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Predatory Pricing: Limiting *Brooke Group* to Monopolies and Sound Implementation of Price-Cost Comparisons

Aaron S. Edlin

ABSTRACT. C. Scott Hemphill and Philip Weiser point out several infirmities of the *Brooke Group* predatory pricing decision, including the fact that the Supreme Court laid down the below-cost pricing and recoupment requirements without hearing either party present counterarguments to them. In light of this fact and complex market realities, they argue for flexibility in satisfying these requirements. In this Response, I go further, arguing that in monopoly cases the greatest competitive danger likely results from above-cost pricing, so the *Brooke Group* safe harbor for above-cost pricing should not have been extended to monopolies. When price-cost tests are implemented, I show that many cost measures other than average variable cost can be appropriate to demonstrate profit sacrifice.

INTRODUCTION

Twenty-five years after *Brooke Group*,[1] it is a good time to take stock of its holding. I am pleased that C. Scott Hemphill and Philip Weiser have decided to do so in a terrific Feature.[2] *Brooke Group* presented an oligopoly case among tobacco companies in which the defendant was alleged to be guilty of predatory pricing. The Court held that to find a defendant guilty of predatory pricing, a plaintiff must prove two elements: first, that the defendant priced below its

1. Brooke Grp. Ltd. v. Brown & Williamson Tobacco Corp., 509 U.S. 209 (1993).
2. C. Scott Hemphill & Philip J. Weiser, *Beyond* Brooke Group*: Bringing Reality to the Law of Predatory Pricing*, 127 YALE L.J. 2048 (2018).

own costs; and second, that it had a sufficient possibility of recovering the ensuing losses from higher prices after the predation lessened competition.

Brooke Group's reach and influence has expanded from the oligopoly setting where it originated to monopoly settings in *Weyerhaueser* and *Linkline*.[3] *Brooke Group* has also expanded its influence from core predatory pricing cases to other behavior, such as bundled discounts and price squeezes.[4]

As courts consider whether to extend the *Brooke Group* rule, and as other nations consider what constitutes predatory pricing,[5] it is worth examining the situations and interpretations for which the rule makes most sense. Hemphill and Weiser argue for flexibility in interpreting the *Brooke Group* requirements – below-cost pricing and recoupment – and against importing these requirements to cases with more complex pricing strategies, like loyalty discounts.[6] I wholeheartedly agree, but would go further.

In particular, I argue that *Brooke Group* should be pared back by restricting it to oligopoly markets and not applying it to monopoly markets. Giving a monopoly a safe harbor from monopolization claims simply because its price exceeds its cost results in allowing an incumbent monopoly with cost or quality advantages over potential rivals to charge high prices with little fear of competitor entry. The high price may not attract entry at all if potential rivals under-

3. *See* Pac. Bell Tel. Co. v. Linkline Commc'ns, Inc., 555 U.S. 438, 451-52 (2009) (finding that a price-squeeze case against a monopoly needs to show either pricing below cost or a duty to sell) (citing *Brooke Group*, 509 U.S. at 223); Weyerhaeuser Co. v. Ross-Simmons Hardwood Lumber Co., 549 U.S. 312, 315 (2007) (applying *Brooke Group* to monopoly buying, presumably implying that it applies to monopoly selling).

4. *See, e.g.*, Cascade Health Sols. v. PeaceHealth, 515 F.3d 883, 903 (9th Cir. 2008) (applying the *Brooke Group* rule to bundled discounts); *see also Linkline*, 555 U.S. at 457 (applying the *Brooke Group* rule to price squeezes).

5. For example, the law in the European Union appears not to be completely settled. In *Irish Sugar*, the European Court of First Instance held illegal the price cuts of a dominant firm deterring the entry of an importer even though prices remained above cost. Case T-228/97, Irish Sugar PLC v. Commission, 1999 E.C.R. II-2969 ¶¶ 173-193 (Ct. First Instance), aff'd on other grounds, C-497/99 P, 2001 E.C.R. I-5333 (E.C.J.). On the other hand, the European Commission has suggested a near safe harbor for above-cost pricing at least from the standpoint of its prosecutorial discretion. Communication from the Commission – Guidance on the Commission's Enforcement Priorities in Applying Article 82 of the EC Treaty to Abusive Exclusionary Conduct by Dominant Undertakings, 2009 O.J. (C 45) 7, 11, http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52009XC0224(01)&from=EN [http://perma.cc/832S-2LQQ] ("If the data clearly suggest that an equally efficient competitor can compete effectively with the pricing conduct of the dominant undertaking, the Commission will, in principle, infer that the dominant undertaking's pricing conduct is not likely to have an adverse impact on effective competition, and thus on consumers, and will therefore be unlikely to intervene.").

6. Hemphill & Weiser, *supra* note 2, at 2049-51, 2077.

stand that the monopoly can take advantage of the safe harbor to drive them from the market with prices that are above the incumbent monopoly's cost, but below its rivals' costs. Moreover, even if rivals are sometimes induced to enter, this need not worry the monopoly much if it can legally drive them from the market.

