

A Practical Guide to Using the As-Efficient-Competitor (AEC) Test to Manage and Monitor Antitrust Risk

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I. Introduction

A leading firm's pricing strategy may be seen as exclusionary if competitors cannot profitably match the leading firm's prices. Antitrust analysis of the potential for such a pricing strategy to harm competition and consumers must balance the pro-competitive effects of a leading firm offering low prices as a result of competitive pressure or an efficient cost structure, with the potential anti-competitive effects of driving competitors out of business because of their inability to profitably match the prices offered by the leading firm. The As-Efficient-Competitor (AEC) test, first proposed by Areeda and Turner in 1975,¹ addresses this tradeoff by evaluating whether the prices offered by the leading firm, net of all discounts, can be profitably matched by a competitor that is at least as efficient as the leading firm.

The AEC test is typically used to evaluate the potential exclusionary effects of discounts offered by a leading firm that are conditional on factors such as: (a) the extent to which the customer purchases products from the leading firm's rivals (*i.e.*, loyalty discounts) or (b) the customer's purchase of other products offered by the leading firm (*i.e.*, bundled discounts). To evaluate the competitive effects of these types of conditional discounts, one needs to attribute the conditional discount, where appropriate, to the portion of consumer demand over which the leading firm and its rivals are competing (*i.e.*, "contestable" demand). We use the term "net price per contestable unit" to denote the price offered by the leading firm for contestable units, net of all discounts that are conditional on the purchase of the contestable units.

A competitor that is as efficient as the leading firm faces the same costs as the leading firm. The AEC test is therefore a price-cost test (PCT) that compares the net price per contestable unit to the leading firm's cost per contestable unit. If the net price per contestable unit offered by the leading firm is below the leading firm's cost per contestable unit, the leading firm fails the AEC test because a rival that is as efficient as the leading firm cannot profitably match the prices and discounts offered by the leading firm. Conversely, if the net price per contestable unit is greater than the cost per contestable unit, the leading firm passes the AEC test because an equally efficient rival can profitably match the prices set by the leading firm.²

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¹ Areeda, Phillip, and Donald F. Turner, "Predatory Pricing and Related Practices Under Section 2 of The Sherman Act" *HARVARD LAW REVIEW* 88 no. 4 (1975).

² It is important to note that if the leading firm is more efficient than all its competitors (*e.g.*, due to economies of scales) the leading firm can pass the AEC test even if all its competitors are not able to profitably match prices offered

The AEC test is just one type of evidence used by courts in the United States to evaluate whether bundled discounts constitute anticompetitive tying,³ and with less frequency, whether contracts containing loyalty discounts constitute anticompetitive exclusive dealing contracts.⁴ If a leading firm fails the AEC test, it does not automatically imply that the leading firm's pricing strategy is exclusionary. It does, however, increase the probability that a court or a regulator may conclude that the leading firm's pricing strategy was exclusionary.

The results of an AEC test can be used both in the courtroom to assist the trier of fact in making a determination regarding exclusionary pricing, and proactively by a leading firm, smaller rivals, or regulators to assess antitrust risk associated with pricing strategies. For instance:

- A leading firm can therefore use the AEC test in the normal course of business to evaluate the antitrust risk associated with its pricing strategies. If pricing offered by the leading firm fails the AEC test, the leading firm may consider reducing the magnitude of discounts offered to customers or modifying the discount structure to ensure that rivals that are as efficient (or more efficient) than the leading firm are able to profitably match the prices offered by the leading firm.
- The AEC test can also be used by smaller rivals to evaluate if the prices and discounts offered by the leading firm fail the AEC test. Specifically, the smaller rival can make assumptions about the leading firm's cost structure and evaluate if the prices and discounts offered by the leading firm can be profitably matched by a competitor that is as efficient as the leading firm. If the smaller rival concludes that under reasonable assumptions about the leading firm's cost structure, prices and discounts offered by the leading firm fail the AEC test, the smaller rival may consider bringing the larger rival's conduct to the attention of the relevant competition authorities.

Academic papers have noted the AEC test is challenging to implement because (a) there is uncertainty about the share of demand that is contestable, and (b) the cost metrics maintained by the leading firm in the normal course of business differ from the cost metrics typically used to perform the AEC test.⁵ This article explains the methodology for conducting an AEC test, using an example based on loyalty discounts, and discusses how the AEC test can be performed in a way

by the leading firm. The leading firm fails the AEC test only if its prices cannot be matched by a (actual or hypothetical) competitor that is as efficient as the leading firm.

