MOVING BEYOND NAÏVE FORECLOSURE ANALYSIS

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INTRODUCTION

Over the past several decades, exclusion has overtaken predation as the primary competitive concern involving vertical contractual arrangements. While there remains considerable debate concerning the level of antitrust resources that should be aimed at policing alleged exclusion—the intensity of this debate is best captured by the recent issuance and withdrawal of the Department of Justice's Section 2 Report[1]—there appears to be a consensus that exclusion is the more significant economic paradigm for assessing the competitive risks of single firm conduct.[2]

The modern economic theory of exclusion has evolved significantly over the past several decades. The Raising Rivals' Costs ("RRC") economic paradigm emerged in the 1980s, formalizing and extending economists' existing concerns with vertical exclusion.[3] It is now widely applied by enforcement agencies around the world in diagnosing the potential competitive effects of a business practice and includes a wide range of practices including exclusive dealings, partial exclusives, loyalty discounts, market share discounts, tying, bundled rebates, refusals to deal, product design, and more.[4] Modern monopolization cases often begin with an assessment of whether and to what extent the conditions of the various RRC theories are likely to hold; that analysis, in turn, requires courts and agencies to assess whether the defendant's distribution contracts substantially foreclose rivals from a critical input for a period sufficient to decrease market output and

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[1]   Press Release, U.S. Dep't of Justice, Justice Department Withdraws Report on Antitrust Monopoly Law (May 11, 2009), *available at* http://www.justice.gov/opa/pr/2009/May/09-at-459.html. The Department of Justice withdrew its report, "Competition and Monopoly: Single-Firm Conduct Under Section 2 of the Sherman Act," less than one year after issuing it. *Id.*

[2]   *Cf.* Christopher R. Leslie, *Rationality Analysis in Antitrust*, 158 U. PA. L. REV. 261, 288 n.147, 339 n.418 (2010) (citing cases critical of predation concerns).

[3]   *See generally* 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). The roots of the modern RRC theory were anticipated by Aaron Director and Edward H. Levi. *See generally* Aaron Director & Edward H. Levi, *Law and the Future: Trade Regulation*, 51 NW. U. L. REV. 281 (1956).

[4]   *See* HERBERT HOVENKAMP, FEDERAL ANTITRUST POLICY § 7.10a, at 351 (4th ed. 2011); Krattenmaker & Salop, *supra* note 3, at 215-19, 223-24.

raise market prices. Foreclosure analysis is at the very core of legal application of modern RRC theories.

Foreclosure analysis in antitrust law certainly did not begin in the 1980s. Indeed, the modern RRC framework supplanted "discredited foreclosure theories"[5] that merely alleged that the vertical restraint at issue foreclosed supply by rendering the production of a seller operating under an exclusive dealing contract with one buyer unavailable to other buyers, thus disadvantaging them.[6] In many ways, RRC can and should be seen as replacing the discredited theories of vertical foreclosure with a more sophisticated economic analysis. While economists, enforcement agencies, and judges can and do disagree on how often RRC theories explain vertical arrangements observed in the real world,[7] or how well courts and agencies can distinguish anticompetitive foreclosure from procompetitive vertical contractual arrangements,[8] there is little doubt that RRC theories breathed intellectual life into a previously economically bankrupt concept of foreclosure.

Post-Clayton Act tying cases introduced this economically detached concept of foreclosure.[9] For example, the Court in *International Salt Co. v. United States*,[10] observed it was "unreasonable, *per se*, to foreclose competitors from any substantial market,"[11] and lower courts began to interpret the language of Clayton Act Section 3 as requiring plaintiffs to demonstrate a "substantial lessening of competition" in the form of "the [dollar] volume of business controlled by the [defendant]."[12] In 1949, in *Standard Oil Co. v. United States*,[13] the Court held that "proof that competition has been foreclosed in a substantial share of the line of commerce affected" was sufficient to satisfy the Clayton Act's requirement, and it found that Standard

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[5] Krattenmaker & Salop, *supra* note 3, at 231-34.

[6] *See, e.g.*, *id.* at 231-32 & n.76 (citing Brown Shoe Co. v. United States, 370 U.S. 294, 324 (1962) ("Every extended vertical arrangement by its very nature, for at least a time, denies to competitors of the supplier the opportunity to compete for part or all of the trade of the customer-party to the vertical arrangement.")).

[7] *See, e.g.*, Alden F. Abbott & Joshua D. Wright, *Antitrust Analysis of Tying Arrangements and Exclusive Dealing*, *in* ANTITRUST LAW AND ECONOMICS 183, 200-01 (Keith N. Hylton ed., 2d ed. 2010) (identifying procompetitive effects of some vertical arrangements).

[8] *See* William E. Kovacic, *The Intellectual DNA of Modern U.S. Competition Law for Dominant Firm Conduct: The Chicago/Harvard Double Helix*, 2007 COLUM. BUS. L. REV. 1, 20-21 (discussing the "wariness of rules that might discourage dominant firms from pursuing . . . strategies that generally serve to improve consumer welfare" as well as "concern for the limitations of antitrust courts and enforcement agencies to ensure that analytical approaches . . . are applied sensibly in practice").

[9] For an excellent historical account of the rise of foreclosure doctrine in exclusive dealing jurisprudence, see Jonathan M. Jacobson, *Exclusive Dealing, "Foreclosure," and Consumer Harm*, 70 ANTITRUST L.J. 311, 361-63 (2002).

[10] 332 U.S. 392 (1947).

[11] *Id.* at 396.

[12] *See* Signode Steel Strapping Co. v. FTC, 132 F.2d 48, 53-54 (4th Cir. 1942).

[13] 337 U.S. 293 (1949).

Oil's contracts met that condition because they foreclosed up to 6.9 percent of the relevant market.[14] Finally, *Tampa Electric Co. v. Nashville Coal Co.*,[15] the Court's last exclusive dealing decision, reinforced the view that foreclosure remains a critical part of Clayton Act analysis.[16]

Indeed, substantial foreclosure has proven to be a cornerstone of exclusive dealing analysis left untouched for the fifty years since *Tampa Electric*. Modern exclusion cases focus intensely upon measuring foreclosure. While RRC replaced the discredited foreclosure theories, the foreclosure requirement embraced by the law has barely changed over the past half century. Courts measure foreclosure simply by counting up the percentage of the input market "foreclosed" from rival suppliers.[17] What is left is a mismatch between new economic theories and obsolete doctrine. This uncomfortable tension has motivated many attempts by antitrust scholars— none successful in this Article's view—to reconcile the gap between the foreclosure requirement born of discredited economic theories and modern economic thought concerning the conditions required to anticompetitively exclude rivals.

The primary purpose of this Article is to highlight this conflict and its importance and to propose the beginnings of a solution. In doing so, this Article aims to begin filling an important gap in the literature with regard to properly measuring foreclosure. Moreover, this Article endeavors to persuade courts and agencies that the contemporary foreclosure calculation is an artifact of older and now rejected theories of foreclosure, does not accurately predict competitive effects grounded in modern RRC theories, and can be improved upon with judicially administrable alternatives. In short, this Article proposes that a shift from the discredited vertical economic theories of the past to an "effects-based" regime informed by RRC theories must abandon the naïve foreclosure measure adopted by most courts in the United States. At a minimum, this shift requires assessing the foreclosure attributable to the defendant's conduct as a result of the business practice at issue by comparing foreclosure under the restraint as observed with a "but-for" analysis of the share of the input market the defendant would occupy in the absence of such an agreement. Such "counterfactual" analysis is common in other areas of antitrust—with respect to both assessment of damages and liability—and focuses the analysis upon the actual competitive effects of the restraint at issue.

The Article proceeds in three parts. Part I reviews the economics of foreclosure from its now-discredited origins to its modern formulation in

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[14]   *Id.* at 295, 305, 314.

[15]   365 U.S. 320 (1961).

[16]   *Id.* at 327, 334-35.

[17]   *See* Jacobson, *supra* note 9, at 311 (describing this method and explaining that, from the 1980s through the 1990s, "the level of percentage foreclosure necessary to sustain a case has been raised, raised some more, and then raised again" by the courts).

the RRC paradigm. It also discusses the very limited economic literature on measuring foreclosure.

Part II evaluates the foreclosure analysis embraced and adopted by courts in modern exclusion claims and demonstrates that, in large part, courts routinely adopt a naïve measure associated with outdated, implicit assumptions regarding the economics of exclusion. It further discusses precedent for courts employing counterfactual foreclosure analysis in both exclusive dealing and tying cases. Finally, Part II analyzes the costs and benefits of the counterfactual foreclosure analysis relative to naïve measures as well as to alternatives proposed by various antitrust scholars.

Part III offers a modern application of foreclosure analysis as applied to antitrust claims that Google manipulates its search algorithm to favor its own content and foreclose rivals. While this Article does not purport to conduct a comprehensive analysis of the competitive effects of Google's search algorithm—though this Author has discussed the antitrust issues at length elsewhere[18]—data on search-result positioning on Google and rival search engines illustrate the importance of assessing counterfactuals as a part of foreclosure analysis.

I.   THE ECONOMICS OF FORECLOSURE

The primary anticompetitive concern with vertical contracts is that a monopolist might utilize exclusivity, or other exclusionary conduct, to fortify its market position, raise rivals' costs of distribution, and ultimately harm consumers.[19] The unifying economic logic of these models is that the potential entrant (or current rival) could, absent the exclusionary contracts, attract a sufficient mass of retailers to cover its fixed costs of entry, but that the monopolist's contracts with retailers prevent the potential entrant from doing so. A consensus has emerged that a necessary condition for anticompetitive harm arising from allegedly exclusionary agreements is that the contracts foreclose rivals from a share of distribution sufficient to achieve minimum efficient scale ("MES").[20] This foreclosure concern is inextrica-

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[18]   Joshua D. Wright, *Defining and Measuring Search Bias: Some Preliminary Evidence* 10, 53 (Int'l Ctr. Law & Econ., Nov. 3, 2011), *available at* http://www.laweconcenter.org/images/articles/definingmeasuring.pdf (examining whether "observed search engine bias pose[s] a competitive threat or [whether it is] a feature of competition between search engines" and concluding that three studies analyzing this issue "simply do not support claims that own-content bias is of the nature, quality, or magnitude to generate plausible antitrust concerns").

[19]   This section relies, in part, on Abbott & Wright, *supra* note 7.

[20]   U.S. DEP'T OF JUSTICE, COMPETITION AND MONOPOLY: SINGLE-FIRM CONDUCT UNDER SECTION 2 OF THE SHERMAN ACT 136, 137 (2008), *available at* http://www.usdoj.gov/atr/public/reports/236681.pdf ("[E]xclusive dealing can be a way that a firm acquires or maintains monopoly power by impairing the ability of rivals to grow into effective competitors that erode the firm's position."); Daniel A. Crane & Graciela Miralles, *Toward a Unified Theory of Exclusionary Vertical Re-*

bly intertwined with the RRC paradigm and is applied by courts and agencies in cases involving allegedly exclusionary agreements of all kinds, including exclusive dealings, market share discounts, shelf space share agreements, category management arrangements, refusals to deal, tying, and bundling.[21]

The early formulations of foreclosure articulated by antitrust enforcers and courts involved a different concern than the one raised by the RRC literature. Specifically, "original" foreclosure theories raised the possibility that vertical restraints foreclosed supply.[22] In other words, the concern was that exclusionary contracts between an input supplier and a buyer foreclosed rival buyers from access to that input seller.[23] As Professor Thomas Krattenmaker and Professor Steven Salop as well as Judge Robert Bork each observed long ago, the fact that a supplier's inputs are no longer available to rival buyers does not imply that rivals face a higher cost of acquiring inputs.[24]

The critical point is that the measure of foreclosure from the perspective of these discredited foreclosure theories is merely the fraction of input supply (or customers) foreclosed by the relevant agreement. But the measure of foreclosure relevant to obsolete foreclosure theories is not necessarily calibrated to modern RRC theories of exclusion. As this Article demonstrates, the evolution of modern RRC foreclosure theories has altered the

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straints, 84 S. CAL. L. REV. 605, 640 n.137 (2011) (discussing the use of "minimum viable scale" ("MVS") in the United States and "minimum efficient scale" ("MES") in Europe to assess foreclosure); Benjamin Klein, *Exclusive Dealing as Competition for Distribution "On the Merits*,*"* 12 GEO. MASON L. REV. 119, 122-28 (2003) ("[I]f exclusive contracts foreclose a sufficient share of distribution to rivals for a significant time so that what remains to serve competitors cannot support a manufacturer of MES, the exclusive will force existing competitors and potential new entrants to operate at a cost disadvantage. The exclusives then may have the effect of driving out and/or preventing entry of manufacturing competitors until sufficient distribution becomes available."); Krattenmaker & Salop, *supra* note 3, at 247 ("[E]xcluded rivals no longer produce at minimum cost if the exclusionary rights agreement compels them to substitute less efficient inputs.").