Second, I address how best to implement *Brooke Group*'s price-cost comparison when it is used. *Brooke Group* famously punted on that question by stating only that the plaintiff needed to prove that price was less than an "appropriate measure" of the defendant's cost without saying which measure is appropriate.[7] In fact, I will argue that the Court's indeterminacy was wise because there is no single appropriate measure of cost. The real point of the test is to ensure that the defendant has sacrificed profit, a necessary predicate to the second requirement of possibility of recoupment. I will outline a variety of possible price-cost tests from which the plaintiff should be able to choose, based upon data availability and context. Plaintiff choice is appropriate because satisfying any of these tests would demonstrate profit sacrifice. In this respect, I welcome Hemphill and Weiser's appeal to take a flexible approach in implementing *Brooke Group*.[8] However, while Hemphill and Weiser exclude the possibility of a plaintiff showing that the sacrifice from below-cost pricing involves loss of revenue on inframarginal units (the units sold prior to any allegedly predatory expansion), I argue in contrast that an inclusive notion of cost is appropriate and captures such lost revenues as one cost of output expansion, a position equivalent to that advanced by the Department of Justice (DOJ) in *AMR*.[9] Despite being open to a variety of price-cost comparisons in principle, the Tenth Circuit in *AMR* squarely rejected this particular comparison.[10] But the Tenth Circuit's reasoning is muddled, and I encourage other circuits to allow the plaintiffs to make any price-cost comparison which demonstrates profit sacrifice.

Part I comments on what Hemphill and Weiser call the "infirmities" of *Brooke Group*. Part II argues that the *Brooke Group* requirements (and specifically the price-less-than-cost requirement) should not apply to monopolies. Part III of the Response takes the *Brooke Group* framework as given and asks what price-cost comparisons are "appropriate"—at least in the case of monopolies.

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7. *Brooke Grp.*, 509 U.S. at 222.
8. Hemphill & Weiser, *supra* note 2, at 2056.
9. United States v. AMR Corp., 335 F.3d 1109 (10th Cir. 2003).
10. *Id.* at 1119.

I. THE INFIRMITIES OF *BROOKE GROUP*

Hemphill and Weiser identify two "infirmities" in the *Brooke Group* decision. I will add one more.[11]

First, they point out that the Court did not have the opportunity to hear and evaluate counterarguments to the requirement that plaintiff demonstrate below-cost pricing and a reasonable prospect of recoupment because the plaintiff's counsel conceded these requirements.[12] Moreover, the Court itself also did not debate the wisdom of the two requirements it created, instead choosing to focus on an unusually deep factual analysis of whether the requirements were satisfied in the case.[13] Hemphill and Weiser conclude that "[n]otably, . . . the Court accepted the price-cost and recoupment tests with little analysis."[14]

Hemphill and Weiser's second critique centers on the Court's attitude toward pricing. Foundational to the Court's adoption of the *Brooke Group* requirements is the belief that anticompetitive price cuts are rare.[15] This belief allows the Court to put low weight on the cost of failing to identify some anticompetitive predatory pricing relative to the costs of condemning legitimate price cuts. However, Hemphill and Weisner point out that this belief lacks substantial empirical support.[16]

To these two critiques, I would add that the theoretical arguments suggesting that price cuts are rarely anticompetitive are not very convincing, particularly for cases of monopolies with advantages. Consider Robert Bork's explanation of why he thought predatory pricing is rare:

> A firm contemplating predatory price warfare will perceive a series of obstacles that make the prospect of such a campaign exceedingly unattractive. The losses during the war will be proportionally higher for the predator than for the victim . . . the campaign will have to last until the

11. Hemphill & Weiser, *supra* note 2, at 2049.
12. *Id.* at 2056-57. Indeed the plaintiff's counsel, Phillip Areeda, himself had famously proposed those two requirements in a seminal article. Phillip Areeda and Donald F. Turner, *Predatory Pricing and Related Practices Under Section 2 of the Sherman Act*, 88 HARV. L. REV. 697 (1975).
13. Hemphill and Weiser, *supra* note 2, at 2058-59.
14. *Id.* at 2056.
15. Brooke Grp. Ltd. v. Brown & Williamson Tobacco Corp., 509 U.S. 209, 226 (1993) (quoting Matsushita Elec. Indus. Co. v. Zenith Radio Corp., 475 U.S. 574, 589 (1986) to the effect that "predatory pricing schemes are rarely tried, and even more rarely successful").
16. Hemphill & Weiser, *supra* note 2, at 2053.

> victim's organization and assets are dissolved; ease of entry will be symmetrical with ease of exit . . . .[17]

Bork's argument is founded on the premise that the predator will lose more than the victim. That should render the threat to continue a predatory campaign not credible, which means that the victim should wait out the predator. Anticipating this lack of success, a rational predator should not commence.

