealers and owned dealerships simultaneously. Some earlier decisions held that dual distribution was an exacerbating factor that served to make a restraint horizontal,[86] because the independent dealers competed with the manufacturer's owned dealer. More recently, however, the courts have uniformly recognized that dual distribution should be regarded as a vertical practice and assessed under the rule of reason.[87]

    As the literature on TCE has developed at great length, a firm can specify virtually everything in a contract that it can specify within an employment relationship or hierarchy. So why the trouble and expense of maintaining two distribution modes? One explanation is that dual distribution operates in the same way as maximum RPM does. It imposes maximum prices on dealers, not by contract, but rather by giving them a manufacturer-owned competitor. [88] For example, suppose that a reasonable distribution markup is from a wholesale price of $8 to a retail price of $10, but that an independent dealer or dealers in an area persistently charges prices in the $12–$14 range. The manufacturer could eliminate this double marginalization either by imposing maximum RPM to a retail price of $10, or else it could place its company-owned dealership in the area and charge a retail price of $10, thus forcing independent dealers to compete with it. For thirty years prior to 1997, maximum RPM was unlawful per se,[89] and this very likely made dual distribution an attractive alternative. Today a firm would be likely to select contractual as opposed to self-distribution in a particular area by making the same calculation that the business firm always makes—that is, by comparing net marginal costs and gains from the two forms of distribution. The exercise of market power by dealers is a cost of using the market. Clearly, elimination of double marginalization could be one source of gain to both manufacturers and consumers.

    3.   QUANTITY AND LOYALTY DISCOUNTS   Another easy example of elimination of double marginalization is the quantity discount, which can be a device for the manufacturer and dealer to share the gains that result from reaching the joint-

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[85] State Oil Co. v. Khan, 522 U.S. 3 (1997); *see* 8 AREEDA & HOVENKAMP, *supra* note 38, ch. 16C.

[86] *See, e.g.*, United States v. McKesson & Robbins, 351 U.S. 305, 313 (1956) (dicta that wholly owned dealers are "in competition with" independent dealers); Hobart Bros. Co. v. Malcolm T. Gilliland, Inc., 471 F.2d 894 (5th Cir. 1973); Pitchford v. PEPI, Inc., 531 F.2d 92, 103–04 (3d Cir. 1976); Interphoto Corp. v. Minolta Corp., 295 F. Supp. 711, 721–23 (S.D.N.Y.), *aff'd*, 417 F.2d 621 (2d Cir. 1969).

[87] Elecs. Commc'ns Corp. v. Toshiba Am. Consumer Prods., Inc., 129 F.3d 240 (2d Cir. 1997); Mesirow v. Pepperidge Farm, Inc., 703 F.2d 339 (9th Cir. 1983); Graphic Products Distribs., Inc. v. ITEK Corp., 717 F.2d 1560 (11th Cir. 1983); Davis Watkins v. Serv. Merch., 686 F.2d 1190 (6th Cir. 1982); Copy-Data Sys., Inc. v. Toshiba Am., Inc., 663 F.2d 405 (2d Cir. 1981); H & B Equip. Co. v. Int'l Harvester Co., 577 F.2d 239 (5th Cir. 1978); *see* 8 AREEDA & HOVENKAMP, *supra* note 38.

[88] *See* HERBERT HOVENKAMP, FEDERAL ANTITRUST POLICY: THE LAW OF COMPETITION AND ITS PRACTICE §11.6e (3d ed. 2005).

[89] Albrecht v. Herald Co., 390 U.S. 145 (1968), *overruled by* State Oil Co. v. Khan, 522 U.S. 3 (1997).

maximizing output level. Looking at the figure above, suppose that without a discount a dealer would sell Q_2 units at price P_2. Now the manufacturer offers a progressive quantity discount that reaches its maximum point at output level Q_1. This rewards the dealer with a lower price for purchasing (and selling) more and in effect operates as a mechanism for sharing the monopoly markup.[90] In order to succeed the discount would have to be sufficiently large so that the dealer can come out ahead by reducing its own price to level P_1. As the figure also illustrates, joint maximization produces enough surplus to permit this to occur.

A loyalty, or market share, discount differs from a quantity discount in that the discount is fixed to a percentage of the reseller's purchases rather than an absolute quantity or dollar amount.[91] Loyalty discounts are better from the manufacturer's viewpoint and more competitive than quantity discounts when the downstream market is concentrated and the firms are of various sizes. Quantity discounts discriminate against smaller firms that are unable to purchase in the same volume as larger firms. As a result, quantity discounts can give larger firms a price umbrella or in extreme cases even drive smaller firms out of the market altogether. Once again, the concern is essentially of double marginalization: the manufacturer wants to keep the downstream market as competitive as possible, and keeping smaller firms in the market facilitates this goal. For example, if the downstream market contains three large dealers and seven small ones, a quantity discount that the seven smaller dealers cannot obtain will give the three larger dealers a cost advantage over the others. In an extreme case it could even drive the smaller dealers out of business. In any event, the three larger dealers will be able to collude and reduce output below the manufacturer's profit-maximizing level.

Aside from these effects on the robustness of downstream competition, loyalty discounts do not have as direct an impact on reseller output as quantity discounts do. Nevertheless, they are very important in certain markets where high output is key to cost minimization. This is true of any market subject to economies of scale, but particularly those with strong IP rights components.

The Intel microprocessor situation may provide an example. A large part of the cost of developing a microprocessor chip is R&D, design, and the manufacturing of dies.[92] These costs are fixed over the production run of a particular chip, which is

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[90] *See* Bruce H. Kobayashi, *The Economics of Loyalty Discounts and Antitrust Law in the United States*, 1 COMPETITION POL'Y INT'L 115 (2005).

[91] For other double marginalization issues that might be addressed by market share discounts akin to exclusive dealing, see Gianluca Faella, *The Antitrust Assessment of Loyalty Discounts and Rebates*, 4 J. COMPETITION L. & ECON. 375 (2008); Sreya Kolay, Greg Shaffer & Janusz Ordover, *All-Units Discounts in Retail Contracts*, 13 J. ECON. & MGMT. STRATEGY 429 (2004).