[21] *See* Krattenmaker & Salop, *supra* note 3, at 215-17, 223-24 (discussing important foreclosure cases and explaining the doctrine of raising rivals' costs).

[22] *Id.* at 231-32.

[23] *Id.* ("This view of foreclosure as a practice that inevitably disadvantages unintegrated firms appears to be the principal concept underlying the results and rationales in important Supreme Court opinions condemning exclusive dealing arrangements, tie-ins, and vertical mergers." (citations omitted)); *see* Brown Shoe Co. v. United States, 370 U.S. 294, 324 (1962) ("Every extended vertical arrangement by its very nature, for at least a time, denies to competitors of the supplier the opportunity to compete for part or all of the trade of the customer-party to the vertical arrangement."); Standard Oil Co. v. United States, 337 U.S. 293, 314 (1949) ("It cannot be gainsaid that observance by a dealer of his requirements contract with Standard does effectively foreclose whatever opportunity there might be for competing suppliers to attract his patronage.").

[24] *See* ROBERT H. BORK, THE ANTITRUST PARADOX 304-09 (1978); Krattenmaker & Salop, *supra* note 3, at 232-34.

appropriate focus of the foreclosure measurement;[25] RRC theories require an analytical link to be established between the allegedly exclusionary agreement and the MES of production.[26]

A brief sketch of modern RRC theories involving allegedly exclusionary agreements illuminates the difference between older foreclosure arguments and the RRC paradigm. The most common scenario of antitrust relevance involving exclusionary contracts concerns an upstream supplier, S, entering into an exclusive dealing contract with retailers, R, who in turn, sell the product to final consumers.[27] The potentially anticompetitive motivation associated with these contracts is related to the limitation they place upon R's ability to sell rival products to final consumers. The possibility of anticompetitive exclusion deriving from these types of contracts generally emerges only if S is able to foreclose rival suppliers from a large enough fraction of the market to deprive S's rivals of the opportunity to achieve MES.[28]

The well-known critique of this line of reasoning comes from the Chicago School argument that R will not have the incentive to agree to contracts that facilitate monopolization upstream because they will then suffer the consequences of facing that monopolist in their chain of distribution.[29] As a general matter, one can think of this criticism as drawing the analogy to a conspiracy among retailers, R, organized by the monopolist, S, to exclude S's rivals from access to distribution.[30] Like any other conspiracy, it is generally the case that each retailer has the incentive to deviate and remain outside the agreement by contracting with S's rivals and expanding its own output at the expense of rival retailers.[31] In other words, retailers have the incentive to avoid entering agreements that will ultimately harm them, and

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[25] RRC theories have historical roots in the Chicago School. *See* Steven C. Salop, *Economic Analysis of Exclusionary Vertical Conduct: Where Chicago Has Overshot the Mark*, *in* HOW THE CHICAGO SCHOOL OVERSHOT THE MARK: THE EFFECT OF CONSERVATIVE ECONOMIC ANALYSIS ON U.S. ANTITRUST 141, 144 (Robert Pitofsky ed., 2008) (claiming that "it is important to recognize that [the Post-Chicago approach to RRC] has its root in the economic analysis of Chicago School commentators" (referring to the work of Director & Levi, *supra* note 3)).

[26] Klein, *supra* note 20, at 126 ("Th[is] economic analysis . . . implies that the critical market share foreclosure rate should depend upon the [MES] of production.").

[27] *See* Krattenmaker & Salop, *supra* note 3, at 224-27.

[28] *See id.* at 227; Klein, *supra* note 20, at 125.

[29] This line of reasoning is conventionally associated with Judge Robert Bork. *See, e.g.*, BORK, *supra* note 24, at 309 ("A seller who wants exclusivity must give the buyer something for it. If he gives a lower price, the reason must be that the seller expects the arrangement to create efficiencies that justify the lower price. If he were to give the lower price simply to harm his rivals, he would be engaging in deliberate predation by price cutting, and that . . . would be foolish and self-defeating behavior on his part.").

[30] This analogy is explored and used to derive the economic conditions necessary for exclusive contracts to cause anticompetitive effects in Klein, *supra* note 20, at 125.

[31] *See* Elizabeth Granitz & Benjamin Klein, *Monopolization by "Raising Rivals' Costs": The Standard Oil Case*, 39 J.L. & ECON. 1, 27 (1996).

S will generally not be able to compensate retailers enough to alter this incentive and persuade them to enter into the anticompetitive exclusive contract.[32] The critique goes on to argue that observed exclusionary distribution contracts must be motivated by efficiencies rather than by anticompetitive effects.[33]

The economics literature has grown in recent years to include a series of theoretical models contemplating scenarios in which S can sufficiently compensate R to join and remain within the conspiracy, and therefore to accomplish an anticompetitive purpose. These anticompetitive theories of exclusive dealing generally assume that S supplies a product that is essential to R's viability and that there are substantial economies of scale in manufacturing.[34]

One such theory considers the case where the monopolist, S, adopts exclusive contracts, rather than merely collecting its monopoly profit from the sale of the essential product, and relies upon the existence of dynamic

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[32]   *See generally* B. Douglas Bernheim & Michael D. Whinston, *Exclusive Dealing*, 106 J. POL. ECON. 64 (1998) (deriving this result formally).

[33]   There is a substantial economic literature on the efficiencies of vertical exclusionary arrangements. *See, e.g.*, Abbott & Wright, *supra* note 7, at 200-01 ("[T]he potential efficiencies associated with both tying and exclusive dealing . . . lead most commentators to believe that they are generally procompetitive and should be analyzed under some form of rule of reason analysis."); James C. Cooper et al., *Vertical Antitrust Policy as a Problem of Inference*, 23 INT'L J. INDUS. ORG. 639, 658 (2005) ("Most studies find evidence that vertical restraints/vertical integration are procompetitive[.]"); Jacobson, *supra* note 9, at 357-60 (discussing the adoption of efficiency justifications for exclusive dealing arrangements by courts, including increasing the reliability of supply and reducing monitoring costs); Benjamin Klein & Andres V. Lerner, *The Expanded Economics of Free-Riding: How Exclusive Dealing Prevents Free-Riding and Creates Undivided Loyalty*, 74 ANTITRUST L.J. 473, 477-80 (2007) (explaining how exclusionary distribution contracts can mitigate free riding, such as "by preventing dealers from using their promotional efforts that have been paid for by the manufacturer to sell alternative brands"); Benjamin Klein & Kevin M. Murphy, *Exclusive Dealing Intensifies Competition for Distribution*, 75 ANTITRUST L.J. 433, 465 (2008) ("[T]here are often fundamental economic efficiencies in having the manufacturer rather than the retailer make the shelf space stocking recommendations as part of a category management contract because it is substantially easier for retailers to monitor the category manager manufacturer's performance than for the manufacturer to monitor retailer performance of the implicit contract."); Benjamin Klein & Joshua D. Wright, *The Economics of Slotting Contracts*, 50 J.L. & ECON. 421, 421 (2007) (describing exclusive, shelf-space contracts between manufacturers and grocery retailers as "a consequence of the normal competitive process"); Francine Lafontaine & Margaret Slade, *Exclusive Contracts and Vertical Restraints: Empirical Evidence and Public Policy*, *in* HANDBOOK OF ANTITRUST ECONOMICS 393-94 (Paolo Buccirossi ed., 2008) (discussing how "the imposition of vertical restraints will not only increase the overall efficiency of the vertical structure but also lead to lower prices for consumers" where both the supplier and distributor have market power).

[34]   *See, e.g.*, Ilya R. Segal & Michael D. Whinston, *Naked Exclusion: Comment*, 90 AM. ECON. REV. 296, 297 (2000) (articulating their model on the assumptions "that an exclusionary contract commits the buyer to purchasing only from the incumbent" and that scale economies are present); Michael D. Whinston, *Tying, Foreclosure, and Exclusion*, 80 AM. ECON. REV. 837, 839 (1990) ("[This study] assume[s] that scale economies exist in the production process for the tied good, and as a result, the structure of that market is oligopolistic.").

economies of scale such as network effects.[35] Under this dynamic theory of exclusion, S's exclusive contracts prevent S's rivals or potential entrants that might develop into future rivals from competing, in order to protect future market power. Because S's rivals must operate at a cost disadvantage that drives them out and prevents entry, S is able to increase the duration and scope of its market power.[36]

A second set of models explores the possibility that coordination problems between buyers prevent the foiling of S's anticompetitive use of exclusive dealing contracts. There is a substantial industrial organization literature analyzing the conditions under which these types of coordination problems between buyers generate the possibility of anticompetitive exclusion.[37] The central logic of these models is that the potential entrant (or current rival) must attract a sufficient mass of retailers to cover its fixed costs of entry, but S's exclusive contracts with retailers prevent the potential entrant from doing so.[38] Significant economies of scale in distribution militate against exclusion because, in that case, a potential entrant may need to attract only a single buyer in order to achieve MES. Similar logic suggests that a small number of buyers will be able to coordinate in order to support the excluded rival. Further, the exclusionary equilibrium in this model appears relatively fragile because an alternative equilibrium in which buyers reject exclusivity also exists. The most recent strand of this literature examines the relationship between downstream competition and exclusion.[39]

The replacement of old foreclosure theories with the RRC paradigm shifts the relevant inquiry for antitrust analysis. Krattenmaker and Salop's seminal article recognized this point, describing the relevant question as "[w]hether the exclusionary rights arrangement will so limit remaining supply available to rivals that it will lead them to bid up the price of that supply, thereby increasing their costs to the point that the purchaser obtains power over price."[40] The answer to the question depends critically upon the

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[35] *See* Dennis W. Carlton & Michael Waldman, *The Strategic Use of Tying to Preserve and Create Market Power in Evolving Industries*, 33 RAND J. ECON. 194, 196 (2002).

[36] An alternative, but related, theory of exclusion operates when S drives out competing retailers, monopolizes distribution, and collects its monopoly price on the distribution of rival products. *See* Whinston, *supra* note 34, at 840. This alternative theory also requires substantial economies of scope or scale in the supply of distribution services.

[37] *See* Eric B. Rasmusen et al., *Naked Exclusion*, 81 AM. ECON. REV. 1137, 1140-43 (1991); Segal & Whinston, *supra* note 34, at 296-97.

[38] Rasmusen et al., *supra* note 37, at 1143.

[39] *See, e.g.*, Chiara Fumagalli & Massimo Motta, *Exclusive Dealing and Entry, When Buyers Compete*, 96 AM. ECON. REV. 785, 786 (2006); John Simpson & Abraham L. Wickelgren, *Naked Exclusion, Efficient Breach, and Downstream Competition*, 97 AM. ECON. REV. 1305, 1306-07 (2007); John Simpson & Abraham L. Wickelgren, Exclusive Dealing and Entry, When Buyers Compete: Comment 1-3 (June 2005) (unpublished manuscript) (on file with George Mason Law Review).

[40] Krattenmaker & Salop, *supra* note 3, at 259.