If the predator has much lower costs than the victim or other advantages, then Bork's presumption that the predator will need to suffer large losses to drive the victim from the market may not hold. In particular, if the predator is a longstanding monopoly, it is likely a monopoly exactly because it enjoys some cost or other advantage that could make Bork's argument fall apart. I would therefore argue that the infirmities uncovered by Hemphill and Weiser are particularly striking when *Brooke Group* is applied to monopolies.

II. THE PROBLEM WITH APPLYING *BROOKE GROUP* TO MONOPOLIES

The fable taught in introductory economics classes is that high prices invite entry by any firm that can beat the price. Such risk of entry disciplines firms to charge reasonable prices and is central to a well-functioning competitive marketplace.[18] In principle, even a monopoly will not charge high prices if high prices will quickly induce entry and eliminate monopoly profits. Instead, a monopoly will engage in "limit pricing," pricing low enough to limit entry. It is an appealing story and might be realistic under an appropriate legal regime, but I argue here that it is far from realistic for monopoly markets governed by the *Brooke Group* regime in the United States.

Most significantly, applying the *Brooke Group* decision to monopolies provides consumers minimal protection from monopoly pricing or exclusionary behavior. Most monopolies, particularly longstanding monopolies, have cost or other advantages over potential rivals, which are precisely why the monopoly arose or persisted. Unfortunately, under a *Brooke Group* regime, an incumbent monopoly with advantages is free to use its advantages to drive rivals from the market by charging a price above its own cost but below its rivals. For this reason, a monopoly need not price low (limit price) under *Brooke Group* to discourage entry, but can do so instead through a credible and legal threatened re-

17. ROBERT H. BORK, THE ANTITRUST PARADOX: A POLICY AT WAR WITH ITSELF 149 (1993).

18. Some of the stronger proponents of this idea are William Baumol, John Panzar, and Robert Willig. *See* WILLIAM BAUMOL ET AL., CONTESTABLE MARKETS AND THE THEORY OF INDUSTRY STRUCTURE (1988).

sponse. Such a monopoly is free to charge high monopoly prices without concern about attracting entry.

Consider a monopoly that charges $10/unit, despite its low cost of $2/unit. Will a potential rival with a cost of $5/unit enter? One might think and hope it would, as the rival could profitably charge a price of $7 and provide consumers substantial value. The problem, though, is the monopoly's response. The monopoly can undercut the $7 price and can use its cost advantage to undercut the rival's price, even if the rival sells at its $5/unit cost. In fact, the post-entry equilibrium involves the monopoly keeping the whole market by charging $4.99 per unit.

A rational rival considering entry will make the entry decision based upon the post-entry price, rather than the pre-entry price. The rival will not enter if it fears the monopoly will sell at $4.99/unit after entry. Under *Brooke Group*, however, the $4.99/unit price response is perfectly legal because it is above the incumbent monopoly's cost of $2/unit. Moreover, it is an entirely credible threat because it is actually a short-run equilibrium of the competition between the two firms after entry. As a result, the monopoly can indefinitely charge a price of $10/unit without attracting entry—at least until some firm with a cost below $2/unit comes along. Under *Brooke Group*, consumers are therefore denied the competitive benefits that the rival with a $5 cost could provide.

As illustrated above, a monopoly with cost advantages can drive a rival entrant with higher costs from the market by charging a price below the rival's cost but above the incumbent monopoly's cost. If this is legal, then higher-cost rivals will not enter, and the monopoly is free to indefinitely charge high prices until a lower-cost firm emerges.

The same argument applies if the monopoly has a quality advantage. Suppose a potential entrant and the monopoly have identical costs of $2/unit. The monopoly's product has a value of $10/unit, while the potential entrant's has a value of $9/unit. The monopoly can charge $10/unit with no fear of entry, except by irrational or ignorant entrants. If a rival enters, the monopoly neither needs to lose money to drive the rival out nor price below its cost. The monopoly can simply match any rival's price and keep all the business based upon its quality advantage. Again, this means that a monopoly with a known quality advantage does not have to worry about encouraging entry when it chooses its price, because entry will be rare and can be addressed without running afoul of *Brooke Group*.

These examples demonstrate a flaw in the traditional lens through which most courts and scholars view predatory pricing policy. They see condemnation of price cuts as an unwise gamble that sacrifices the benefits of certain low prices during the predatory period (what Stephen Breyer has called "birds in hand") for the speculative hope of lower prices later if entry is prevented ("birds in the bush").[19] But the problem with this view is that *Brooke Group*'s permissive predatory pricing policy means there may be no entry in the first place, so consumers may never enjoy the low prices that the permissive policy purports to protect. In truth, there are no birds in hand; all price cuts are speculative.