[92] *See* Herbert Hovenkamp, *The FTC's Anticompetitive Pricing Case Against Intel*, CPI ANTITRUST CHRON., Feb. 28, 2010, *available at* http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1546054; Herbert Hovenkamp, *The FTC and the Sherman Act*, 62 FLA. L. REV. (forthcoming 2010), *available at* http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1531136.

typically quite short. As a result, per chip production costs are very sensitive to output. For example, if fixed development costs are $1 million and variable production costs are $100 per chip, then production of 1000 chips would incur costs of $1100 each ($1000 in amortized fixed costs plus $100 in production costs). But a production run of 100,000 chips would cut per chip costs to $110. If Intel built computers itself it would produce all the chips it could consistent with computer demand. But when it sells chips to computer manufacturers it is in a different situation. For example, if it must bid a price in advance of the product cycle, the amount it can bid depends on the number of chips it can produce. As reasonably anticipated output increases, the bid price can go down.

For any given chip, future demand is subject to two kinds of risks. One is a general market risk that the demand for computers of a certain type will fall. The other is the risk that a computer manufacturer will switch significant purchases to a different manufacturer, thus reducing Intel's output and raising per chip costs.

In such a situation the optimal strategy may very well be for Intel to assume the market risk with respect to the chips. After all, the computer manufacturers will be assuming it with respect to other parts of the computer. Further, to the extent that the computer market is more competitive there may be less room for the manufacturers to assume such risks.

The risk of individual manufacturer defection is a different problem, however, because it is within the control of the computer manufacturers themselves. A market share discount effectively shares that risk with the computer manufacturer by making the lower price contingent on greater sales. It basically tells the computer maker that a particular price is contingent on the computer maker's use of a minimum number of chips in relation to market demand. For example, setting market risks aside, if Intel can predict that manufacturers will use 800,000 chips next year for computers with a particular set of specifications it can bid a significantly lower price if it can have some confidence that it will claim, say, 70% of those sales than if it cannot.

4.   TYING AND BUNDLED DISCOUNTS   Many famous old tying cases involved tied products that were commodities sold in highly competitive markets, such as the dry ice in the *Carbice*[93] case or the salt in *International Salt*.[94] In those cases controlling double marginalization very likely does not explain the tie, although price discrimination might.[95] The typical tied products today, however, are not commodities. They are usually manufactured products sold in product-differentiated markets, sometimes protected by IP rights,[96] or else they are specialized services such as the

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[93]Carbice Corp. v. Am. Patents Dev. Corp., 283 U.S. 27, 31–32 (1931).

[94]Int'l Salt Co. v. United States, 332 U.S. 392 (1947).

[95] *See infra* text accompanying notes 115–37. Price discrimination may not have explained the tie in *International Salt*, however, because the tying agreement required the lessee of the machine to use the defendant's salt only if was sold at the competitive price. If the lessee was able to find a lower price elsewhere that the lessor would not match then the lesee was free to purchase the salt elsewhere. *See Int'l Salt*, 332 U.S. at 394–95 n.5. The most likely explanation of this particular tie was quality control.

[96] *E.g.*, Static Control Components, Inc. v. Lexmark Int'l, Inc., 487 F. Supp. 2d 861 (E.D. Ky. 2007) (denying summary judgment on claim that printer/cartridge technological tie was unlawful); Tucker v.

anesthesiology in the *Jefferson Parish* case.[97] The relatively few exceptions occur mainly in franchising.[98]

Tying almost always involves complementary products—that is, products that are more valuable if they are used together. As noted previously, the double-marginalization problem for complements, often called the "Cournot complements" problem, is similar to the one for vertical distribution.[99] Indeed, the problem may be more severe because the producers of complementary products are not always in a position to deal with each other, while vertically related firms are. As a result, opportunities for using bargaining to reach joint maximizing output levels may be scarcer or may look more suspicious to antitrust enforcers.

The complementary goods problem might involve something like a computer and a printer, an MP3 digital music player and downloaded music,[100] or a computer operating system and software applications.[101] The products need not be monopolized, but they do need to be in a sufficiently differentiated or concentrated market that prices are above marginal cost. They can be sold in either fixed or variable proportions.[102] In such cases the printer manufacturer will charge its profit-maximizing price for the printer, and the cartridge manufacturer will do the same for its cartridge. The two separate markups can be significantly higher than the combined markup that would be

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Apple Computer, Inc., 493 F. Supp. 2d 1090 (N.D. Cal. 2006) (refusing to dismiss complaint that iPod/iTunes tie was per se unlawful); United States v. Microsoft Corp., 253 F.3d 34 (D.C. Cir. 2001) (refusing to dismiss Sherman Act section1 claim that tying of Microsoft Windows OS and Internet Explorer Browser was unlawful; condemning under Sherman Act section 2 Microsoft's "commingling" of Windows and Internet Explorer code).

[97] *E.g.*, Jefferson Parish Hosp. Dist. v. Hyde, 466 U.S. 2 (1984) (dicta reaffirming per se tying rule).

[98] *E.g.*, Queen City Pizza, Inc. v. Domino's Pizza, Inc., 124 F.3d 430, 447 n.6 (3d Cir. 1998) (pizza dough); Roy B. Taylor Sales, Inc. v. Hollymatic Corp., 28 F.3d 1379 (5th Cir. 1994) (1995) (wax paper for wrapping raw hamburger patties); Siegel v. Chicken Delight, Inc., 448 F.2d 43 (9th Cir. 1971)) (paper plates, napkins, spices).

[99] *See, e.g.*, VISCUSI,. HARRINGTON & VERNON,*supra* note 72; JEAN TIROLE, THE THEORY OF INDUSTRIAL ORGANIZATION 175–76 (1988).

[100]*Tucker v. Apple Computer,* 493 F. Supp. 2d 1090.