"net foreclosure rate,"[41] which is an explicitly counterfactual approach to measuring foreclosure. The authors describe the net foreclosure rate as "the percentage of the suppliers' capacity that was available to rivals before the exclusionary rights agreement was adopted but that is no longer available as a result of the agreement."[42] Their key insight is that agreements with a sufficiently small impact upon the share of distribution foreclosed are not likely to be motivated by anticompetitive exclusion nor are they likely to generate increases in the cost of acquiring inputs sufficient to impact the competitive process.[43]

The counterfactual analysis Krattenmaker and Salop propose seeks to identify those agreements with the potential to harm competition.[44] Specifically, Krattenmaker and Salop envision a before-and-after analysis in which the share of distribution foreclosed by the defendant prior to the adoption of the exclusionary rights agreement serves as the "but-for" world and the competitive benchmark to which the competitive realities under the relevant agreement must be compared.[45] The crucial point is that to appropriately measure foreclosure, one must account for the distribution that would be dedicated to the defendant in the absence of the agreement.[46] Few courts and commentators have heeded this element of the RRC framework; in fact, with very few exceptions, there has been little critical analysis of how to properly measure foreclosure at all.[47] This gap leaves the substantial foreclosure requirement of modern exclusive dealing law, and foreclosure analysis generally, in a state of tension where old, naïve techniques of measuring foreclosure are awkwardly mismatched with new economic theories of harm.

II.   MEASURING FORECLOSURE IN MODERN ANTITRUST LAW

A.   *Courts Adopting the Naïve Measure*

The foreclosure requirement in antitrust law measures a firm's ability to prevent rivals from competing for access to an essential input, thereby preventing rivals from achieving MES and potentially injuring competition. Courts overwhelmingly but not completely rely upon the percentage of distribution covered by the potentially exclusionary agreement to measure

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[41]   *Id.*

[42]   *Id.*

[43]   *See id.* at 274-75.

[44]   *Id.* at 214.

[45]   *Id.* at 259.

[46]   Krattenmaker & Salop, *supra* note 3, at 259-60, 260 n.159.

[47]   For a discussion of the various proposed measures of foreclosure to assess the competitive effects of exclusionary distribution agreements, see *infra* Part II.C.

foreclosure.[48] The percentage share of distribution covered by the defend-
ant's allegedly unlawful contracts is, at best, an imperfect predictor of like-
ly competitive effects of the contracts. A firm's share of distribution may
depend upon a variety of factors other than the agreement at issue. The raw
distribution percentage, however, does not isolate the impact of the agree-
ment from these other factors. Without a counterfactual analysis—that is, a
comparison of foreclosure with and without the agreements at issue—this
approach does not accurately measure the *impact* of the agreements; rather,
it merely describes the prevalence of the relevant agreements in the market
for distribution. Given its bluntness as a tool for estimating the foreclosing
impact of the agreements at issue, this Article refers to this method as the
"naïve approach." The naïve approach is generally the beginning point of
judicial and agency foreclosure analyses; it is also occasionally the end of
the foreclosure analysis, though courts routinely modify the naïve measure
to account for other considerations—which often persuade them this metric
overstates the relevant degree of foreclosure.[49]

1.   Traditional Naïve Foreclosure Rate

Courts have routinely employed the naïve foreclosure calculation in
prominent exclusionary agreement cases, and in particular, monopolization
claims involving exclusive dealing. In *United States v. Dentsply Interna-
tional Inc.*,[50] the Third Circuit applied the naïve foreclosure rate in holding
that Dentsply's exclusivity policies violated Section 2 of the Sherman Act.[51]
Dentsply was a manufacturer of artificial teeth, controlling a 75- to 80-
percent share of the market for prefabricated artificial teeth.[52] Similar to
other industry manufacturers, Dentsply sold its products to dealers, who in
turn supplied the teeth to dental laboratories;[53] its distribution network con-
sisted of twenty-three independent authorized dealers.[54] In 1993, Dentsply
instituted a policy that prohibited these authorized dealers from adding any
other tooth lines to their product offerings.[55] By virtue of this prohibition, in

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[48]   11 PHILLIP E. AREEDA & HERBERT HOVENKAMP, ANTITRUST LAW ¶ 1802d (3d ed. 2011).

[49]   *See infra* Part II.A.2.

[50]   399 F.3d 181 (3d Cir. 2005).

[51]   *Id.* at 184; *see also* Klein & Lerner, *supra* note 33, at 474 (discussing *Denstply* and exclusive
dealing).

[52]   The 75-80 percent figure is based upon revenues; Dentsply held a 67-percent market share
based upon unit sales. *Dentsply*, 399 F.3d at 184.

[53]   *Id.* at 184.

[54]   *Id.* at 185.

[55]   *Id.* Dealers that "had carried competing products before 1993 . . . were 'grandfathered' for sales
of those products." *Id.* In other words, they were allowed to continue offering these products. *Id.* Be-
cause "Dentsply operate[d] on a purchase order basis . . . [these agreements were] essentially terminable
at will." *Id*.

combination with Dentsply's large market share, the court found Dentsply was able to exclude rivals from access to those distributors, a "heavily traveled channel to the dental laboratories," for a significant period of time.[56] Indeed, the court noted,

> [t]he evidence demonstrated conclusively that Dentsply had supremacy over the dealer network[,] and it was at that crucial point in the distribution chain that monopoly power over the market for artificial teeth was established. The reality in this case is that the firm that ties up the key dealers rules the market.[57]

While the court does not estimate a precise foreclosure percentage, its analysis lacks a counterfactual and is thus a straightforward example of the naïve approach.

The D.C. Circuit also adopted the naïve foreclosure calculation in *United States v. Microsoft Corp.*[58] The court analyzed Microsoft's exclusive dealing contracts with various Internet service providers, Internet access providers ("IAPs"), and computer manufacturers to favor Internet Explorer as the default or preferred browser.[59] For example, computer manufacturers running their products on Microsoft's Windows operating system were prohibited from removing the Internet Explorer icon from desktops,[60] while AOL, an IAP, agreed not to promote any non-Microsoft browser and not to supply more than 15 percent of its subscribers with a browser other than Internet Explorer.[61] As Professor Benjamin Klein notes, the D.C. Circuit focused upon "'cost-effective' distribution channels when calculating the degree of market foreclosure."[62] It relied upon findings that IAPs and computer manufacturers were the two most cost-effective channels for browser distribution and that Microsoft dominated each.[63] Noting, *inter alia*, that Microsoft had exclusive contracts with fourteen of the fifteen largest IAPs, the court concluded that Microsoft foreclosed competitors from a substantial proportion of the most efficient distribution assets.[64]

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56   *Id.* at 190.

57   *Id.*

58   253 F.3d 34 (D.C. Cir. 2001) (en banc) (per curiam).

59   *Id.* at 70-71.

60   *Id.* at 60-61.

61   *Id.* at 68.

62   Klein, *supra* note 20, at 127.

63   *Microsoft*, 253 F.3d at 70-71; *see also* Klein, *supra* note 20, at 119-20 ("Microsoft was found to have illegally used de facto exclusive contracts to control the two 'most effective' distribution channels for browser-software—through computer manufacturers and Internet access providers.").

64   *Microsoft*, 253 F.3d at 70-71. Additionally, Microsoft's arrangements with Independent Software Vendors ("ISVs") were unlawful even though the ISVs were a "relatively small channel for browser distribution." *Id.* at 72. The court reasoned that because Microsoft had "largely foreclosed the two primary channels to its rivals," the exclusive arrangements with ISVs had a substantial effect of further foreclosing rivals from the market. *Id.*

Likewise, in *Bepco, Inc. v. Allied-Signal, Inc.*,[65] the court premised its conclusions regarding substantial foreclosure upon an examination of the total percentage of the market covered by defendant Allied Signal's exclusive contracts.[66] Allied Signal manufactured truck airbrake systems, as well as new valves and compressors for these systems, marketing them under the name "Bendix."[67] Allied Signal competed with Bepco in the "aftermarket" for the sale of replacement products,[68] for which there are two channels of distribution: independent distributors ("IAM channel")[69] and operating equipment dealers ("OE dealer channel").[70] Within the IAM channel, Allied Signal had 300 contracts with independent distributors to sell only Bendix replacement products.[71] The court noted that "Allied Signal distributed approximately one-half (½) of its Bendix replacement products through the IAM channel and one-half (½) through the OE dealer channel."[72] Assuming Allied Signal had a 43-percent share of the compressor aftermarket and a 37-percent share of the valve aftermarket, the court found that Allied Signal would have foreclosed about 21.5 percent of the compressor and 18.5 percent of the valve aftermarkets.[73]

These cases are representative of the conventional and well-accepted method of measuring foreclosure that describes the share of distribution covered by the allegedly exclusionary agreements.

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[65]   106 F. Supp. 2d 814 (M.D.N.C. 2000). "Allied Signal" refers to Allied-Signal, Inc. and Allied Signal Truck Brake Systems Co. *Id.* at 816.

[66]   *Id.* at 830-31.

[67]   *Id.* at 816.

[68]   When compressors and valves in the airbrake systems break or wear out, however, they are generally replaced with either new or remanufactured parts. *Id.* at 817. In this aftermarket, Allied Signal markets its remanufactured Bendix parts as "genuine" replacements. *Id.* Unlike Allied Signal, Bepco does not manufacture new compressors or valves and cannot market any of its replacement parts as "genuine." *Id.* In 1995, Allied Signal maintained a market share of 43 percent and 37 percent in the compressor and valve aftermarkets, respectively. *Id.* at 818. Bepco only held 2.5 percent shares in each of those aftermarkets. *Id.*

[69]   Approximately 2700 independent distributors within the United States and Canada make up the IAM channel. *Id.*

[70]   *Bepco*, 106 F. Supp. 2d at 818-19. Allied Signal competed in both the IAM and OE dealer channels, but Bepco, for strategic reasons, elected to compete only in the IAM channel. *Id.*

[71]   *Id.* at 819. These agreements allowed distributors to carry new and remanufactured non-Bendix replacement products. *Id.* Additionally, either party could terminate the agreements at will with thirty days' notice. *Id.*

[72]   *Id.* at 820.

[73]   *Id.* The court observed that these figures would overstate the extent to which Allied Signal had foreclosed Bepco, "given that Bendix replacement products comprise less than 100% of Allied Signal's total replacement product sales." *Id.* at 820 n.7.

2.   Modified Naïve Foreclosure Rate

Courts routinely modify the standard naïve foreclosure rate by examining other qualitative factors relating to the conduct at issue. These adjustments reflect courts' efforts to develop rules more closely calibrated to measuring the actual competitive effects of the agreements at issue. For example, courts frequently acknowledge contract duration[74] and terminability,[75] the availability of alternative methods of distribution,[76] and the ease of entry[77] as factors that impact foreclosure. Courts' general dissatisfaction with the naïve measure motivates these alternative considerations that are often grounded in the view that the naïve approach overstates foreclosure concerns.

Omega Environmental, Inc. v. Gilbarco, Inc.,[78] provides a useful illustration of modifications to the naïve calculation. Gilbarco was a manufacturer of petroleum dispensing equipment, accounting for approximately 55 percent of the market for domestic sales,[79] and had entered into arrangements with 120 authorized distributors to sell its petroleum dispensers.[80] The arrangements lasted an initial term of one year and subsequently could be terminated on sixty days' notice by either party.[81] In response to Omega's proposed entry into the market, Gilbarco notified all of its authorized distributors that it would continue to do business with distributors that sold only the Gilbarco petroleum dispensers.[82]

The court, in analyzing Omega's foreclosure allegations, explained that foreclosure is "the percentage of Gilbarco's total market share sold

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[74] *See, e.g.*, Omega Envtl., Inc. v. Gilbarco, Inc., 127 F.3d 1157, 1163-64, 1173 (9th Cir. 1997) (finding that exclusive arrangements with a one-year contract term mitigated foreclosure effects and were thus lawful); Twin City Sportservice, Inc. v. Charles O. Finley & Co., 676 F.2d 1291, 1301 (9th Cir. 1982) (finding that a 24-percent foreclosure was unlawful given the ten-year contract duration).

[75] *See, e.g.*, W. Parcel Express v. United Parcel Serv. of Am., Inc., 190 F.3d 974, 976 (9th Cir. 1999) (finding that "termination provisions that allowed a customer to terminate the contract for any reason with very little notice" substantially negated potential foreclosure concerns) (citing *Omega*, 127 F.3d at 1163); CDC Techs., Inc. v. IDEXX Labs., Inc., 186 F.3d 74, 81 (2d Cir. 1999) (finding that "exclusive dealing contracts [that] were easily terminable on short notice" prevented anticompetitive foreclosure).