Whether predatory pricing is as rare as the Supreme Court and Chicago School assert depends entirely upon what one means by the term "predatory pricing." If predatory pricing means below-cost pricing as *Brooke Group* requires, then perhaps it is indeed rare. But if we include above-cost exclusionary pricing by a monopoly, then it is the most natural strategy imaginable, and the primary arguments that predatory pricing is rare or unsuccessful are inapplicable. If a monopoly does not need to price below its own cost to drive a rival from the market, Bork's argument for the rarity and implausibility of predatory pricing loses its starting point and its force. The monopoly is not losing more money than its rival during the predation period, and so its threat to persist is entirely credible. Given a credible threat to persist, exit by nascent competitors may be fairly swift. Moreover, one should not expect re-entry to be equally swift. Other firms considering entry will think twice given the incumbent's historical reaction to entry. No rational firm will enter again unless it thinks it has advantages over the incumbent.

This argument is not mere theoretical speculation. While I have argued previously that it was foolhardy for rivals to attack a monopoly with advantages,[20] I also felt the need to conduct a field experiment in 2004. The Social Science Research Network ("SSRN") was the dominant provider of email announcement services for online academic working paper series in the fields of economics, business, and law. SSRN charged high prices to institutes like the Berkeley Program in Law and Economics to announce their latest papers to a mailing list and make them available online. A company I co-founded, called "bepress," had the capability to produce a similar product, though ours was less valuable because we did not enjoy the network externalities that SSRN did (people wanted to post on SSRN because others used SSRN). Bepress entered and expended significant resources marketing a competing announcement product for much lower prices. Given the price difference, we quickly attracted customers, but as soon as SSRN caught wind of our competition, they began to match our price to anyone who considered switching, whatever price we

19. Barry Wright Corp. v. ITT Grinnell Corp., 724 F.2d 227 (1983) ("The antitrust laws very rarely reject such beneficial 'birds in hand' for the sake of more speculative (future low-price) 'birds in the bush.'") (Breyer, J.).

20. Aaron S. Edlin, *Stopping Above-Cost Predatory Pricing*, 111 YALE L.J. 941 (2002).

charged. Once SSRN responded to bepress's entry, we could not get business and left that market to pursue other markets without an entrenched monopolist. Our initial success demonstrated that bepress offered attractive terms to customers, especially as compared with SSRN's historic pricing. Once SSRN matched bepress's low pricing, however, bepress could no longer compete. SSRN's entirely natural response was successful given its quality advantage. The policy challenge demonstrated by this anecdote is that under *Brooke Group*, a firm with a disadvantage may not survive long in a market and the incumbent is therefore free to charge high prices both before and after entry. In this instance, buyers gained limited value because the entry was short-lived and no significant reentry occurred as of this writing.

Of course, many competition scholars would argue, like William Baumol and Einer Elhauge,[21] that inefficient firms should not be encouraged to enter an industry, and the virtue of the *Brooke Group* safe harbor for above-cost pricing is that efficient firms cannot be driven from a market when the incumbent prices above its average variable cost. However, there are several counterarguments. First, the entry of inefficient firms, or the threat that they will enter, can ensure that customers get a good deal, and consumer welfare is one of the most important goals of antitrust—indeed, according to many, the only goal. [22] Recall the fable that opened this Part: if a monopoly prices too high—say, higher than the costs of its potential rivals—then according to classroom economics, those rivals will enter. This will not work, however, under the existing *Brooke Group* safe harbor, because inefficient firms will not enter even in cases where these firms could and would offer customers a better deal than an incumbent monopoly; they will not enter because *Brooke Group* leaves the monopoly free to drive less efficient entrants from the market.

Second, for those concerned about both efficiency and consumer welfare, rivals may initially be inefficient or offer lower-quality goods, but that situation is not necessarily permanent. If the rivals offer consumers a better deal than the incumbent did prior to entry, perhaps that is a good enough reason to offer them time-limited protection of some kind and the chance to become more efficient.[23]

21. William J. Baumol, *Predation and the Logic of the Average Variable Cost Test*, 39 J.L. & ECON. 49, 58 (1996); Einer Elhauge, *Why Above-Cost Price Cuts To Drive Out Entrants Are Not Predatory—and the Implications for Defining Costs and Market Power*, 112 YALE L.J. 681, 826 (2003).

22. HERBERT HOVENKAMP, THE ANTITRUST ENTERPRISE: PRINCIPLE AND EXECUTION 2 (1995) (stating that the "only articulated goal of the antitrust laws is to benefit consumers").

23. The fact that firms become more efficient over time through learning by doing is well established, though the amount of efficiency to be gained and the time required vary by case. In a review article, Peter Thompson says there are "literally thousands of reported progress

If the Supreme Court or courts in other nations become convinced that above-cost exclusionary pricing is a problem in monopoly markets because monopolies have cost or quality advantages over likely rivals, the question remains whether anything practical can be done about it. In other words, if the above-cost safe harbor of *Brooke Group* is abandoned for monopolies, what replaces it and determines the legality of a monopoly's price cut?