[101] Note the protests that arose during the Microsoft litigation when a proposed breakup would have placed the Windows operating system and the Microsoft applications in the hands of different firms. The complaint was that it would lead to double marginalization. Kenneth G. Elzinga, David S. Evans & Albert L. Nichols, United States v. Microsoft: *Remedy or Malady*, 9 GEO. MASON L. REV. 633, 680 (2001); Richard J. Gilbert & Michael L. Katz, *An Economist's Guide to U.S. v. Microsoft*, 15 J. ECON. PERSP. 25 (2001) ("[T]he sum of the operating system and application prices set by an integrated monopolist will be lower than the sum of those prices when set separately by two independent firms each with significant market power."); Stan J. Liebowitz, *An Expensive Pig in a Poke: Estimating the Cost of the District Court's Proposed Breakup of Microsoft*, 9 GEO. MASON L. REV. 727 (2001); Dari-Mattiacci & Parisi, *supra* note 73.

[102]James L. Hamilton & Ibrahim Mqasqas, *Double Marginalization and Vertical Integration: New Lessons from Extensions of the Classic Case*, 62 S. ECON. J. 567, 581–84 (1996). The outcome can be more harmful if one party is a monopolist, the other is an oligopolist, and after the union the monopolist cuts off the non-partnering oligopolists. *See* Michael Waterson, *Vertical Integration, Variable Proportions and Oligopoly*, 92 ECON. J. 129 (1982).

taken by a firm that sold both products together. Further, profits would be higher for the single firm than for the two firms separately, and consumers would be better off because output would be higher and prices lower. In short, the story for complementary products is identical to the story for vertical integration, illustrated in the figure, and has been known in the economics literature for at least as long.[103] Complementary rights in intellectual property sold by separate firms can lead to the same result, such as the "royalty stacking" that occurs when different firms own patents that are essential to the production of some good or process.[104] In such cases welfare would be increased if a single firm sold the complementary goods.

Assume that firm *A* makes a computer while firm *B* makes a compatible printer. Both goods are sold in oligopoly markets at prices above cost. Given that these prices maximize profits, neither firm wishes to cut the price of its own product. At this point firm *A* would have an incentive to acquire firm *B*, or vice versa, or perhaps it would enter the printer market on its own. Firm *A*'s profit-maximizing price for a computer/printer combination would be lower than the sum of the prices charged by the separate firms. Firm *A* would also earn more, output would be higher, and consumers would benefit as well.

Firm *A* could accomplish this in two ways. It could simply tie computers and printers, refusing to sell the two separately. That would benefit consumers who wanted one of each, as most presumably would. However, it would cut out of the market those who needed only one of the two products, perhaps as a replacement. Alternatively, it could charge the single product profit-maximizing price for each product separately but a lower price for the combination—that is, it would use a bundled discount to eliminate double marginalization for those buyers who regarded the goods as complements at the time of purchase.[105]

But why shouldn't we force the firm simply to offer the computer and the printer separately at the lower prices that it would charge if they were in the bundle? This would also eliminate the double marginalization and it might satisfy those who find the tie unacceptable on some other ground. For example, suppose that the individual profit-

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[103] The theory of double marginalization of complementary products was developed even before Cournot, in CHARLES ELLET, JR., AN ESSAY ON THE LAWS OF TRADE, IN REFERENCE TO THE WORKS OF INTERNAL IMPROVEMENT IN THE UNITED STATES (1839); *see also* R.G.D. ALLEN, MATHEMATICAL ANALYSIS FOR ECONOMISTS (1938). Both are discussed in Dari-Mattiacci & Parisi, *supra* note 73.

[104]*See* Lemley & Shapiro, *supra* note 82.

[105] See Erik N. Hovenkamp & Herbert Hovenkamp, *Tying Arrangements and Antitrust Harm*, 52 ARIZ. L. REV. (forthcoming 2010), *available at* http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1443284; 9 AREEDA & HOVENKAMP, , *supra* note 38, ¶1712b; Daniel A. Crane, *Mixed Bundling, Profit Sacrifice, and Consumer Welfare*, 55 EMORY L.J. 423, 434–36 (2006). On the theory, see Michael L. Katz, *Vertical Contractual Relations, in* 1 HANDBOOK OF INDUSTRIAL ORGANIZATION 655, 673 (Richard Schmalensee & Robert D. Willig eds., 1989); TIROLE, *supra* note 99, at 174–77. The same theory has been applied to the bundling of telecommunications services. *See* Daniel F. Spulber & Christopher S. Yoo, *Mandating Access to Telecom and the Internet: The Hidden Side of* Trinko, 107 COLUM. L REV. 1822, 1846–47 (2007); Jerry A. Hausman, Gregory K. Leonard & J. Gregory Sidak, *Does Bell Company Entry into Long-Distance Telecommunications Benefit Consumers?*, 70 ANTITRUST L.J. 463, 483–84 (2002).

maximizing prices of the computer and printer are $1000 and $400, respectively, while the profit-maximizing price for the package when sold by a single firm is $1200. Would it not be preferable on policy grounds to require the manufacturer to sell the two products separately at, say, $900 and $300?

First of all, if none of the rival printer companies cut their price to match then the result would be the same as tying in any event. That is, the buyer would take both from firm *A*. Second, however, if one or more of the other printer companies *did* cut the printer price to $300, then firm *A* would not capture all of the printer sales. A premise of the double-marginalization story is that the price cut on the printer is profitable because the manufacturer will obtain the higher output that accrues to both the computer and the printer. If it cannot tie and be assured of getting all of the printer sales, then it will not cut its price.

The double-marginalization explanation of practices such as tying is robust and has broad application in markets characterized by single firm dominance or product differentiation.[106] Tying and bundled discounts can operate as a kind of "reverse leverage" in cases where both the bundled products are sold in less than perfectly competitive markets. Indeed, the only time that double-marginalization concerns are not relevant is when one of the goods is a fungible commodity sold under highly competitive conditions, such as the salt or dry ice in well known tying decisions.[107] As a result arguments for reviving a version of the leverage theory, such as Einer Elhauge's provocative 2009 article,[108] are limited in their scope to the tying of commodities, where double-marginalization problems are not likely to arise. In many cases involving bundled discounts, the bundled goods are product-differentiated and specialized and the inference of significant price/marginal cost margins is great.[109]

D.   Antitrust as a Corrective: Dealer-Induced RPM and the Rule of Reason

The other side of the double-marginalization problem is that high transaction costs may interfere with manufacturers' efforts to control it by contract. At that point the legal system becomes relevant and antitrust can be brought to bear in appropriate circumstances. The precondition is reduced output and higher consumer prices.