[76] *See, e.g.*, CDC Techs., Inc. v. IDEXX Labs., Inc., 7 F. Supp. 2d 119, 121 (D. Conn. 1998) (finding that competition was not foreclosed because alternative channels of distribution were available).

[77] *See, e.g.*, Allen-Myland, Inc. v. IBM Corp., 33 F.3d 194, 209 (3d. Cir. 1994) ("[T]he ease or difficulty with which competitors enter the market is an important factor in determining whether the defendant has true market power—the power to raise prices.").

[78] 127 F.3d 1157 (9th Cir. 1997).

[79] *Id.* at 1160.

[80] *Id.*

[81] *Id.*

[82] *Id.* at 1161.

through its authorized distributors," which it calculated at 38 percent.[83] However, the court went on to find that this percentage "considerably over-state[d] the size of the foreclosure and its likely anticompetitive effect for several reasons,"[84] including the short duration and easy terminability of the agreements.[85] By recognizing that these qualitative factors alleviated potential anticompetitive results, the court seems to have endeavored to align its analysis with the actual competitive effects of the underlying conduct, rather than remaining reliant on a formalistic determination of foreclosure.

Recently, Judge Chen in the Northern District of California relied upon qualitative factors to modify the naïve foreclosure rate in *Church & Dwight Co. v. Mayer Laboratories, Inc.*,[86] finding that Church & Dwight's planogram[87] agreements did not substantially foreclose rivals and thus did not create antitrust injury.[88] Church & Dwight[89] manufactured and distributed condoms through three channels: (1) food, drug, and mass merchandisers; (2) Wal-Mart; and (3) convenience stores.[90] Church & Dwight's planogram agreements involved shelf space share discounts or "a percentage rebate off its wholesale price in exchange for a retailer's commitment to devote a certain percentage of the condom shelf space to [Church & Dwight] products."[91] In discussing foreclosure, the court addressed three variations of the naïve measure but ultimately held that each overestimated the competitive impact of the arrangements.[92] Importantly, the agreements

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[83]   *Omega*, 127 F.3d at 1162.

[84]   *Id.* at 1162 (quoting Barry Wright Corp. v. ITT Grinnell Corp., 724 F.2d 227, 237 (1st Cir. 1983)).

[85]   The court explained that a rival could gain access to this portion of the market simply by offering a better product or deal, thus negating any potential foreclosure effects. *Id.* at 1164.

[86]   No. C-10-4429 EMC, 2012 WL 1231801 (N.D. Cal. Apr. 12, 2012).

[87]   *Id.* at *1 n.1 ("A planogram is 'essentially a diagram showing where specific products are to be positioned in the space allotted by a retail store for a particular category of products.'"). The Author was an economic expert witness on behalf of Church & Dwight.

[88]   *Id.* at *28.

[89]   Church & Dwight manufactures Trojan brand condoms and accounts for over 75 percent of all retail condom sales in the United States. *Id.* at *2.

[90]   *Id.*

[91]   *Id.* at *1.

[92]   Applying the *Omega* court's foreclosure approach, the court reasoned that Church & Dwight had a 75-percent market share and 66.1 percent of its sales came from convenience store and planogram contracts, resulting in a foreclosure rate of 49.6 percent. *Church & Dwight*, 2012 WL 1231801, at *29. The court also applied the same calculation using Church & Dwight's average contracted shelf space share of 72 percent and 60 percent in convenience stores. *Id.* Using the fact that Church & Dwight derived 44.1 percent of its sales from planogram stores and 22 percent of its sales from convenience stores, this resulted in a foreclosure rate of 45 percent. *Id.* In its final iteration, the court "attempt[ed] to calculate the approximate total shelf space in the condom market dedicated to [Church & Dwight] through either the [planogram] or [convenience store] contracts." *Id.* This method required "multiply[ing] the percentage of the total condom market occupied by [planogram] retailers (51.6%) by [Church & Dwight's] average shelf share in those retailers (72%), which is 37%." *Id.* (footnote omitted). This number was added to the product of "the percentage of the total condom market occupied by [con-

lasted only for one year, and were easily terminable,[93] and did not require retailers to allocate to Church & Dwight any specified amount of shelf space.[94] Moreover, a substantial portion of the condom retail market was not covered by these agreements.[95]

Although these modifications represent important attempts by courts to more accurately assess the competitive effects of allegedly exclusionary conduct, courts utilizing these adjustments remain problematically reliant upon and constrained by a naïve measurement of foreclosure.

B.   *Use of Counterfactuals in Foreclosure Analysis*

While most courts continue to rely upon naïve foreclosure calculations, albeit with some occasional modifications, others have recognized the measure's shortcomings[96] and some have implicitly[97]—or in very rare cases, explicitly[98]—applied counterfactual analysis to calculate net foreclosure rates. Examples of counterfactual analysis in exclusive dealing cases are few, but courts have proven slightly more willing to apply this analysis in tying cases.[99]

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venience] stores (22.5%) by [Church & Dwight's] average shelf share in that market (60%)" resulting in a total percentage of 50.5 percent foreclosure. *Id.*

[93]   The planogram agreements allowed for retailers to terminate the agreement with thirty days' notice. *Id.* at *21.

[94]   The planogram agreements did not force retailers to purchase a certain percentage of Church & Dwight condom products or designate certain quotas for shelf space. *Id.* Retailers could allocate shelf space as they pleased, but their rebates would depend on those allocation decisions. *Id.*

[95]   Significant distributors did not participate in the planogram agreements. *Id.* For example, Wal-Mart, "which accounts for 20% of all retail condom revenues and 33% of unit sales," and 10 percent of other retailers were not covered by the planogram agreements and were, therefore, accessible channels for Mayer's product distribution. *Id.*

[96]   *See, e.g.*, Barry Wright Corp. v. ITT Grinnell Corp., 724 F.2d 227 (1st Cir. 1983). In *Barry Wright*, the court held that plaintiff's proffered foreclosure rate overstated the extent to which rivals were actually excluded, because Grinnell's decision to enter into the "foreclosure" contracts (through which Grinnell purchased a large amount of inputs at once) rather than to purchase inputs "from time to time" had, "as a practical matter," minimal competitive effects. *Id.* at 237. The court therefore compared the "foreclosure" to actual contracts, an analysis closer to the counterfactual approach than is typical. Additionally, the court noted "virtually *every* contract to buy 'forecloses' or 'excludes' alternative sellers from *some* portion of the market, namely the portion consisting of what was bought." *Id.* at 236.

[97]   *See, e.g.*, J.B.D.L. Corp. v. Wyeth-Ayerst Labs., Inc., Nos. 1:01-CV-704 & 1:03-CV-781, 2005 WL 1396940, at *10 (S.D. Ohio June 13, 2005).

[98]   *See, e.g.*, Reifert v. S. Cent. Wis. MLS Corp., 450 F.3d 312, 318 (7th Cir. 2006).

[99]   *See infra* Part II.B.2.

1.   Exclusive Dealing Cases

Exclusive dealing cases occasionally have incorporated counterfactual thinking into the foreclosure calculus. In *R.J. Reynolds Tobacco Co. v. Philip Morris, Inc.*,[100] for example, cigarette manufacturers proffered that Philip Morris acquired monopoly power and restrained trade by establishing a merchandising program through which it paid retailers for favorable promotional and shelf space.[101] The court considered three possible foreclosure rates based upon a market of cigarette sales in the United States,[102] but did not decide which foreclosure calculation was appropriate, noting instead that other factors precluded a finding of substantial foreclosure.[103] Importantly, the court emphasized that Philip Morris's arrangements only required retailers to allocate product space and to place promotional signage at levels "equal to or less than its market share."[104] This emphasis reflects an implicit consideration of counterfactual analysis. The court essentially discounted the foreclosure level by Philip Morris's market share, recognizing that these customers were unaffected by the merchandising program—they would have purchased Philip Morris cigarettes whether or not retailers participated in the program.[105] Accordingly, the court found that Philip Morris had not foreclosed any part of the market from its competitors.[106]

The court's discussion in *J.B.D.L. Corp. v. Wyeth-Ayerst Laboratories, Inc.*,[107] similarly acknowledges the importance of counterfactual analysis. Plaintiff Duramed and defendant Wyeth both manufactured conjugated estrogen products;[108] plaintiffs argued that Wyeth's contracts with pharmacy benefit managers ("PBMs") foreclosed it from competing for favorable—or even any—placement in drug formularies.[109] The court, however, noted that many formularies were "open" and did not require exclusivity with Wyeth.[110] Furthermore, the court found that the plaintiffs' proffered foreclosure rate of 42 percent, which was based upon Wyeth's sales through PBMs

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[100]   199 F. Supp. 2d 362 (M.D.N.C. 2002).

[101]   *Id.* at 370. Because the program did not prohibit rivals from selling or advertising their products, the court found these agreements did not qualify as exclusive dealing arrangements. *See id.* at 387 ("Retail Leaders agreements . . . do not preclude the display of competing products, do not control the prices at which those products are offered, and do not provide Defendant *with more than its market share of product space*." (emphasis added)).

[102]   *Id.* at 389.

[103]   *See id.*

[104]   *Id.* at 370.

[105]   *See id.* at 392.

[106]   *R.J. Reynolds*, 199 F. Supp. 2d at 393.

[107]   Nos. 1:01-CV-704 & 1:03-CV-781, 2005 WL 1396940 (S.D. Ohio June 13, 2005).

[108]   *Id.* at *1.

[109]   *Id.* at *2.

[110]   *Id.* at *9 (explaining that, under these open formularies, Premarin did not have a favorable position over Cenestin and customers could obtain either drug with the same co-pay).

with exclusive "sole [conjugated estrogen]" clauses, overstated the extent to which these contracts excluded rival conjugated estrogen products.[111] The court concluded that the 42-percent level "fail[ed] to account for the fact that many PBMs would reimburse for a . . . prescription [for Duramed's product] even though it was not a 'favored' drug and listed on the PBM's formulary."[112] This reasoning invokes the counterfactual by acknowledging that certain customers had both the capability and the inclination to choose Wyeth's product regardless of the preferential formulary status it obtained through its rebate and access contracts and removing them from the foreclosure calculation.[113] In other words, the court recognized that many customers would have purchased Wyeth's product even absent the exclusive contracts and that these customers should be netted from the analysis.[114]

2.   Tying Cases

Courts have further integrated but-for foreclosure analysis in tying cases. In fact, such analysis has been—at least implicitly—an important aspect of tying jurisprudence for several decades. The Supreme Court in *Jefferson Parish Hospital District No. 2 v. Hyde*,[115] declared that

> when a purchaser is "forced" to buy a product he would not have otherwise bought even from another seller in the tied-product market, there can be no adverse impact on competition because no portion of the market which would otherwise have been available to other sellers has been foreclosed.[116]

At least since *Jefferson Parish*, then, tying cases have conducted some level of counterfactual foreclosure analysis.[117]

One nice illustration of this point is *Gonzalez v. St. Margaret's House Housing Development Fund Corp.*,[118] in which tenants filed suit against a

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111   *Id.* at *10.

112   *Id.*

113   *See J.B.D.L. Corp.*, 2005 WL 1396940, at *10.

114   *See id.* at *10-11.

115   466 U.S. 2 (1984).

116   *Id.* at 16.