Practical remedies likely begin with the observation that the problem of predatory pricing (at least from the consumer perspective) is not that prices are too low; rather, the problem is a pricing pattern in which the monopoly normally prices high and only prices low to defeat occasional entrants. In fact, the high prices, whether before the rival's entry or after its exit, and not the low prices during predation are the problem for consumers.

Possible solutions therefore impose liability based upon the dynamic pricing pattern rather than static price levels. A proposal by William Baumol, for example, would not allow the monopoly to raise price after it drove rivals out.[24] This might prolong the benefits of low prices or encourage entry by making dramatic reactionary price cuts less likely. I, myself, have argued that limiting the ability to cut price in response to entry could encourage both entry and a monopoly's pricing low in the first place to discourage entry.[25] David Gilo and Yossi Spiegel propose a variation where they argue that a price cut may not be predatory but may show that the monopoly's earlier price was excessive; they propose making excessive pricing by a monopoly illegal and measuring excessiveness and hence liability by the price drop after entry.[26] Each of these proposals has promise. A recent experiment suggests that they create more entry and consumer benefits than either the *Brooke Group* rule or than a laissez-faire policy.[27]

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curves in widely different industrial settings." Peter Thomson, *Learning by Doing*, *in* HANDBOOK OF ECONOMICS OF INNOVATION 429, 446 (Bronwyn H. Hall & Nathan Rosenberg eds. 2010).

24. William J. Baumol, *Quasi-Permanence of Price Reductions: A Policy for Prevention of Predatory Pricing*, 89 YALE L.J. 1 (1979).

25. Edlin, *Stopping Above-Cost Predatory Pricing*, *supra* note 20.

26. David Gilo & Yossi Spiegel, The Antitrust Prohibition of Excessive Pricing (Sept. 7, 2017) (unpublished manuscript) (on file with author).

27. Aaron Edlin, Catherine Roux, Armin Schmutzler & Christian Thoeni, Hunting Unicorns? Experimental Evidence on Predatory Pricing Policies (Nov. 7, 2016) (unpublished manuscript) (on file with author).

III. SACRIFICE AND THE APPROPRIATE MEASURE OF COST

Price-cost tests will always be central to predatory pricing cases. Even if the Supreme Court abandons the first requirement of *Brooke Group* for monopolies, price-cost comparisons would still be required in all oligopoly cases. Moreover, even if plaintiffs were not required to show that price is below cost, they will still find it useful evidence of predatory pricing when they are able to make such a showing.

The question is then *how* plaintiffs should prove below cost pricing, given that the *Brooke Group* Court consciously avoided defining what constitutes the appropriate measure of cost. The issue is central to cases like *AMR* that must implement *Brooke Group*, and Hemphill and Weiser are right to focus on providing courts with guidance on what measures of cost and revenue to compare with each other.

It is tempting to think that the question rests on what measure of cost is appropriate. I contend, though, that there is no single measure which should be used in all circumstances. For one thing, parties are subject to data limitations, so that one test may be possible to implement in one case, but not in another. In addition, many proposed tests are one-sided in the sense that if price is less than a particular measure of cost, this may indicate anticompetitive pricing, while if price exceeds it, no conclusion can be drawn. For these reasons, if a plaintiff fails to find evidence of sacrifice under test A, but finds persuasive evidence under test B, the plaintiff should satisfy the first requirement of *Brooke Group*. In particular, it is appropriate for the plaintiff to choose whether to show that price is less than marginal cost, average variable cost, average incremental cost, or an inclusive measure of average incremental cost that includes revenue declines on inframarginal units. This list is intended to be illustrative and not exhaustive.

The appropriateness of a given price-cost comparison depends upon the rationale for comparing price with cost. Two main rationales have been proposed. One is the equally efficient competitor rationale; under this rationale, only prices below a predator's cost are problematic because only such prices can exclude an equally efficient competitor.[28] This rationale, however, is divorced from consumer welfare and does nothing to recognize the benefits to competition that less efficient competitors can create.

The other rationale for comparing price with cost is to identify profit sacrifice. Judge Bork, for example, wrote that "predation involves aggression against business rivals through the use of business practices that would not be

28. Baumol, *Predation and the Logic of the Average Variable Cost Test*, *supra* note 21.

considered profit maximizing except for the expectation that (1) actual rivals will be driven from the market . . . or (2) rivals will be chastened sufficiently to abandon competitive behavior . . . ."[29] A search for profit sacrifice seems most consistent with *Brooke Group*, as it lays the foundation for the second requirement of *Brooke Group*, which asks whether the sacrifice can be recouped.

Many price-cost comparisons have been proposed to prove sacrifice, and the *AMR* court explained that "no consensus has emerged as to what the most 'appropriate' measure of cost is in predatory pricing cases."[30] The lack of consensus may be because many possible price-cost comparisons are sufficient to allow a plaintiff to demonstrate sacrifice. In particular, a plaintiff can demonstrate sacrifice by showing that price is less than any of the cost measures mentioned above and discussed below.