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[106] *See* TIROLE, *supra* note 99, at 175.

[107] Int'l Salt Co. v. United States, 332 U.S. 392 (1947); Carbice Corp. v. Am. Patents Dev. Corp., 283 U.S. 27, 31–32 (1931). As one recent decision observed, at least in the printer market manufacturers commonly cut the price of the printer (tying product) to cost or even lower and place the markup in the cartridge (tied product). See Xerox Corp. v. Media Sciences, Inc., 660 F.Supp.2d 535, 539 (S.D.N.Y. 2009) ("As is true of other printer manufacturers, Xerox generally sells its printers at a low margin or a loss, hoping to earn a profit through later sales of high margin ink").

[108] Elhauge,*supra* note 11.

[109] *See, e.g.*, Masimo Corp. v. Tyco Health Care Group, L.P., No. CV 02-4770 MRP, 2004 U.S. Dist. LEXIS 26916, at *27 (C.D. Cal. June 9, 2004) (plaintiff challenging defendant's discount practices, which included bundled discounts, had profit margins of between 45% and 83% during the period of claimed exclusion). The Ninth Circuit eventually entered an order finding liability on some claims but not others. Masimo Corp. v. Tyco Health Care Group, L.P., 2009 WL 3451725 (9th Cir. Oct. 28, 2009).

A good example is vertical price and nonprice restraints, an area where the TCE literature has made important contributions. The free rider explanation for these restrictions, which dates to the 1960s, is but one example. Manufacturers use resale price maintenance and nonprice restraints in order to achieve some of the efficiencies of intrafirm distribution while preserving the risk sharing and incentive features of contractual distribution mechanisms. For example, a firm distributing its own product would ordinarily provide the optimal level of distribution services. The free rider explanation for RPM shows how it can emulate that level when using independent dealers and alternative contractual mechanisms are too costly or ineffectual. By the same token the self-distributing manufacturer would sell its full product line through each store. In a contractual distribution network it may have to offer inducements to dealers to carry the full line, often by using RPM in order to guarantee margins on the more popular goods so as to prevent "cream skimming" by other retailers.[110] Alternatively, a single firm engaged in self-distribution would place the optimal number of stores in a community, and a firm engaged in contractual distribution would try to replicate that allocation by using territorial restrictions or other limits on dealer location.

As noted previously, vertical restraints can often be used to limit double marginalization. However, there may also be situations in which vertical restraints are used for the opposite purpose, which is to facilitate or exacerbate double marginalization. These are situations in which bargaining has failed to reach the joint maximizing result, and thus the legal system has a role to play. For example, antitrust legitimately has an interest in the problem of dealer cartels or powerful individual dealers.[111] Well-placed local dealers may be in a position to exercise market power in their individual retail markets. Depending on their power vis-à-vis the manufacturer, they may be able to extract RPM on competing dealers for their own benefit, but to the detriment of an efficient distribution system. The cost of moving resources being what it is, it may be less costly for the manufacturer to comply than to set up alternative equally satisfactory dealerships. The result will be higher local prices.[112]

If the manufacturer has some market power, then the risk of dealership cartels and powerful dealers is double marginalization. The manufacturer sets its profit-maximizing price, determined by consumer demand less distribution costs. In that case both the manufacturer and consumers are best off if distribution is competitive. However, a cartel of locally powerful dealers that is able to impose RPM on the reluctant manufacturer can also impose higher prices on consumers. Once again, whether the manufacturer can combat this effectively depends on the circumstances.

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[110]*See* 8 AREEDA & HOVENKAMP, *supra* note 38, ¶¶ 1614f, 1615d; Raymond Deneckere, Howard P. Marvel & James Peck, *Demand Uncertainty, Inventories, and Resale Price Maintenance*, 111 Q.J. ECON. 885 (1996); *see also* David A. Butz, *Vertical Price Controls with Uncertain Demand*, 40 J.L. & ECON. 433 (1997); Benjamin Klein & Kevin M. Murphy, *Vertical Restraints as Contract Enforcement Mechanisms*, 31 J.L. & ECON. 265 (1988).

[111] *See* 8 AREEDA & HOVENKAMP, *supra* note 38, ¶ 1604.

[112] *See, e.g.*, Toledo Mack Sales & Serv., Inc. v. Mack Trucks, Inc., 530 F.3d 204 (3d Cir. 2008) (dealer cartel); Babyage.com, Inc. v. Toys "R" Us, Inc., 558 F. Supp. 2d 575 (E.D. Pa. 2008) (powerful dealer).

It is no answer to say that the manufacturer and the powerful dealer might be able to agree on the profit-maximizing output, in which case the manufacturer will earn less, the dealer will earn more, but overall output will be the same. The competitive distribution network is still preferable to the bilateral monopoly that results from dealer assertions of power that it need not have.

This is fundamentally a problem of transaction costs. If bargaining worked perfectly, a manufacturer and its dealers would agree on the joint maximizing output level and negotiate over the division of profits. But when a powerful established dealer can frustrate this by insisting on higher local markups a manufacturer may be powerless to resist, particular if vertical integration into retailing is not possible on account of the need for distribution by multiproduct retailers. Famously, *Dr. Miles* itself was such a case, involving RPM instigated by a cartel of retail druggists.[113]

What such an antitrust case requires is proof that the RPM is dealer-initiated. This itself is problematic because dealers might "initiate" RPM simply by reporting free riding, and using RPM to control that is clearly in the best interest of the manufacturer as well. However, in a case such as *Toys "R" Us*,[114] free riding does not seem to be a robust explanation. Further, given that toy retailers sell numerous brands, vertical integration into retailing does not seem to be a viable alternative. The defendant may simply have been interfering in manufacturers' efforts to establish a competitive distribution system.