117   *See, e.g.*, Tic-X-Press, Inc. v. Omni Promotions Co., 815 F.2d 1407, 1420 (11th Cir. 1987) (noting that some tickets included in the plaintiff's proffered foreclosure rate "would have been sold by [Tic-X-Press] *but for* the tying arrangement" and debating whether these tickets belong in a properly constructed foreclosure measurement—without ultimately deciding on the proper foreclosure rate (emphasis added)); Park v. Thomson Corp., No. 05 Civ. 2931(WHP), 2007 WL 119461, at *9 (S.D.N.Y. Jan. 11, 2007) ("Using [defendant's] gross revenues would overstate the effect [of the tying arrangement] because many consumers purchase the integrated . . . course by choice"); Johnson v. Soundview Apartments Hous. Dev. Fund Co., 588 F. Supp. 1381, 1383 (S.D.N.Y. 1984) ("[O]nly those residents who object to the meal plan and who would purchase alternatives to the plan in the tied market if it were made optional should properly be considered.").

housing facility, arguing the required purchase of one meal per day at the facility constituted an illegal tying arrangement.[119] Several tenants objected to this mandatory meal plan, claiming they would rather cook their own meals or purchase them from another supplier.[120] The Second Circuit, when analyzing the proffered foreclosure rate, refused to include in the measurement all of the facility's 250 residents.[121] Rather, it found that doing so "overstate[d] the amount of commerce foreclosed because the record already indicate[d] that many residents would continue to use the meal plan by choice."[122] Because twenty-two plaintiffs originally filed suit, the court found a foreclosure calculation premised upon this number of residents alone to be more accurate—but warned that "this figure may also [have] overstate[d] the amount of commerce foreclosed by the mandatory meal policy because some plaintiffs would choose not to buy the product (the single, prepared meal) at all."[123] Indeed, the court interpreted Supreme Court precedent to be "primarily concerned with ascertaining the total sales lost to potential competitors *due to the tying policy*," and not simply total sales lost.[124] Accordingly, the court emphasized the importance of discounting the level of foreclosure by the fraction of consumers unaffected by the allegedly exclusionary conduct; in other words, the court emphasized a foreclosure calculation comparing the world as-is to a counterfactual without the conduct.[125]

Additionally, Professors Phillip Areeda and Herbert Hovenkamp identify the concept of "zero foreclosure" that has emerged from tying jurisprudence.[126] Zero foreclosure can arise from two distinct factual scenarios, resulting when either no rival sellers exist or rivals would not supply (or consumers would not purchase) the tied product absent the tie.[127] Both zero foreclosure constructs derive from explicitly counterfactual thinking. The first recognizes that a defendant cannot foreclose nonexistent competitors, while the second acknowledges that a defendant cannot foreclose existing competitors from nonexistent prospects; that is, if rivals have no possibility of selling a product regardless of how a defendant behaves, because consumers simply would refuse to purchase the product absent the tie, then rivals simply cannot be excluded by defendant's behavior. By definition, this conduct cannot harm prospects that do not exist. Accordingly, under

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[119]   880 F.2d 1514 (2d Cir. 1989).

[119]   *Id.* at 1516.

[120]   *Id.*

[121]   *Id.* at 1518.

[122]   *Id.*

[123]   *Id.*

[124]   *Gonzalez*, 880 F.2d at 1519 (emphasis added).

[125]   *See id.*

[126]   9 AREEDA & HOVENKAMP, *supra* note 48, ¶ 1723a.

[127]   *Id.*; *id.* ¶ 1723, at 312 n.1.

each scenario, zero foreclosure results from netting the total level of foreclosure to include only that foreclosure which is driven by the tie itself.

Several courts have adopted this zero foreclosure approach in tying cases.[128] For example, in *Reifert v. South Central Wisconsin MLS Corp.*,[129] the Seventh Circuit refused to condemn a tie when it concluded the tie had no foreclosing effect.[130] The plaintiff proffered that a local Realtors association's requirement that real estate agents purchase association membership in order to obtain access to its multiple-listing service constituted an illegal tie.[131] The court, however, noted that the defendant was the only Realtors association in the area and that "without evidence of competitors in the market for services offered by the Realtors [a]ssociation, there can be no foreclosure of competition."[132] Accordingly, the court conducted an explicitly counterfactual analysis—it considered the potential for an adverse impact upon rivals premised solely upon the tying conduct, not upon the total percentage of sales going to the defendant.[133] This and similar analyses have important implications for the development of foreclosure jurisprudence.

C.   *But-For Foreclosure as the Optimal Legal Standard*

It is now widely recognized that a monopolist may be able to use exclusive contracts or other means of raising its rivals' costs and that if those arrangements foreclose a share of distribution such that the remaining distribution assets are insufficient to support a rival of MES, the exclusives may result in the acquisition or maintenance of market power and yield competitive harm.[134] Substantial foreclosure is a necessary condition of this competitive harm.[135] The primary thrust of this Article is that accurately measuring the foreclosure produced by any allegedly exclusionary agreement requires foreclosure to be measured relative to what would be ob-

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[128]   Courts have performed similar analyses in nearly identical factual scenarios. *See, e.g.*, Wells Real Estate, Inc. v. Greater Lowell Bd. of Realtors, 850 F.2d 803, 815 (1st Cir. 1988) (finding that the plaintiff failed to establish a rival market and that there could be no substantial foreclosure because "[t]here is no evidence that any other broker would have 'purchased' membership in any other board but for the power exerted by the lure of the defendants' MLS"); Buyer's Corner Realty, Inc. v. N. Ky. Ass'n of Realtors, 410 F. Supp. 2d 574, 581-83 (E.D. Ky. 2006) (defining zero foreclosure, discussing its implications for demonstrating substantial foreclosure in tying cases, and ultimately holding that, because plaintiffs failed to prove a rival market existed, they "ha[d] shown no foreclosure in the market for the tied product, and their tying claim should thus be dismissed"); *see also* 9 AREEDA & HOVENKAMP, *supra* note 48, ¶ 1723b-1723c (discussing several cases finding zero foreclosure).

[129]   450 F.3d 312 (7th Cir. 2006).

[130]   *Id.* at 318.

[131]   *Id.* at 316.

[132]   *Id.* at 318.

[133]   *Id.*

[134]   *See* Klein, *supra* note 20, at 122; *see also* Krattenmaker & Salop, *supra* note 3, at 234.

[135]   Klein, *supra* note 20, at 122, 125.

tained but for that agreement. Krattenmaker and Salop make precisely this point in their seminal article, defining a "net foreclosure rate" as "the percentage of the suppliers' capacity that was available to rivals before the exclusionary rights agreement was adopted but that is no longer available as a result of the agreement."[136] While courts and agencies have updated their thinking concerning the economics of exclusion as a matter of theory, rejecting discredited foreclosure theories in favor of RRC,[137] little attention has been paid to the analytical gap between RRC theory and the dominant method of measuring foreclosure and its discredited intellectual heritage.

What is the optimal legal standard for addressing foreclosure-related exclusion claims? The goal of this Article is to begin formulating the answer. This Part begins with the presumption that the optimal legal standard is the one that minimizes the sum of error and administrative costs of application[138] and proceeds to highlight some alternative approaches and to discuss the benefits of using but-for foreclosure ("BFF").

Although courts have occasionally taken a nuanced approach to calculating foreclosure in exclusion cases, attempting to isolate the impact of the allegedly exclusionary contracts from other factors, the vast majority have adopted what this Article has described as the naïve approach.[139] The naïve approach has some benefits. It is potentially an easily administrable, relatively low-cost filter for identifying exclusion claims unlikely to raise competitive concerns. Courts generally sustain exclusionary agreements foreclosing less than 40 percent of the market. There is at least some tenable connection between the naïve foreclosure rate and MES. It is fairly safe to assume that the foreclosure necessary to create an anticompetitive effect is substantially greater than 40 percent, which would leave at least 60 percent of distribution available to rivals.[140] Thus, it may be the case that a 40-percent safe harbor, applying the naïve rate, is a rough indicator that anticompetitive effects are unlikely.[141]

The primary drawback to this approach is that it creates only a narrow potential for establishing a safe harbor linked to the likely competitive ef-

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[136]   Krattenmaker & Salop, *supra* note 3, at 259.

[137]   *See id.* at 231-38.

[138]   This is commonly referred to as the "error-cost" approach to antitrust. *See, e.g.*, C. Frederick Beckner III & Steven C. Salop, *Decision Theory and Antitrust Rules*, 67 ANTITRUST L.J. 41, 45 (1999); Frank H. Easterbrook, *The Limits of Antitrust*, 63 TEX. L. REV. 1, 16 (1984); Keith N. Hylton & Michael Salinger, *Tying Law and Policy: A Decision-Theoretic Approach*, 69 ANTITRUST L.J. 469, 502-03 (2001); Geoffrey A. Manne & Joshua D. Wright, *Innovation and the Limits of Antitrust*, 6 J. COMPETITION L. & ECON. 153, 159 (2010).

[139]   *See supra* Part II.A.

[140]   Sixty percent is a lower bound because rival firms may well be able to compete for distribution with input suppliers already under contract with the defendant. This is especially likely to be the case with short-term contracts. *See* Joshua D. Wright, *Antitrust Law and Competition for Distribution*, 23 YALE J. ON REG. 169, 197-98 (2006).

[141]   *See* Klein, *supra* note 20, at 126; Wright, *supra* note 140, at 197.

fects of the arrangement. The lack of counterfactual analysis weakens the link between the naïve foreclosure rate and theories of competitive harm, and accordingly detaches the safe harbor from competitive implications.[142] Specifically, the naïve approach will systematically generate high foreclosure rates and increase the probability of liability when the defendant enjoys broad product distribution and adopts vertical restraints—even when these restraints cannot plausibly generate antitrust injury. The naïve rate leaves no possibility of assessing the actual impact of the restraint upon market foreclosure. Of course, this drawback would be little problem if the courts were not reliant upon foreclosure analysis in deciding exclusion claims. For example, Jonathan Jacobson argues that modern courts focus primarily on whether the allegedly exclusionary contracts create market power, rather than focusing on foreclosure.[143] As a matter of economics, however, substantial foreclosure is a necessary condition for the creation or acquisition of market power and thus remains the primary potential filter—at least if such a filter is to be grounded in economic theory—for identifying potentially anticompetitive exclusionary distribution contracts from those raising no competitive concerns.[144]

Antitrust scholars have raised several possible alternatives to the naïve foreclosure approach, many explicitly recognizing its shortcomings. Professor Einer Elhauge defends the application of the "cumulative foreclosure" approach,[145] which is related to the naïve method adopted by most modern courts and endorsed by some courts in older exclusive dealing decisions. The cumulative foreclosure approach sums up the total share of distribution covered by allegedly exclusionary arrangements entered into by *any* firm, and not just the defendant.[146] Elhauge argues that this approach is appropriate where there are a few "large" firms but not when there are many small firms.[147] In the former case, cumulative foreclosure would require all firms' shares of distribution under the allegedly problematic agreements to be aggregated for the purpose of assessing the competitive effects of the defendants' allegedly exclusionary agreements.[148]

The cumulative foreclosure approach shares all of the basic flaws of the naïve method, but it is even further detached from the RRC paradigm and less administrable. Most importantly, the cumulative foreclosure approach is in significant tension with the RRC paradigm. In fact, the cumulative approach would systematically find substantial foreclosure in cases

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[142]   *See* Crane & Miralles, *supra* note 20, at 607-09.

[143]   Jacobson, *supra* note 9, at 312. Substantial foreclosure is a necessary condition for the creation of market power. Klein, *supra* note 20, at 122, 125.

[144]   Klein, *supra* note 20, at 122, 125.

[145]   *See* Einer Elhauge, *Tying, Bundled Discounts, and the Death of the Single Monopoly Profit Theory*, 123 HARV. L. REV. 397, 475-77 (2009).

[146]   *Id.* at 475.

[147]   *Id.* at 477.

[148]   *Id.* at 475.

with several firms large enough to operate at MES. The test is not administrable and is thus likely to lead to substantial error in application. For example, Elhauge asserts cumulative foreclosure is triggered by the presence of "large" firms because exclusive dealing arrangements adopted by many small firms signal such agreements "must be motivated by efficiencies."[149] Application of the cumulative foreclosure approach would turn upon an analysis of whether the number of firms is sufficient to "secure competition under the merger guidelines"[150] and thus nests merger review into the conventional foreclosure analysis. Using the tools of modern merger analysis, this leaves little hope for a foreclosure test serving as a low-cost filter. In any event, the relevant question for inferring efficiencies from contractual arrangements is not the number of firms but whether firms without market power adopt the business practice. Elhauge's proposed definition of "large" fares no better in terms of ease of administration. He defines "large" as "above [MES]"[151] and thus places the burden upon courts and agencies to actually estimate MES, which will vary by industry and is a challenge in its own right, in each exclusion case.[152] In sum, the cumulative foreclosure approach not only fails to include a counterfactual aimed at isolating the impact of the agreements at issue, but it also holds the defendant accountable for agreements entered into by *other* firms (despite the fact that other firms' adoption of the agreements render the defendant's actions more likely to be efficient),[153] and is neither administrable nor sufficiently linked to

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[149] *Id.* at 477.