A. *Marginal Cost Test*

The *AMR* court claims that "the ideal measure of cost would be marginal cost because 'as long as a firm's prices exceed its marginal cost,' each additional sale decreases losses or increases profits."[31] The court should actually have said that marginal cost is a satisfactory, but not ideal, measure of cost. It is a satisfactory one-sided test because if price is less than marginal cost, then the firm would profit in the short run by reducing output and rationing purchases. Put differently, if the alleged predator increased output selling at a price below its marginal cost, then the output increase sacrificed short-run profits. This observation makes marginal cost one of many appropriate tests to prove the first requirement of *Brooke Group*.

The marginal cost test is not "ideal," however, because the test is one-sided. Nothing is proven if price exceeds marginal cost. Contrary to the *AMR* court's assertion, price can exceed marginal cost without each additional sale decreasing losses or increasing profits, as the additional sale will typically require the

29. Neumann v. Reinforced Earth Co., 786 F.2d 424, 427 (1986); *see also* Areeda & Turner, *supra* note 12, at 698 ("[P]redation in any meaningful sense cannot exist unless there is a temporary sacrifice of net revenues . . . ."); Janusz A. Ordover & Robert D. Willig, *An Economic Definition of Predation: Pricing and Product Innovation*, 91 YALE L.J. 8, 9-10 (1981) ("[P]redatory behavior is a response to a rival that sacrifices part of the profit that could be earned under competitive circumstances, were the rival to remain viable, in order to induce exit and gain consequent additional monopoly profit.") (citations omitted). For general discussion of exclusionary conduct, see A. Douglas Melamed, *Exclusionary Conduct Under the Antitrust Laws: Balancing, Sacrifice, and Refusals To Deal*, 20 BERKELEY TECH. L.J. 1247 (2005); and Gregory J. Werden, *Identifying Exclusionary Conduct Under Section 2: The "No Economic Sense" Test*, 73 ANTITRUST L. J. 413 (2006).

30. *AMR*, 335 F.3d at 1115.

31. *Id.* at 1116.

firm to lower its price on other units of output as well—namely, on the inframarginal units of output. The firm may well have sacrificed enormous profits by increasing production, even if its price remains above marginal cost.

Here is one means of understanding the problem with the *AMR* court's way of thinking: a profit-maximizing monopoly, or any firm with market power, will set price above marginal cost, and at the profit-maximizing price, any increase in output lowers price enough to lower overall profits (that is what makes the price profit maximizing). Profits go down with the additional output despite the fact that "the firm's prices exceed its marginal cost." Thus, if the plaintiff proves that price is less than marginal cost, then it proves sacrifice; if the defendant proves that price exceeds marginal cost, then the defendant has proven nothing regarding sacrifice.

B. Average Variable Cost Tests

Consider, next, a comparison of price to average variable cost (the average of all costs that vary with output). Recognizing that data on marginal cost may be unavailable, the *AMR* court said the average variable cost test is "[a] commonly accepted proxy for marginal cost in predatory pricing cases."[32] This comparison likewise makes sense as a one-sided test because if price is less than average variable cost, then in the short run, the firm is better off shutting down production given the low price. Absent a better explanation for the firm's behavior, a court or jury can infer that the firm is producing in order to drive price down to exclude or punish rivals and profit in the long run from higher prices. Thus, price below average variable cost should satisfy the first requirement of *Brooke Group*.

The average variable cost test also cannot be the only test allowed because it too is a one-sided test—if price exceeds average variable cost, this tells us little about profit sacrifice. The firm may well still be sacrificing profit. Consider, for example, the extra flights that American added to routes in *AMR*. It was "uncontested that American did not price below AVC for any route as a whole."[33] This fact only means that the extra flights did not sacrifice so much profit that they drove overall route profits negative. In fact, the *AMR* court found that "[b]y increasing capacity, American overrode its own internal capacity-planning models for each route, which had previously indicated that such increases would be unprofitable."[34] American's CEO explained the decision as fol-

32. *Id.*

33. *Id.* at 1120.

34. *Id.* at 1112.

lows: "If you are not going to get [Low Cost Carriers] out then no point to diminish profit."[35]

C. *Incremental Cost Tests*

When alleged predation involves an identifiable output increase such as the extra flights in *AMR*, then another useful one-sided test compares price with average incremental cost, a cost measure found by dividing the cost of producing the identified output increase by the number of units of increased production (e.g., the number of new passengers served by the extra flights in *AMR*). Here, I have in mind an "exclusive" measure of average incremental cost that does not include any price reduction on the output that preexisted the output increase (inframarginal output or in the case of *AMR*, the passengers who would have flown even without the extra flights).[36] If price is less than this average incremental cost, then the firm sacrifices profit, and the plaintiff will have satisfied the first requirement of *Brooke Group*. This test is also one-sided because even if price exceeds an exclusive measure of incremental cost, the firm may still be sacrificing profits by an output expansion.