V.   Transaction Costs and Price Discrimination

Price discrimination occurs when a firm obtains higher ratios of price to marginal cost from some buyers than from others. Systematic price discrimination does not occur under perfect competition because, by definition, some prices are not at marginal cost.[115] So price discrimination presupposes at least some power to set a price above marginal cost to particular customers. The amount of power is not substantial, however, and nearly everyone agrees that sufficient market power to have antitrust consequences cannot be inferred from the existence of price discrimination alone.[116] Indeed, the world is filled with arrangements, such as fast food franchises, where the firms are clearly in highly competitive markets but price discrimination is used to set

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[113]*See* HERBERT HOVENKAMP, ENTERPRISE AND AMERICAN LAW, 1836–1937, at 331–48 (1991) (discussing cartel of retail druggists that used RPM to limit price cutting).

[114] *Babyage.com, Inc. v. Toys "R" Us, Inc.*, 558 F. Supp. 2d 575.

[115] In some cases of nonsustainable predation a firm might charge a pocket of customers a price below marginal cost in order to eliminate rivals. But this is not likely to be a profitable strategy in a perfectly competitive market.

[116] *See* 3A AREEDA & HOVENKAMP, *supra* note 38, ¶ 721; Paul L. Joskow, *Transaction Cost Economics, Antitrust Rules, and Remedies*, 18 J.L. ECON. & ORG. 95, 101 (2002); Benjamin Klein, *Market Power in Aftermarkets*, 17 MANAGERIAL & DECISION ECON. 143 (1996); Benjamin Klein, *Market Power in Franchise Cases in the Wake of* Kodak, 67 ANTITRUST L.J. 283 (1999); Benjamin Klein & John Shepard Wiley, Jr., *Competitive Price Discrimination as an Antitrust Justification for Intellectual Property*, 70 ANTITRUST L.J. 599 (2003).

franchise fees proportioned to the amount of franchisee business rather than franchisor costs.[117]

The ability to price discriminate need not be a function of monopoly at all and often relates to some version of the bilateral monopoly problem. As noted previously, the existence of Coasean markets is quite consistent with robust competition in the broader market. But participants in a Coasean market are locked in to ongoing relationships that make price discrimination possible and even desirable, just as the firms in a traditional market are.[118] For example, in the typical franchise case the franchisor and franchisees are joined together by a contract plus a set of previous commitments that makes exit undesirable. This is simply a corollary of the proposition that the boundaries of a Coasean market are the same as the boundaries of a firm.[119] In a price discrimination scheme in a traditional market, disfavored purchasers (i.e., those charged the higher price) might prefer to escape to alternative arrangements but market boundaries prevent them from doing so. The same thing is true of a Coasean market. Opportunism, bounded rationality, and transaction costs fully explain the arrangements.

For example, a firm about to enter the fast food industry as a supplier can profit by sharing risk, and self-employed franchisees may have stronger incentives to do well than far-flung employees would. If the firm built its own restaurants it would expect to earn from them in proportion to their relative success, and franchising is an attractive alternative to the extent that it replicates this opportunity while permitting franchisee to share the risk. For its part, the nascent franchisee receives a method of doing business, a recognized name and product, and the promise of high returns proportional to its level of success. So it willingly puts up its share of the capital (the franchisee fee), opens an outlet, and pays either a recurring fee proportional to sales[120] or an overcharge on various tied consumable products used in the franchised business.[121] Ex ante, the franchisee knows that its payments are proportional to sales and one certainly cannot say that the prospect of high sales and accompanying high franchise fee is a deterrent.[122] Once entered, these arrangements are profitable and also durable, even in competitive markets, because the value of a successful franchise is high and extraction is too costly in relation to the available alternatives. For example, a high volume McDonald's franchise is highly profitable and desirable to its owner,

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[117] *E.g.*, Principe v. McDonald's Corp., 631 F.2d 303, 308 (4th Cir. 1980); Ungar v. Dunkin Donuts, 531 F.2d 1211, 1222 (3d Cir. 1976) (restaurant property, signs, and supplies); Siegel v. Chicken Delight, Inc., 448 F.2d 43 (9th Cir. 1971) (packaging; herbs); *see* Benjamin Klein & Lester Saft, *The Law and Economics of Franchise Tying Contracts*, 28 J.L. & ECON. 345, 347–48 (1985); 9 AREEDA & HOVENKAMP, *supra* ¶ 1711.

[118] *See supra* text accompanying notes 53–58.

[119] *See supra* text accompanying notes 53–58; Hovenkamp, *supra* note 53.

[120] *E.g.*, *Principe*, 631 F.2d at 308.

[121] *E.g.*, *Siegel*, 448 F.2d 43.

[122] The issue has arisen in some franchise tie cases. *See, e.g.*, Little Caesar's Enter., Inc. v. Smith, 34 F. Supp. 2d 459, 506 (E.D. Mich. 1998) (franchisees knew of tying-plus-overcharge requirement at time of signing franchise agreement).

notwithstanding that it is also highly profitable to the franchisor and probably at no more expense than it incurs with the less successful franchisee.

In sum, the phenomenon that makes price discrimination possible in such cases is not market power but rather the fact that assets are specialized and that transferring to attractive alternative arrangements is not costless. Down the road a highly successful franchisee may become resentful that its franchisor is earning high returns on this particular franchisee's business with no greater effort than it puts into the business of less successful franchisees. But that outcome is a feature of joint risk taking. And indeed, the resentment in this case is odd because one would guess that the prospect that a particular franchisee would become highly successful would have acted ex ante as an inducement rather than a deterrent to entry.