[150] *Id.*

[151] Elhauge, *supra* note 145, at 477.

[152] Crane and Miralles recognize some of the limits of the cumulative foreclosure approach above, *supra* note 20, at 643-44, but would allow its application in certain instances. *Id.* at 644 ("In such cases, the baseline principle of substantiality—that foreclosure should not be deemed substantial if the minimum viable scale is less than the units or revenues in the nonforeclosed segment of the market divided by the number of firms in the market—should continue to apply.").

[153] The cumulative foreclosure approach does appear in a number of older exclusive dealing cases. *See* Elhauge, *supra* note 145, at 475-77. This is not a persuasive economic defense of the cumulative foreclosure standard. There are a number of Supreme Court antitrust opinions upon which most courts, agencies, and practitioners refuse to rely despite the cases' continuing technical viability. *See, e.g.*, Fortner Enters., Inc. v. U.S. Steel Corp., 394 U.S. 495 (1969); Utah Pie Co. v. Cont'l Baking Co., 386 U.S. 685 (1967); United States v. Sealy, Inc., 388 U.S. 350 (1967); FTC v. Procter & Gamble Co., 386 U.S. 568 (1967); United States v. Von's Grocery Co., 384 U.S. 270 (1966); *see also* BORK, *supra* note 24, at 210 ("The connoisseur of bad antitrust opinions must take into account *Fortner Enterprises I*, *Utah Pie*, *Sealy*, . . . *Procter & Gamble*, *Von's Grocery*, and many others" (internal footnotes omitted)); Josh Wright, *What is the Worst Antitrust Decision That is Good Law?*, TRUTH ON THE MARKET (July 22, 2008), http://truthonthemarket.com/2008/07/22/what-is-the-worst-antitrust-decision-that-is-good-law (last visited July 1, 2012) ("[S]ome of the classic 'infamous' antitrust cases are still good law. Bad cases are left to die a slower death, whittled away indirectly by subsequent cases over time. . . . [N]early all pre-1980 rulings could not 'be taken at face value' though 'none have been expressly overruled.' Examples are not hard to find.").

the modern economics of exclusion to provide a reliable guide to identifying potentially anticompetitive exclusionary agreements.

Professor Daniel Crane and Graciela Miralles have proposed an alternative approach that more closely comports with the RRC paradigm.[154] Crane and Miralles recognize that a relevant economic question in assessing the competitive consequences of exclusionary agreements is whether the nonforeclosed portion of the market leaves a sufficient share of distribution for rivals to achieve MES.[155] Thus, Crane and Miralles "propose a 'reasonable survival opportunity' test for substantiality."[156] The test proceeds in two steps: (1) "identify the minimum viable scale necessary to compete in the market,"[157] and (2) determine "the probability that an equally efficient competitor" can secure enough business to meet minimum viable scale ("MVS").[158] The potential advantage of the reasonable survival opportunity test is its direct link to the modern foreclosure theories. Its largest disadvantage is administrability at both steps of the analysis. First, the test would require courts and agencies to calculate MVS in each case.[159] While the authors do not offer specific proposals for how courts and agencies would go about this measurement, they allude to the calculation of MVS in merger analysis.[160] Indeed, MVS is difficult to measure as a practical matter; it requires gathering information related both to the industry at large and to an individual firm's operating costs which are notoriously problematic to calculate—and is simply too costly an analysis to conduct as an initial filter.[161] Further, the test's second step assigns probabilities to the likelihood that "an equally efficient competitor in head-to-head competition with the defendant or other rivals in the market would secure a sufficient amount of business in the contestable (nonforeclosed) portion of the market to meet its minimum viable scale."[162] This Article is skeptical this second prong can be applied to

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[154]	See Crane & Miralles, supra note 20, at 607-09.

[155]	Id. at 607-08.

[156]	Id. at 639.

[157]	Id. at 639-40.

[158]	Id. at 641.

[159]	Crane and Miralles would trigger substantiality where the nonforeclosed distribution is insufficient to allow a rival to achieve "minimum viable scale" rather than MES. Id. at 639.

[160]	Crane & Miralles, supra note 20, at 640 n.137 (discussing application of MVS and MES concepts in the United States and Europe, respectively).

[161]	The difficulties of calculating such factors are exemplified by the rigorous debate over the proper measurement of "below cost" pricing in predatory pricing analysis. Not only can marginal and average variable costs prove difficult to measure, but the potential for improperly calculating operating costs looms large in cases involving multiproduct sellers and potential cross-subsidization. See, e.g., 3A AREEDA & HOVENKAMP, supra note 48, ¶¶ 739-742 (discussing the benefits and drawbacks of below cost measurements based upon marginal, average variable, and average total costs, as well as the complications of long-term strategies, multiple products, differential returns, and subsidies).

[162]	Crane & Miralles, supra note 20, at 641. Crane and Miralles propose an example in which the defendant has exclusive contracts foreclosing 60 percent of the market, and MVS is 10 percent. Id. While the 40-percent share of distribution assets remaining available is sufficient for a rival to achieve

accurately predict, with an acceptable margin of error, the probability a potential entrant will succeed in head-to-head competition. The difficulties in this analysis are exacerbated by the fact that, as Crane and Miralles acknowledge, such an analysis requires assumptions about incumbency advantages that may diminish or strengthen over time.[163] Thus, while Crane and Miralles's proposal is economically sound, its lack of administrability is a significant weakness relative to the naïve approach.

The most desirable features of a "substantiality" test for assessing foreclosure are that the test is easily administrable and linked to the modern economics of exclusion such that it is capable of identifying potentially problematic exclusive arrangements.[164] The BFF analysis this Article proposes represents an improvement over the naïve method of measuring foreclosure on both of these dimensions. The BFF test incorporates a "counterfactual" approach to assessing foreclosure that isolates the true competitive impact of the allegedly exclusionary agreement from other factors. Thus, the BFF rate is defined as the difference between the percentage share of distribution foreclosed by the allegedly exclusionary agreements or conduct and the share of distribution in the absence of such an agreement. There are several advantages to this approach. In addition to isolating the competitive effects of the agreement from other factors,[165] the test is administrable. Indeed, as discussed above, courts can and have adopted the approach.[166] It is often the case that firms experiment with such contractual arrangements; variation in the use of the agreements over time or across markets allows their impacts to be identified. Counterfactual analysis as required by the BFF test is standard fare for economists and commonplace in a variety of antitrust settings ranging from merger simulation and damages measurement to the application of standard causation principles.[167] Furthermore, the

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MVS, foreclosure would still be deemed substantial if the plaintiff had a 25-percent chance of prevailing in head-to-head competition with the monopolist in the contestable portion of the market. *Id.* at 641-42. In that case, the plaintiff could be expected to earn access to 10 percent of the remaining distribution. *Id.* Thus, in this example, foreclosure would be substantial under the reasonable survival opportunity test if the plaintiff's probability of prevailing is less than 25 percent. *See id.*

[163] *Id.* at 642.

[164] It bears repeating that the focus of any foreclosure test is to identify a prima facie burden that, if satisfied, would shift the burden of persuasion to the defendant to demonstrate efficiencies or other affirmative defenses.

[165] The shift toward more precise measurement of effects rather than reliance upon rough proxies is also consistent with broader trends in antitrust analysis, as represented by the recent 2010 Horizontal Merger Guidelines' movement away from market shares for the purpose of inferring likely competitive effects. U.S. DEP'T OF JUSTICE & FED. TRADE COMM'N, HORIZONTAL MERGER GUIDELINES § 5.2 (2010).

[166] *See supra* Part II.B.

[167] *See, e.g.*, Alan Devlin, *Improving Patent Notice and Remedies: A Critique of the FTC's 2011 Report*, 18 MICH. TELECOMM. & TECH. L. REV. 539, 560 (2012) ("[T]he counterfactual nature of computing damages leads many judges who are not versed in economic theory astray."); Tomaso Duso et al., *Is the Event Study Methodology Useful for Merger Analysis? A Comparison of Stock Market and*

approach is consistent with the economics of RRC, under which measurement of competitive harm involves comparison of the prevailing foreclosure rate to the counterfactual.[168]

Counterfactual foreclosure analysis would be most likely to have an impact in cases involving firms with large market shares and broad product distribution. For example, a vertical restraint in such a case might induce retailers to provide additional promotional services. Consider the case when a monopolist's share of retail shelf space and sales for products in the relevant market is 50 percent. The monopolist then enters into exclusive dealing arrangements with half of retailers, aligning the incentives of the manufacturers and retailers and inducing the latter to supply services that generate a 5-percent increase in demand for the manufacturers' product at those retailers' stores. If the increased demand induces retailers to increase the shelf space devoted to the product, the manufacturer's overall share of shelf space (and sales) will increase. Under BFF analysis, the foreclosure rate is 5 percent, reflecting the fact that the true impact of the allegedly exclusionary agreement is to render an additional 5 percent of the market potentially foreclosed from rivals. The naïve method, however, implies a foreclosure rate of 55 percent, concludes foreclosure is substantial, and finds the agreement likely to violate the relevant antitrust laws.

The primary advantage of the BFF approach is that the introduction of counterfactual analysis allows more accurate measurement of the actual impact of the allegedly exclusionary agreement upon the competitive process by netting out from a foreclosure assessment factors that lead retailers to dedicate distribution assets to the manufacturer's product having nothing to do with that agreement. The antitrust laws are not designed to micromanage general competitive conditions not attributable to the defendant, nor to hold against the successful firm the competitive virtues that enabled it to achieve broad distribution for unequivocally lawful reasons. The naïve approach violates both of these principles.

In the next Part, this Article considers a modern application involving allegations of foreclosure in order to highlight some differences between the naïve and BFF approaches.

Accounting Data, 30 INT'L REV. L. & ECON. 186, 188 (2010) (using counterfactual analysis "to predict a merger's ex-post profit effects"). *See generally* Michael A. Carrier, *A Tort-Based Causation Framework for Antitrust Analysis*, 77 ANTITRUST L.J. 991 (2011) (discussing counterfactual analysis as applied to causation in antitrust law).

[168]   *See* Krattenmaker & Salop, *supra* note 3, at 259.

III. MEASURING NET FORECLOSURE IN THE SEARCH ENGINE MARKET

A. *Foreclosure Claims Against Google Related to Search Bias*

Much of the contemporary foreclosure debate focuses heavily upon the methods search engines use to identify and rank relevant results for users.[169] These allegations illustrate the pitfalls attributable to naïve foreclosure and provide a useful opportunity to examine how BFF analysis would more accurately capture the competitive implications of conduct underlying foreclosure claims. Search engine critics seek to condemn search engine behavior by arguing that a search engine's ranking of its own (or affiliated) content constitutes harmful "biasing" of search results.[170] This behavior is often referred to as "search engine bias," or as "own-content bias," and critics proffer its presence alone is prima facie evidence of malign behavior that forecloses rivals and renders the relevant market less competitive.[171] In other words, because a search engine places its own content in a position that rivals could otherwise occupy—allegedly giving its own content this placement based upon its relationship to the content and not upon the content's merits—critics contend that rivals have been foreclosed from competing for that position.[172] Search bias thus serves as a rough proxy for anticompetitive foreclosure in these arguments.

Google is at the center of the debate over own-content bias. Given its purported dominance in the search engine field,[173] Google is routinely criticized for its conduct.[174] Indeed, allegations of Google's own-content bias

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[169] *See generally* Geoffrey A. Manne & Joshua D. Wright, *If Search Neutrality is the Answer, What's the Question?*, 2012 COLUM. BUS. L. REV. 151 (2012) (discussing the "legal and policy frenzy" surrounding Google).

[170] Eric Goldman, *Search Engine Bias and the Demise of Search Engine Utopianism*, 8 YALE J.L. & TECH. 188, 189 (2006).

[171] *See, e.g.*, Martin Cowen, *Expedia Boss Warns Google/ITA Over Bias*, TRAVOLUTION (July 30, 2010, 10:29 AM), http://www.travolution.co.uk/articles/2010/07/30/3795/expedia-boss-warns-googleita-over-bias.html.