There is a second incremental cost test that is two-sided in the sense that an output expansion (e.g., an addition of flights in *AMR*) involves profit sacrifice if and only if the incremental revenue from the expansion is less than the incremental cost. In fact, the DOJ proposed exactly such a test in *AMR* (the test referred to as "Test One" of the four proposed in the case). According to the *AMR* court, "Test One simply performs a 'before-and-after' comparison of the route as a whole . . . , looking to whether profits on the route as a whole decline after capacity was added."[37] Such a test is equivalent to asking whether the incremental revenue to American Airlines from the capacity addition exceeded the incremental cost to American Airlines. The *AMR* court, however, rejected that test because the court mistakenly thought it "condemns activity that may have been profitable as predatory."[38] The court reasoned as follows:

35. Aaron S. Edlin & Joseph Farrell, *The American Airlines Case: A Chance to Clarify Predation Policy (2001)*, *in* THE ANTITRUST REVOLUTION: ECONOMICS, COMPETITION, AND POLICY 502, 504 (John E. Kwoka Jr. & Lawrence J. White eds., 4th ed. 2004).

36. *See* Aaron S. Edlin, *Predatory Pricing*, *in* RESEARCH HANDBOOK ON THE ECONOMICS OF ANTITRUST LAW 144, 162 & n.65 (Einer Elhauge ed., 2012) (defining and distinguishing "exclusive" and "inclusive" measures of incremental cost based upon whether based upon whether costs such as inframarginal price reductions or customer diversion are included).

37. *AMR*, 335 F.3d at 1119.

38. *Id.* at 1118.

> For example, if an airline earned $20.6 million on a route that cost $18 million to operate, it would have $2.6 million in profit. If the airline then added a flight to the route that would cost $500,000 to operate, but brought in an additional $1 million in revenue from passengers, the airline would make $500,000 profit. If adding this extra capacity to the route reduced the profitability of other flights on that route, reducing revenue for the rest of the route by $600,000 down to $20 million, under Test One, this conduct would be considered predatory because rather than comparing the additional flight's $1 million in revenue to its $500,000 in costs, Test One looks only to the reduction in profits on the route as a whole from $2.6 million to $2.5 million. Thus, this conduct would be labeled predatory because the profits for the route as a whole declined, even though the capacity additions themselves were profitable and the route as a whole was still profitable.[39]

Since the court saw the additional flights as profitable and Test One considered them unprofitable, the court found Test One inappropriate. But the court's position that "the capacity additions themselves were profitable" makes no sense in its example. If American reduced its profits by $0.1 million by the capacity addition (from $2.6 to $2.5 million), then American incurred a profit sacrifice by its actions. As much as any profit sacrifice, this supports an inference of exclusionary intent and an intent to make up this $0.1 million in higher future prices. If the capacity additions lowered American's profits as they do in the court's example, then it is hard to see how the court could claim these capacity additions were "profitable." The incremental revenue from adding the additional flights was not the $1 million of revenue from passengers flying on those flights but rather the $400,000 million of revenue arrived at after subtracting the $600,000 of lost revenues on the other flights on the route. This $400,000 incremental revenue was less than the incremental operating cost of $500,000.

To be sure, one could argue that the DOJ is unfaithful to *Brooke Group* in comparing incremental revenue with incremental operating cost, even though the comparison does indicate profit sacrifice, because the *Brooke Group* decision refers to "price," not revenue or incremental revenue.[40] Such an interpretation of the word "price" is wooden, however, and does not resolve the question even

39. *Id.* at 1118 n.13.

40. Brooke Grp. Ltd. v. Brown & Williamson Tobacco Corp., 509 U.S. 209, 222 ("[A] plaintiff . . . must prove that the prices complained of are below an appropriate measure of its rival's costs.")

if adopted. After all, the Court explicitly left open what the "appropriate measure" of the predator's cost was against which to compare price.[41]

The DOJ's position can be reframed as an argument that price was below an appropriate measure of cost. The incremental revenue of the additional flights can be counted as $1 million, as the AMR court did. In this framework, one must realize that the full incremental cost of these flights is not just the $500,000 it costs to operate the aircraft. An additional cost of adding these flights is the $600,000 in lost revenue on the preexisting flights, which resulted either from the passengers being diverted to the new flights or prices being lowered. We thus have incremental revenue of $1 million and an incremental cost of $1.1 million. Again, the additional capacity is introduced at a loss, reflecting a profit sacrifice of $100,000. If one wants to compare a "price," properly speaking, with a cost, one can divide both the $1 million figure and the $1.1 million figure by the number of passengers to find the average price charged to the passengers on the incremental flights as compared with the average incremental cost of serving these passengers. The $100,000 loss proves that this price is less than this cost. Elsewhere I have called the $1.1 million in costs an "inclusive" measure of costs because it *includes* the fall in inframarginal revenue from an output expansion.[42]