The case of price discrimination in aftermarket products is similar. Many price discrimination ties involve arrangements in which the seller charges a low price (sometimes less than marginal cost and sometimes even zero)[123] for a tying product, but overcharges on a tied product whose use varies with the intensity of use of the tying product. A printer plus the stream of replaceable ink cartridges that a consumer purchases is one example. The Supreme Court's *Kodak* decision, which involved the tying of aftermarket parts and service for customers who had previously purchased a Kodak copier, is another.[124]

The aftermarket price discrimination tie is simply a bilateral monopoly problem in which a contract specified in advance determines the terms. Going in, if the underlying market is competitive a customer may be able to choose between a more expensive printer with less costly cartridges, or vice versa. In *Kodak* the Supreme Court was aware of this and made something of the fact that Kodak may have changed its policy late in the copy machine's lifecycle. As a result customers may have gotten a different and less attractive bilateral monopoly deal than the one they had bargained for at the beginning. But that change in policy is clearly not an antitrust problem, although it may involve contract law or tortious misrepresentation**<<probably both!>>**. Most importantly, the story in and of itself does not implicate double marginalization or other opportunity for higher output prices. Indeed, price discrimination in both franchise situations and those involving aftermarket parts or service seems to be ubiquitous even when the firms lack significant market power.[125]

Price discrimination ties can implicate both traditional monopoly concerns and the concerns of transaction cost economics. Already in the 1950s, Chicago school writing on variable-proportion tying arrangements saw them as price discrimination devices,[126] and the case law had seen them as such far earlier.[127] This Chicago school

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[123] *See* Hovenkamp & Hovenkamp, *supra* note 105.

[124] Eastman Kodak Co. v. Image Tech. Servs., Inc., 504 U.S. 451 (1992).

[125] Hovenkamp & Hovenkamp, *supra* note 105.

[126] Bowman, *supra* note 13.

[127] *See* Heaton-Peninsular Button-Fastener Co. v. Eureka Specialty Co., 77 F. 288 (6th Cir. 1896) ("These machines have been placed in the hands of shoe dealers . . . at the actual cost of the machines to

story was not about transaction costs, however, but rather about the profitable ways in which a monopolist might extract its overcharge. Indeed, Bowman assumed that the seller was a monopolist and saw the variable-proportion tie as an alternative to the monopolist's selling of its primary good at different prices to different consumers—a result he thought would be undermined by the monopolist's inability to distinguish high and low value customers or to segregate them sufficiently so as to prevent customer arbitrage.[128] This analysis tended to see gains from price discrimination ties by assuming that the seller was a monopolist and comparing output under the tie with output under simple linear pricing. As a result, for example, Bowman saw tying as a "use of existing [market] power," but not as creating the "addition of new power" by leveraging.[129] In this account the reduction in the price of the tying product typically means that many more customers will purchase it, and this in turn tends to produce greater sales of the tied product even though its costs are higher.[130]

The TCE story is, if anything even more benign because it starts out with a seller who is not necessarily a monopolist. As a result, the welfare gains from the output increases that attend price discrimination still apply and competition in the underlying market offers even further protection for consumers. For example, within the *Chicken Delight* franchise tying arrangement, the tie very likely produces an increased number of franchises, increased product sales, and increased welfare by both the general welfare and the consumer welfare measure.[131] But if for some reason it does not, customers can always go across the street to Kentucky Fried Chicken or McDonald's. Transaction cost analysis has improved on Bowman by extending his analysis to the ubiquitous situations in which price discrimination ties are imposed by nonmonopolists.

Price discrimination ties, even by a monopolist, are rarely candidates for condemnation on that ground because in the great majority of cases they improve consumer as well as general welfare.[132] In general, such ties involve second-degree price discrimination, which is typically more benign than third-degree price discrimination.

In a third-degree price discrimination scheme a seller is able to identify ex ante customers who exhibit differential willingness to pay for some good and charge them different prices. For example, a seller might charge commercial users of its stereo equipment $100 and residential users $60.[133] This type of discrimination creates a

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the makers, they expecting a profit on their monopoly alone from the sale of fasteners or staples to those having the machine."); Hovenkamp & Hovenkamp, *supra* note 105, at n.71.

[128] Bowman, *supra* note 13, at 23.

[129] *Id.* at 19.

[130] See Hovenkamp & Hovenkamp, *supra* note 105.

[131] *Id.*

[132] *Id.*

[133] *E.g.*, Gen. Talking Pictures Corp. v. W. Elec. Co., 304 U.S. 175 (1938) (field of use restriction distinguishing commercial and residential users); ProCD, Inc. v. Zeidenberg, 86 F.3d 1447 (7th Cir. 1996) (software licensing agreement distinguishing commercial and noncommercial users). *See* Christina Bohannan, *IP Misuse as Foreclosure*, 96 Iowa L. Rev. (forthcoming 2010), *available at* http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1474407.

discontinuity in marginal valuation that transfers some sales from high-value to low-value customers. As a result consumer welfare can be reduced even if output remains constant. In this illustration, for example, a commercial user who valued the stereo at $90 would be denied the sale. Rather, that unit would be sold to someone for $60 even though she valued it at far less than $90. As a result economists have known for nearly a century that third-degree price discrimination reduces welfare unless it results in an output increase.

By contrast, in the typical variable proportion tying case the seller reduces the price of the tying good and increases the price of the tied good; however, the latter price is the same for all. For example, a manufacturer might cut the price of its printer from the stand-alone amount of $400 and instead charge $200, but it would raise the price of tied cartridges from $25 to $40. In that case the seller would earn more from buyers who used the printer more intensely, because they would consumer more ink cartridges. The distortions come from the reduced price for the printer, which favors consumers and brings more of them into the market, but also from the increased price of the cartridge, which raises per use variable costs.[134] Significantly, however, the higher cartridge price is the same for everyone. Such ties can benefit consumers in a wider variety of circumstances, even in the rare case where output falls as a result of the tie.[135] Further, such arrangements are common even in competitive markets. As a result, as they become less favorable to consumers; switching out becomes more attractive.

This analysis also suggests that vertical restraints that segregate buyers can be more harmful price discrimination devices than ties are. While variable ties represent instances of second-degree price discrimination, segregation restraints discriminate in the third degree. For example, the manufacturer who uses vertically imposed customer restrictions to segregate customers by class,[136] or the patentee who uses field-of-use restrictions for the same end,[137] is engaged in third degree price discrimination.[138] Welfare harm is more likely, although even here it should not be presumed.