[172] *Can Search Discrimination by a Monopolist Violate U.S. Antitrust Laws?*, FAIRSEARCH 1, http://www.fairsearch.org/wp-content/uploads/2011/07/Can-Search-Discrimination-by-a-Monopolist-Violate-U.S.-Antitrust-Laws1.pdf (last visited July 1, 2012) ("Given Google's monopoly grip on search and search advertising, Google's customers and competitors increasingly worry that Google has both the incentive and ability to manipulate its search results in ways that steer users to its own (possibly inferior) services and away from competitors—and thus deprive these competitors of the customers they need to survive.").

[173] Critics point to the fact that Google receives a high percentage of search queries as evidence of its alleged dominance. *See, e.g.*, Benjamin Edelman & Benjamin Lockwood, *Measuring Bias in "Organic" Web Search* (Jan. 19, 2011), http://www.benedelman.org/searchbias.

[174] *See, e.g.*, Thomas Catan & Amir Efrati, *Feds to Launch Probe of Google*, WALL ST. J., June 24, 2011, at A1 (noting that Expedia, TripAdvisor, WebMD.com, and Yelp.com have all criticized Google for precisely these reasons); Amir Efrati, *Rivals Say Google Plays Favorites*, WALL ST. J., Dec. 13,

have become so pervasive that the U.S. Senate recently held a hearing on "The Power of Google," during which speakers discussed the presence and effects of own-content bias.[175] Critics at this hearing were particularly outspoken in their dismay, claiming that Google "cook[s]" its algorithm,[176] "rig[ging] its results, biasing in favor of [itself]."[177]

  Yet, as discussed below, much of this debate falls victim to the naïve conception of foreclosure. Moreover, despite the intensity with which critics decry own-content biasing, these allegations standing alone simply do not speak to the competitive effects of the underlying behavior. A search engine's decision to favor its own content is comparable to decisions commonly made by vertically integrated firms, and the consumer welfare effects of this behavior are facially innocuous—while it is generally conceded to be welfare enhancing (or neutral), theories do recognize the potential for welfare-reducing outcomes.[178] The inability of own-content "bias" to accurately identify negative competitive effects is therefore an important limitation upon its usefulness as an antitrust concept and is one compelling reason

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2010, at B1; Steve Lohr, *Antitrust Cry from Microsoft*, N.Y. TIMES, Mar. 31, 2011, at B1; Adam Raff, *Search, But You May Not Find*, N.Y. TIMES, Dec. 28, 2009, at A27; James Temple, *Google Slants Results in Its Favor; Bias in the Eye of the Beholder*, S.F. CHRON. (Mar. 21, 2011), at D3; *Foundem´s Google Story*, SEARCHNEUTRALITY.ORG, http://www.searchneutrality.org/foundem-google-story (last updated Feb. 2010); David Goldman, *DOJ's Microsoft Prosecutor: Google is a Monopoly*, CNN MONEY (Mar. 31, 2011, 7:28 PM), http://money.cnn.com/2011/03/31/technology/microsoft_google_antitrust_case/index.htm; *Making the Case for Search Neutrality*, SEARCHNEUTRALITY.ORG (Oct. 11, 2009), http://www.searchneutrality.org/search-neutrality; Greg Sterling, *EU Antitrust Complaints Against Google Grow to Nine*, SEARCH ENGINE LAND (Aug. 2, 2011, 7:44 PM), http://search engineland.com/eu-antitrust-complaints-against-google-grow-to-nine-87915.

  [175] *The Power of Google: Serving Consumers or Threatening Competition?: Hearing Before the Subcomm. on Antitrust, Competition Policy & Consumer Rights of the S. Comm. on the Judiciary*, 112th Cong. (2011).

  [176] *Id.* at 12 (statement of Sen. Michael S. Lee, Member, Subcomm. on Antitrust, Competition Policy, and Consumer Rights).

  [177] *Id.* at 35 (statement of Jeff Katz, Chief Executive Officer, Nextag, Inc.).

  [178] *See* Manne & Wright, *supra* note 169, at 171-72 (explaining how own-content bias is comparable to traditional decisions by vertically integrated firms to prefer their own products). For discussions of the economic theories and empirical evidence related to vertical integration, see generally Cooper et al., *supra* note 33 (finding that vertical integration is generally procompetitive based on the empirical literature); Klein & Wright, *supra* note 33 (providing a procompetitive business justification for a type of vertical integration known as slotting contracts); Francine Lafontaine & Margaret Slade, *Vertical Integration and Firm Boundaries: The Evidence*, 45 J. ECON. LIT. 629 (2007) (finding that vertical integration often leads to efficiency and ultimately benefits consumers); Michael H. Riordan & Steven C. Salop, *Evaluating Vertical Mergers: A Post-Chicago Approach*, 63 ANTITRUST L.J. 513, 564 (1995) (concluding that "while vertical mergers often lead to efficiency benefits, they also can lead to competitive concerns" such as "anticompetitive foreclosure, exchange of information, and evasion of regulation"); Josh Wright, *Sacrificing Consumer Welfare in the Search Bias Debate*, TRUTH ON THE MARKET (Apr. 22, 2011), http://truthonthemarket.com/2011/04/22/sacrificing-consumer-welfare-in-the-search-bias-debate (finding that while some vertical arrangements may result in anticompetitive behavior, there are a "plethora of pro-competitive explanations").

to employ the net foreclosure measurement when evaluating search engine conduct. Search engines compete in a highly dynamic and competitive environment, within which product differentiation is necessary to survival. Search engines, then, can be expected to offer different products and to return different results in different manners. For example, Google might respond to a search for "maps" by offering an actual Google map as its first result, while another search engine might provide a link to MapQuest or another map provider.

Accordingly, the heart of the exercise is to distinguish between own-content results that negatively impact consumers by actually foreclosing more or equally efficient rivals from those that consumers perceive as beneficial—that is, to separate conduct consistent with anticompetitive foreclosure from that reflecting natural and anticipated competitive differentiation. This is precisely the analysis that the BFF approach endeavors to conduct. While making the counterfactual adjustment is not the end of the analysis, it allows the evaluator to get one step closer to discerning the true competitive effects of own-content bias than the naïve approach does alone.

Bias allegations as typically formulated, however, do not make this adjustment. And without accounting for the counterfactual, foreclosure measurements prove to be particularly blunt tools that sweep both procompetitive and anticompetitive behavior into the same category of "harmful" conduct. This Article now evaluates the specific problems with the naïve approach to foreclosure in the search engine context and begins to construct a tentative measure of net foreclosure.

B.   *Naïve Measures of Search Engine Foreclosure*

Empirical attempts to measure own-content bias—or foreclosure—in the search engine context remain quite rare, and much of the work that has been conducted reflects the naïve approach to foreclosure.[179] Under this approach, each time a search engine ranks its own content, that ranking is counted toward the total foreclosure percentage regardless of whether rival search engines have similarly ranked that same result.[180] For instance, if Google returns a link to YouTube in response to the query "video," this reference would be deemed an instance of foreclosure even if Yahoo!, Bing, or any other—or even every other—search engine also ranks YouTube in its first results position.

Despite its serious limitations, critics consistently make naïve foreclosure allegations and—even more problematically—cursory attempts at em-

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[179]   *See, e.g.*, Raff, *supra* note 174 (arguing that Google ranks its own services before others as preferential treatment).

[180]   *Background to EU Formal Investigation*, SEARCHNEUTRALITY.ORG (Nov. 30, 2010), http://www.searchneutrality.org/foundem-google-story/eu-launches-formal-investigation.

pirical investigation to support these allegations. Adam Raff of Foundem, a vertical search engine and price comparison website, for instance, proffers that "Google exploits its control through preferential placement . . . promoting its own services at or near the top of its search results, bypassing the algorithms it uses to rank the services of others."[181] Yet he does not discuss at all how other search engines treat these Google services. Replicating this shortcoming, Foundem seeks to support these allegations with purported evidence of own-content bias; it conducts searches on Google for a wide range of "product- and price-comparison related" search queries and finds that "Google Products" tends to receive very high placement on the results page.[182]

Figure 1: Google Product Search Rank Data[183]
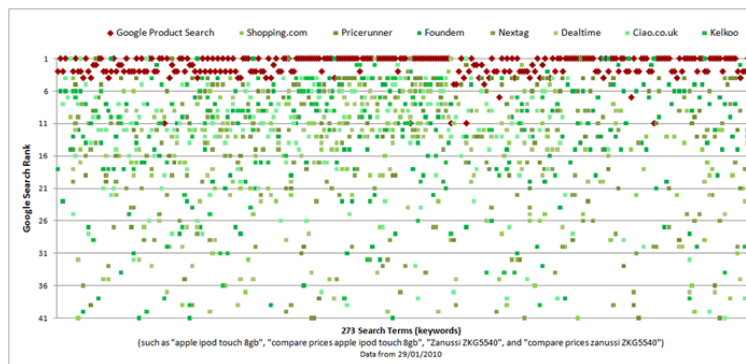
While this result is perhaps interesting, it reflects a quintessentially naïve method of measuring foreclosure. Foundem does not endeavor to construct a counterfactual; rather, it looks only to how Google itself treats its own content, never considering how other search engines treat this same content.[184] Similarly, Fairsearch, a conglomeration of Google's rivals, proffers that "Google forecloses competition by manipulating search results . . . to afford preferential placement to its own services and depress the rankings of competitors."[185] Yet again, these allegations rely upon the naked assertion that Google references its own content to demonstrate rivals are anticompetitively excluded from competing; no attempt at demonstrating divergences between Google's and rival's search results is made.

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181   Raff, *supra* note 174.

182   *Background to EU Formal Investigation*, *supra* note 180.

183   *Id.*

184   *See* Raff, *supra* note 174; *Background to EU Formal Investigation*, *supra* note 180.

185   *Can Search Discrimination by a Monopolist Violate U.S. Antitrust Laws?*, *supra* note 172.

These claims tend to mirror what little empirical work exists attempting to measure own-content bias. Fairsearch, in fact, relies upon a study by Professor Benjamin Edelman and Benjamin Lockwood, which purports to measure bias in organic searches.[186] Edelman and Lockwood hand select thirty-two search queries reflecting services search engines often provide themselves (such as "maps" and "email") and run searches on Google, Yahoo!, Bing, Ask, and AOL; they record and analyze the first page of organic results for each query.[187] In their analysis, Edelman and Lockwood primarily focus upon the number of times each search engine returns its own products in its first results page.[188] While their analysis seems heavily influenced by a naïve conception of foreclosure,[189] Edelman and Lockwood do make modest first steps toward capturing the true rate of foreclosure. For a few results, they point out the number of instances in which both the search engine under scrutiny references its own products and one or more of the other search engines reference that same product.[190] However, they fail to address the significance of these similar rankings[191]—that is, that similar rankings suggest the owner search engine has not biased its results. Additionally, they conduct regression analysis to determine whether running a search on Google (or Bing) significantly increases the odds of returning Google (or Microsoft) products on the first results page.[192] They find very few statistically significant results from this analysis, but again do not emphasize the importance of this finding.[193] Accordingly, search engine critics relying upon Edelman and Lockwood's results tend to pick out the data reflecting naïve foreclosure measurements.[194]

Given the tendency of critics to formulate allegations against search engines based upon naïve conceptions of foreclosure, a significant gap in the discussion exists—especially with respect to empirical evidence. Problematically, this gap allows for conflation of cause and effect in search bias allegations. A search engine may rank its own content highly not because it

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[186]   *Id.*; *see also* Edelman & Lockwood, *supra* note 173.

[187]   Edelman & Lockwood, *supra* note 173.

[188]   *Id.*

[189]   They note, for instance, "it is hard to see why results would vary . . . across search engines" and claim both Yahoo! and Google favor their own email services by ranking them first in response to queries for "mail" and "email." *Id.* However, Edelman and Lockwood do not explicitly acknowledge the fact that Bing also ranks Yahoo!'s email service first in response to both queries. *See id.*

[190]   *Id.*

[191]   *See id.*

[192]   *Id.*

[193]   Edelman & Lockwood, *supra* note 173 (calculating, for example, that Google has a regression ratio of 1.3 for first page results when a ratio of 1 indicates the absence of any bias).