Oddly, the *AMR* court seems to distinguish between whether the $600,000 drop in revenue on the preexisting flights might have derived from price reductions on preexisting passengers or from passengers who were diverted to the new flights. As Hemphill and Weiser point out, Test Four in the Department of Justice's argument attempted to measure the profitability of the extra flights excluding the revenues from the diverted passengers. This feature of Test Four was apparently acceptable to the court, even though including the rest of the revenue shortfall was not.[43] The *AMR* court's view appears to lack a unifying principle. Certainly the court is not asking whether an airline would view the newly introduced flights as a profitable venture, because on the facts of *AMR*, all revenue shortfalls are equivalent and the airline would view the extra flights as unprofitable. If one seeks to identify sacrifice as seems proper under *Brooke Group*, then, it is entirely appropriate to compare incremental revenue to incremental cost, or equivalently price to an inclusive measure of average incremental cost.

Comparing incremental revenue to an incremental cost is a two-sided test of whether any given incremental conduct entails sacrifice, and might therefore seem the "ideal" test. The test, however, is not always best in practice, because

41. *Id.* at 221.

42. Edlin, *Predatory Pricing*, supra note 36, at 158.

43. Hemphill & Weiser, *supra* note 2, at 2069.

there may not be a well-identified increment, or because data may not be available to implement it conclusively or at all. For example, if the challenged conduct occurred shortly after a rival's entry or expansion, it may be hard to disentangle a drop in profit caused by the incumbent's conduct from a drop caused by the rivals' actions.

Because data availability could dictate which tests are feasible, a plaintiff should be able to choose any reasonable means of demonstrating sacrifice to satisfy the first requirement of *Brooke Group*, including any of the four methods outlined above and probably many others. Hemphill and Weiser are surely correct that price-cost tests should be implemented flexibly rather than mechanically or literally.[44]

IV. CONCLUSION

This Response has focused discussion on the first prong of the *Brooke Group* test, the price-cost comparison and has made two basic claims.

First, while the first element of *Brooke Group* may fit the oligopoly context in which it arose, monopolies should not enjoy a safe harbor simply because they price above their cost. Monopolies frequently have cost or quality advantages that explain how their monopoly has been created and preserved and under the *Brooke Group* rule, a monopoly with a cost or quality advantage will often be able to charge monopoly prices with little fear of entry. Entrants can be driven from the market without the monopoly pricing below its own cost.

Such exclusionary pricing should be a concern of policymakers. The argument made by Justice Breyer and others that banning above-cost price cuts forsakes birds-in-hand in pursuit of a speculative birds in the bush involves a fundamental fallacy. These banned price cuts are not birds-in-hand if they only arise in reaction to a rival's competitive activities such as entry. In that case the price cut is also speculative, and it may never occur if antitrust law fails to provide suitable protection for the initial competitive activity.

My second claim is that there is no single appropriate measure of cost. The main reason for a plaintiff to prove that a defendant has priced below cost is to show that the defendant has sacrificed profits. Because data availability is a pervasive problem and many possible price-cost comparisons are sufficient to show sacrifice, the plaintiff should be allowed to show sacrifice by comparing

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44. Hemphill & Weiser, *supra* note 2, at 2056 ("A pragmatic approach to the *Brooke Group* framework suggests a flexible application of both tests."); *id.* at 2068 (arguing that "[i]n making the price-cost comparison, *Brooke Group* also invites a flexible approach to the measurement of cost").

price with *any* appropriate measure of cost. Sacrifice is indicated if the plaintiff prices below (1) average variable cost; (2) marginal cost; (3) an exclusive measure of average incremental cost from some well-identified incremental increase in output during the predatory period; or (4) an inclusive measure of average incremental cost that includes revenue reductions on pre-existing (inframarginal) units of output.

The infirmities that Hemphill and Weiser uncover in *Brooke Group* provide some hope that the Supreme Court may someday reverse course and no longer allow monopolies to hide behind a safe harbor simply because they price above their cost. After all, Brooke Group was not a monopoly case, but instead an oligopoly case that culminated a series of oligopoly cases.[45] Moreover, the below-cost pricing requirement was not contested in the case, as both parties conceded it applied to their circumstance. Finally, as shown here, there is ample reason to fear that monopolies with advantages can exclude rivals with above-cost pricing to the detriment of consumers. In the meantime, I second the urging of Hemphill and Weiser that courts take a flexible approach in comparing price to cost. If courts follow the logic of sacrifice outlined here, then many prices that exceed marginal cost or average variable cost can be found predatory when the firm is sacrificing profit to exclude competitors. I go further than Hemphill &Weiser by arguing that the court in AMR was wrong not to allow diminished revenue on inframarginal units to be counted as costs.

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45. Brooke Grp. 509 U.S. 209 (1993); Cargill, Inc. v. Monfort of Colorado, Inc., 479 U.S. 104 (1986); Matsushita Elec. Indus. Co. v. Zenith Radio Corp., 475 U.S. 574 (1986).