VI.   A Brief Note on Foreclosure

This article has examined situations in which transaction cost economics can be applied to vertical arrangements that threaten undue monopoly output limitations and price markups. Historically, the term "leverage" very largely defined this debate, with the structuralists believing that anticompetitive leverage was common, even when the

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[134] Hovenkamp & Hovenkamp, *supra* note 105. See also See Xerox Corp. v. Media Sciences, Inc., 660 F.Supp.2d 535, 539 (S.D.N.Y. 2009) (printer/cartridge tying case observing from summary judgment record that virtually all printer manufacturers tie by selling the printer at a price of cost or less, and place the overcharge in the expendable cartridges).

[135] *Id.*

[136] *See* 8 AREEDA & HOVENKAMP, *supra* note 38.at ¶ 1641c (3d ed. 2010) (in press).

[137] *Gen. Talking Pictures Corp.*, 304 U.S. 175.

[138] 8 AREEDA & HOVENKAMP, ¶¶ 1616e, 1647c5 (customer restrictions).

affected markets were competitive,[139] and the Chicago school largely denying the existence of leverage in any form.

An equally important concern, which I largely leave for another day, is exclusion or "foreclosure" of rivals. Once again the structuralists and the Chicago school enthusiastically disagreed with one another. Led by Harvard-trained economists such as Edward S. Mason and Joe S. Bain, the structuralists tended to see entry barriers as a prominent feature of the economy, as a natural consequence of large-scale manufacturing and product differentiation, and as a principal reason for poor performance in concentrated and even not-so-concentrated industries.[140] Bain, undoubtedly the most prominent industrial organization economist of the structuralist school, adopted a consequentialist definition that an entry barrier is any factor in a market that permits incumbent firms to "persistently raise their prices above a competitive level without attracting new firms to enter the industry."[141]

In sharp contrast, the Chicago school adopted a much stricter neoclassical approach that tended to see resources moving freely anytime an imbalance existed between profits earned in one place and another. University of Chicago economist George J. Stigler, who was much more concerned that firms not be punished for being first movers, adopted a definition of entry barriers as a cost that "must be borne by a firm which seeks to enter an industry but is not borne by firms already in the industry."[142] Stigler's definition was driven by extreme doubts that conduct itself could deter entry. Rather, he tended to see entry barriers as a consequence of scale economies or government intervention, neither of which should or could be addressed by antitrust law.

The *Antitrust Law* treatise has always preferred the Bainian definition, finding it more consistent with the policy goals of antitrust law, which is not to attack structure for its own sake but rather to identify instances of anticompetitive, entry-deterring conduct.[143] Most of the case law has followed.[144] In defense of this position it is

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[139] *E.g.*, Carbice Corp. v. Am. Patents Dev. Corp., 283 U.S. 27, 31–32 (1931), which concluded that the patentee of an ice box could increase its monopoly profits by acquiring a second monopoly on tied dry ice, a common commodity. For critiques, see Bohannan, *supra* note 133; and Hovenkamp & Hovenkamp, *supra* note 105.

[140]EDWARD S. MASON, ECONOMIC CONCENTRATION AND THE MONOPOLY PROBLEM (1957); BAIN, BARRIERS, *supra* note 7. Mason obtained his Ph.D. at Harvard and remained there his entire career; Bain obtained his Ph.D. at Harvard under Mason, but spent virtually his entire career at the University of California, Berkeley. See also KAYSEN & TURNER, *supra* note 7 at 70–80, 101–33. See, e.g., p. 8:

> All sorts of barriers to entry, from large capital requirements to high advertising costs and closely held patented technology, are widely characteristic of the economy, though in varying measure in different industries. Frictions, and the influence of uncertainty and risk aversion on business decisions, mean that entry and exit often take place with substantial lags after the changes in profitability which occasion them.

[141]BAIN, BARRIERS, *supra* note 7, at 5.

[142] GEORGE J. STIGLER, THE ORGANIZATION OF INDUSTRY 67 (1968).

[143] See 2 AREEDA & TURNER, *supra* note 18, ¶ 409 at 298-306. [PLEASE LEAVE DATE IN] For my views, see 2B AREEDA & HOVENKAMP, ¶ 420c, at 76-79 (making case for Bainian definition in antitrust analysis). *See also* Richard Schmalensee, *Sunk Costs and Antitrust Barriers to Entry* (MIT Sloan School of Management, Working Paper No. 4457-04. Jan. 2004) (agreeing with *Antitrust Law* on Bainian

important to note that antitrust law in this post-structuralist era does not punish structure as such, but only conduct that is likely to be unreasonably exclusionary under the circumstances. The Bainian definition seems more appropriate to the question being asked. The relevant question is not whether more entry should be affirmatively encouraged, but rather whether clearly anticompetitive conduct should be deterred. Problematically, however, in one of the last embraces of structuralism, Areeda's and Turner's original edition of *Antitrust Law* not only adopted the Bainian definition of entry barriers but also proposed creation of a purely structural offense of "no-fault" monopoly, a position that the present author disputes and both Congress and the courts have avoided.[145]

TCE has reinvigorated the link between conduct and exclusion. One example is the well-known debate between Areeda and Turner on one side and Oliver Williamson on the other over the proper test for predatory pricing. Williamson believed that the Areeda-Turner predatory pricing test was too lenient and did not adequately address the threats imposed by longer run strategic behavior.[146] Briefly, Williamson believed that Areeda's and Turner's average variable cost test for actionable predation was much too severe on plaintiffs and ignored significant possibilities of exclusionary pricing behavior even at above-cost prices. Another area in which TCE has reinvigorated the analysis of exclusionary practices is raising rivals' costs (RRC), which begins with the premise that many exclusionary practices are more easily rationalized as devices for increasing rivals' costs than as mechanisms for excluding them. In general, the RRC literature has attempted to restore a meaningful conception of anticompetitive exclusion without a return to the more severe apprehensions of the structuralist school, which tended to view rivals and smaller firms as anesthetized patients rather than as vigorous competitors with the general ability to respond in kind.[147] At least some Chicago school

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definition); Richard Gilbert, *Mobility Barriers and the Value of Incumbency*, *in* **2** HANDBOOK OF INDUSTRIAL ORGANIZATION, *supra* note 105, at 475, 478 ("a barrier to entry is a rent that is derived from incumbency.").