[194]   Fairsearch, for example, cites Edelman and Lockwood in claiming "[r]esearch has also demonstrated that Google often places its own sites or services at or very near the top of Google's organic search results for a large number of common search terms, without any apparent relationship to the quality of these Google sites as compared to competing sites." *Can Search Discrimination by a Monopolist Violate U.S. Antitrust Laws?*, *supra* note 172.

is attempting to forestall rival competition, but because that content is high-ly efficient at satisfying user preferences.[195] Naïve methods of measuring foreclosure do not account for this possibility and thus tend to overstate the extent to which rivals are excluded.

C.   *But-For Foreclosure in Search Engines*

The BFF measure of foreclosure in the search engine context discounts instances of own-content inclusion, subtracting those in which rivals similarly rank their own content from those in which the owner search engine alone references its own content. This subtraction is necessary to avoid overestimating the presence of foreclosure. If rival engines similarly rank own content, that similarity indicates the result is in fact highly relevant and desirable to consumers. More importantly, it reflects the reality that rivals have not been anticompetitively foreclosed from that position—whether or not the owner search engine were favoring its own content, rivals would not receive a higher ranking. Thus, in stark contrast to the assertions Google critics make (detailed above), a simple finding that Google ranks its own service highly, without more, has no implications for a proper foreclosure analysis. If other engines similarly rank Google content, then rivals have not been unduly harmed by Google, but simply have fallen short *on the merits*.

In an effort to discern a preliminary estimate of net foreclosure, this Part discusses a study this Author previously conducted of Edelman and Lockwood's thirty-two search queries.[196] This Author ran searches for each query on Google, Bing, and Blekko, and "record[ed] each organic result on the first page (up to twelve) as well as whether the result refer[red] to Microsoft- or Google-affiliated sites or content."[197] This technique allows for examination of how often Google ranks its own content when other search engines do not similarly rank that content;[198] in other words, it permits for

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[195]   Manne & Wright, *supra* note 169, at 175-77.

[196]   For the full discussion of the methodology, results, and analysis, see Wright, *supra* note 18, at 19-46. In addition to replicating and expanding Edelman and Lockwood's study, the Author conducts a large sample of a thousand random search queries to further develop an understanding of own-content bias. *Id.* at 21. This Article restricts its discussion to the results of the analysis of Edelman and Lock-wood's thirty-two queries because these represent terms for which own-content bias is predicted to be most prevalent; that is, Google purportedly biases its results most obviously and most harmfully to consumers in response to these and similar queries. *Id.* at 14. Thus, it is particularly useful to draw the distinction between naïve and net foreclosure in this context.

[197]   *Id.* at 19-20.

[198]   The full study analyzes both instances in which a search engine ranks its own content highly while other engines do not similarly rank that same content (e.g., Google places YouTube in its first results position, but other search engines rank YouTube lower on the page) and those in which a search engine references its own content in any position while other engines do not reference that content at all

construction of a counterfactual scenario free of the alleged anticompetitive search bias.[199]

The data underscore the importance of accounting for the counterfactual. Additionally, they reveal three important findings: (1) for an overwhelming percentage of queries, Google does not reference its own products at all; (2) when Google does reference its own content, other search engines are likely to reference that same content; and (3) both Bing and Google reference their own content at comparable rates.[200] Note first that these results indicate a very low foreclosure level, even under the naïve measurement. For 85 percent of queries, Google does not reference its own content in the first results page.[201] Accordingly, Google references its own content on the first page in approximately 15 percent of queries—this percentage represents a naïve foreclosure calculation.[202]

But, as this Article has stressed throughout, the naïve approach to foreclosure can misleadingly overestimate the impact of a particular business practice by failing to isolate its effects from other factors. This Article therefore controls for the counterfactual; that is, it distinguishes between queries for which both Google and rival search engines reference Google content and queries for which Google alone references Google content. It finds that Google references its own content in the first results position when other search engines do not for just 7.9 percent of queries—meaning that the foreclosure rate is approximately halved when the counterfactual adjustment is made. These results are illustrated in the following pie graph:

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on their first-page results. *Id.* at 22-24. This Article discusses the results relating to the full first page of results, as this metric provides a more comprehensive analysis of search engine conduct. Rivals may agree that Google (or Microsoft) content is relevant and include it on the first page without giving it an identical ranking; examining the whole page allows for this possibility and is thus important to developing the counterfactual. *See id.* at 22-24.

[199] Additionally, this approach offers information regarding whether ranking one's own content is common among search engines or unique to Google. Ubiquity of the practice indicates that it is likely a viable competitive strategy and not an anticompetitive effort to exclude rivals. *Id.* at 33-35.

[200] *Id.* at 23-24.

[201] *Id.*

[202] *See* Wright, *supra* note 18, at 25.

Graph 1: Search Results that List Google Content on the First Page[203]
(N = 341)
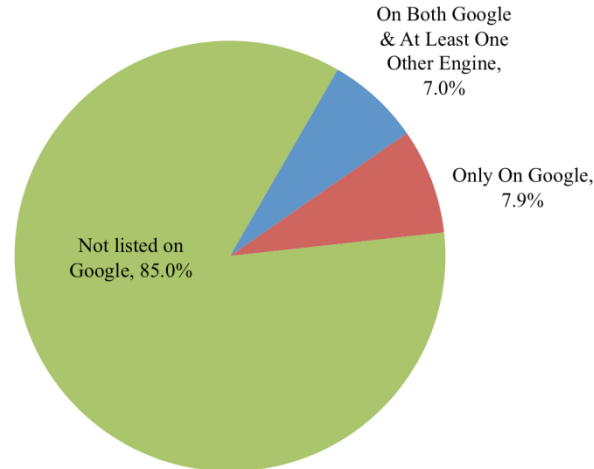
These results indicate that the popularity or desirability of Google services—and not anticompetitive motives—is driving Google's references to its own content in response to these queries. Because other search engines often agree that Google content is relevant,[204] Google does not generally preference its own content, but rather delivers content rival search engines also perceive to be relevant results.[205]

Given these findings, this Article conducts a more rigorous comparative analysis of own-content references across search engines, in a preliminary endeavor to discern whether the observed own-content bias is more consistent with anticompetitive or procompetitive theories. If search engines both with and without a significant amount of traffic reference their own content, this ubiquity suggests own-content biasing is an effective competitive strategy, not an anticompetitive attempt at exclusion. Accordingly, this Article extracts the counterfactual instances of biasing and compares those on Google to those on Bing—that is, it compares the percentage of queries for which Google references its own content without agreement from rivals to those for which Bing references Microsoft content without rival agreement.

This Article finds that rival engines are much more likely to reference Google content that Google itself references than they are to reference Mi-

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203   *Id.* at 24.
204   *Id.* at 25 ("When Google ranks its own content highly, at least one rival engine typically agrees with this ranking; for example, when Google places its own content in its Top 3 results, at least one rival agrees with this ranking in over 70% of queries.").
205   *Id.*

crosoft content that Bing references. Stated otherwise, it finds that Bing exhibits more own-content bias than Google. [206] For example, when Google refers to its own content in the first results position, at least one other search engine does so for approximately 92 percent of queries,[207] whereas when Bing references Microsoft content in its first results positions, another engine agrees with this ranking for about 20 percent of queries[208]—meaning that rivals agree that Google's own-content references in the Top 1 result over four times as often as they agree with Bing's own-content references in that position. Figure 2 presents the data just described to allow for a visual comparison of bias on each search engine.

Figure 2: Percentage of Google or Bing Search Results with Own Content Not Ranked At All by Rival Search Engines[209]
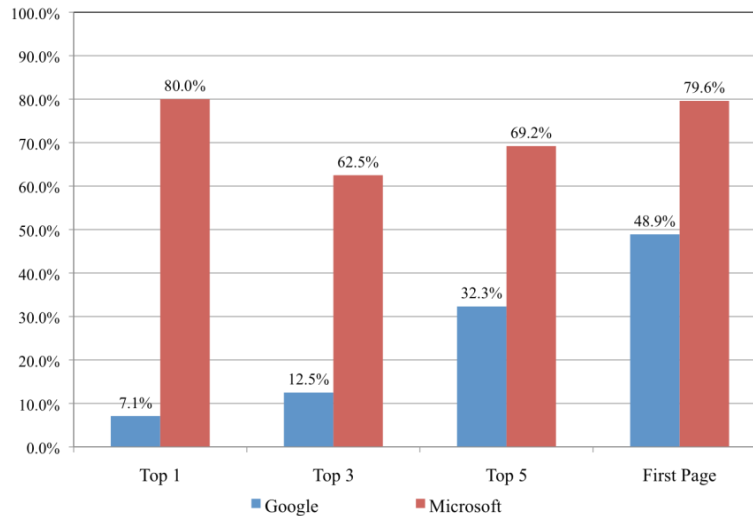
Overall, these data indicate a very low rate of true foreclosure. There are, however, several complications worth noting. First, this Article examines actual rankings and not traffic. In calculating foreclosure rates, courts generally look to the percentage of each product that consumers actually

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206   *Id.* at 27-29.
207   *Id.* at 24.
208   Wright, *supra* note 18, at 28-29.
209   *Id.* at 31.

purchase, not how much of the market that product's owner produces.[210] Search rankings therefore are only a rough proxy; merely because a search engine ranks its own content highly does not indicate that users are more likely to consume that content—in fact, a ranking does not necessarily speak to the rate of consumption at all.[211] Moreover, search rankings are notoriously short-lived—Google's critics complain their rankings are constantly changing.[212] The dynamic nature of search results, combined with the fact that users are not committed to clicking on any given search result—or even to using any given search engine—for any period of time at all, means that "competition is one click away."[213] Accordingly, even this more accurate measure of foreclosure likely overstates the extent to which rivals are in fact excluded from competing.

One final, and important, complication is that this study examines implications for users and not necessarily those for advertisers—it examines organic but not sponsored results. Advertisers are an important aspect of the foreclosure analysis, and any analysis of competitive effects, especially given that it is advertisers and not users that pay Google for inclusion. However, this complication cuts in both directions. If one conceptualizes advertisers as the relevant consumers for the purpose of antitrust analysis, alternative suppliers of advertising space, such as Facebook, are relevant sources of competition.

CONCLUSION

Antitrust analysis of exclusionary distribution arrangements has evolved to reflect an economically coherent conception of RRC concerns over the past thirty years. However, courts' and agencies' approaches to measuring foreclosure have remained virtually unchanged during the same period. The result is an uneasy equilibrium within which methods of calculating foreclosure are premised upon discredited, and largely extinct, economic notions that no longer align with the modern theories of antitrust injury they are tasked with assessing. Updating the foreclosure test to re-

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[210] *See, e.g.*, Omega Envt'l, Inc. v. Gilbarco, Inc., 217 F.3d 1157, 1162 (9th Cir. 1997) ("The foreclosed market . . . [is] the percentage of Gilbarco's total market share sold through its authorized distributors.").

[211] *See* Edelman & Lockwood, *supra* note 173 ("The strongest example for Google is the term 'email.' Gmail, the first result, receives 29% of users' clicks, while Yahoo mail, the second result, receives 54%.").

[212] *See, e.g.*, Efrati, *supra* note 174 ("TripAdvisor LLC Chief Executive Stephen Kaufer said the traffic his site gets from Google's search engine dropped by more than 10%, on a seasonally adjusted basis, since mid-October—just before Google announced the latest change to the way its search engine shows information about local businesses.").

[213] Google, *U.S. Public Policy: Competition*, GOOGLE.COM http://www.google.com/publicpolicy/issues/competition.html (last visited July 1, 2012).

flect recent economic learning is therefore desirable, as it promises a screening mechanism better able to accurately and cost-effectively identify the actual competitive effects of the conduct at issue. Further, the BFF test would bring foreclosure analysis in line with the RRC paradigm and the broader movement within antitrust toward measuring the actual market impact of contractual restraints rather than relying upon cruder and less reliable evidence of competitive effects wherever possible. A minimal and desirable step to move foreclosure analysis closer to assessing the competitive risks associated with RRC theories is to employ a measure that assesses the net impact of the restraint at issue and isolates out other factors influencing the availability of distribution to rivals. BFF analysis offers a potentially significant improvement upon the current naïve standard, given its ability to differentiate conduct with and conduct without competitive implications.