[144] *See* 2B AREEDA & HOVENKAMP, *supra* note **38,** ch. 4C (discussing decisions).

[145]For Areeda's and Turner's original proposal, see 3 AREEDA & TURNER, *supra* note 18, at ¶¶ 614–24 at 35-70 [LEAVE DATE IN]; for my critique, see 3 AREEDA & HOVENKAMP, *supra* note **38,** ¶ 630a, at 67.

[146] *See* Phillip E. Areeda & Donald F. Turner, *Predatory Pricing and Related Practices Under Section 2 of the Sherman Act*, 88 HARV. L. REV. 697, 698 (1975); Williamson's principal response, Oliver E. Williamson, *Predatory Pricing: A Strategic and Welfare Analysis*, 87 YALE L.J. 284 (1977); and the reply, Phillip E. Areeda & Donald F. Turner, *Williamson on Predatory Pricing*, 87 YALE L.J. 1337 (1977). The debate and the current position of *Antitrust Law* are developed in 3A AREEDA & HOVENKAMP, *supra* note **38,** ¶¶ 729, 736 at 106-121, 135-156.

[147] Good contributions to the RRC literature include Thomas G. Krattenmaker & Steven C. Salop, *Anticompetitive Exclusion: Raising Rivals' Costs to Achieve Power over Price*, 96 YALE L.J. 209 (1986); Steven C. Salop & David T. Scheffman, *Raising Rivals' Costs*, 73 AM. ECON. REV. 267 (1983). Good, less technical discussions of TCE and strategic behavior include Alan J. Meese, *Monopolization, Exclusion, and the Theory of the Firm*, 89 MINN.L.REV. 743 (2005); Meese,*supra* note 67; Joshua D. Wright, *The Chicago School, Transaction Cost Economics and the Roberts Court's Antitrust Jurisprudence, in* ELGAR COMPANION TO TRANSACTION COST ECONOMICS (Peter G. Klein & Michael E. Sykuta, eds., forthcoming), *available at* http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1144883).

writers have been very critical.[148] Resources are in fact quite mobile, but transaction costs and the other attendant costs of resource movement must be taken into account as well.

"Exclusionary" distribution agreements can present analogous problems in transaction cost analysis. For example, interbrand free riding can be a particular problem for manufacturers dealing through multibrand retailers.[149]   Ordinarily a manufacturer engaged in self-distribution would not have an incentive to retail the products of rivals in addition to its own. Exclusivity arrangements imposed on dealers can make the manufacturer/dealer relationship behave more like a firm behaves.[150] Nevertheless, exclusive dealing and foreclosing ties can also impair competition.[151] Other things equal, a dealer and its customers are best off when supply markets are competitive, and unreasonably exclusionary arrangements can prevent such competition from occurring.

VII.   Conclusion

This brief discussion of antitrust issues belies the complexity of analysis in individual cases. For example, market power must be established and the line between efficient and harmful bargaining will typically not be as clear as the illustrations suggest. One advantage that both the structuralist school and the Chicago school had over TCE antitrust analysis was their simplicity. Within the structuralist paradigm, industrial concentration explained everything and most inferences were drawn in favor of condemnation. Within Chicago school analysis, the impossibility of leveraging and the mobility of resources explained everything and most inferences were drawn in favor of exculpation.   Transaction cost analysis is different, however; typically more specific to the situation and requiring particularly close scrutiny in cases where significant market

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For a critique, see John E. Lopatka & Paul E. Godek, *Another Look at Alcoa: Raising Rivals' Costs Does not Improve the View*, 35 J.L. & ECON. 311 (1992).

[148] *See, e.g.*, POSNER, *supra* note 37, at 196 (describing RRC as "not a happy formula"); Frank H. Easterbrook, *Contract and Copyright*, 42 HOUS. L .REV. 953, 959 (2005) (deeply critical of exclusionary practices theories, including RRC); Frank H. Easterbrook, *When is it Worthwhile to Use Courts to Search for Exclusionary Conduct*, 2003 COL. BUS. L. REV. 345, 346–47 (2003) (similar). However, one prominent Chicago school economist sees much more promise in the theory of RRC, but also difficulties in administration. *See* Dennis W. Carlton, *The Relevance for Antitrust Policy of Theoretical and Empirical Advances in Industrial Organization*, 12 GEO. MASON L. REV. 47, 50–54 (2003).   On the Chicago school and RRC, see Herbert Hovenkamp, *Exclusion and the Sherman Act*, 72 U. CHI. L. REV. 147, 159–60 (2005).

[149] *See, e.g.*, 11 HERBERT HOVENKAMP, ANTITRUST LAW ¶ 1812 (2d ed. 2005) (use of exclusive dealing to control interbrand free riding, which can occur when a dealer that sells multiple brands can apply dealer investments made by one supplier for the benefit of a different supplier).

[150] *See, e.g.*, 9 AREEDA & HOVENKAMP, *supra* note **<<38 ok?>>**, ¶ 1717 (discussing great variety of transaction cost savings from tying); 10 id., with Einer Elhauge at ¶ 1745 (relevance of transaction costs to "separate products" test); 11 HOVENKAMP, *supra* note 149 at ¶ 1811 (transaction cost savings justifying exclusive dealing).

[151] *See, e.g.*, 9 AREEDA & HOVENKAMP, *supra* note **38,** ¶¶ 1704, 1709 (foreclosure); 11 HOVENKAMP, *supra* note 149, ¶ 1802 (foreclosure effects from exclusive dealing) and ¶ 1803 (foreclosure effects from output contracts).

power is either present or realistically threatened. As a result, the transaction costs of operating the legal system are necessarily higher.

Nevertheless, in cases challenging purely vertical arrangements the strong presumptive rule must be legality. Anticompetitive deviations are not so exceptional that antitrust policy can ignore them, but not so common that they should be presumed.