³ See, e.g., *Cascade Health Sol'ns v. PeaceHealth*, 515 F.3d 883, 903 (9th Cir. 2008) (applying AEC test); *Collins Inkjet Corp. v. Eastman Kodak Co.*, 781 F.3d 264, 273–74 (6th Cir. 2015) (same); see also *Ortho Diagnostic Sys., Inc. v. Abbott Lab'ys, Inc.*, 920 F. Supp. 455, 469 (S.D.N.Y. 1996) (similar to AEC test, but also requiring proof that plaintiff is as or more efficient in producing the contested product).

⁴ See, e.g., *Eisai, Inc. v. Sanofi Aventis U.S., LLC*, 821 F.3d 394, 406 (3d Cir. 2016) (suggesting proper frame of analysis for single-product loyalty rebates is whether an “equally efficient competitor” would be able to compete). *But see In re EpiPen (Epinephrine Injection, USP) Mktg., Sales Pracs. & Antitrust Litig.*, 44 F.4th 959, 1003 (10th Cir. 2022) (suggesting but not deciding that loyalty rebates should be evaluated under a simple price-cost test, rather than under the AEC test or under more permissive standards), *petition for cert. filed sub nom., Sanofi-Aventis U.S., LLC v. Mylan, Inc.* (U.S. Jan. 9, 2023) (No. 22-628).

⁵ Salop (2017) argues that an incremental price-cost test in the context of loyalty discounts is “complicated to implement and likely leads to measurement errors.” See Salop, Steven C., “The Raising Rivals’ Cost Foreclosure Paradigm, Conditional Pricing Practices, and The Flawed Incremental Price-Cost Test,” *ANTITRUST LAW JOURNAL* 81 no. 2 (2017): 371–422, at 406.

that mitigates these two challenges. It also illustrates how this test can be used by a leading firm in the normal course of business to manage and monitor antitrust risk associated with its discounting strategies. Specifically:

- In Section 2 of this article, we describe a hypothetical example of a conditional discount structure whose competitive effects can be evaluated through an AEC test.
- In Section 3, we use this example discount structure to illustrate the methodology that can be used to calculate the net price per contestable unit.
- In Section 4, we introduce the concept of “critical contestable share” that can be used to implement the AEC test even when there is uncertainty about the portion of the customer’s demand that is contestable. We also illustrate how this concept can be used to implement the AEC test for the example discount structure discussed in Section 2.
- In Section 5, we discuss the possible cost metrics that can be used to perform the AEC test.
- In Section 6, we identify a type of discount structure that may result in failure of the AEC test.

II. Hypothetical Example of Conditional Discount Structure

Consider a customer that is looking to purchase 10,000 widgets. Assume that the leading firm is able to supply all 10,000 widgets to this customer. The leading firm offers the widgets to the customer at a list price of \$100 per widget and offers a lump-sum discount of \$100,000, conditional on the customer purchasing widgets only from the leading firm. Assume that a smaller rival is only able to supply 5,000 widgets to this customer because its manufacturing capacity is lower than the leading firm. Even though the customer is looking to purchase 10,000 widgets, the leading firm and the smaller rival are only competing over 5,000 widgets. That is, only 5,000 widgets are contestable. The remaining 5,000 units are non-contestable.

The AEC test can be used to evaluate the competitive effects of this type of conditional discount. If the customer purchased the 5,000 contestable units from the smaller rival, then the customer will lose the \$100,000 lump-sum discount offered by the leading firm. The AEC test will therefore attribute the entire \$100,000 lump-sum discount to the 5,000 contestable units. In Section 3 of this article, we use this example discount structure to illustrate the methodology that can be used to calculate the net price per contestable unit.

In the hypothetical example discussed above, 5,000 units are contestable. Often there is uncertainty around the portion of customer demand that is contestable. In Section 4 of this article, we introduce the concept of “Critical Contestable Share” that can be used to implement the AEC test even when there is uncertainty about the portion of the customer’s demand that is contestable. We also illustrate how this concept can be used to implement the AEC test for the discount structure discussed above where there was uncertainty about the share of consumer demand that is contestable.

III. Calculating Net Price Per Contestable Unit

As discussed in Section 1, the AEC test evaluates if the net price per contestable unit offered by the leading firm is below the leading firm’s cost per contestable unit. The net price per contestable unit denotes the net price that a rival needs to offer to match the prices and discounts offered by the leading firm. The net price per contestable unit can be calculated using equation (1) below:

$$\text{Net Price Per Contestable Unit} = \text{List Price Per Unit} - \text{Discount Per Contestable Unit} \quad (1)$$

In equation (1), the *List Price Per Unit* denotes the list price charged by the leading firm for the contestable units.⁶ The *Discount Per Contestable Unit* is calculated by dividing the discounts lost by the consumer if it did not purchase the contestable units from the leading firm (“total discount at risk”) by the number of contestable units.

$$\text{Discount Per Contestable Unit} = \frac{\text{Total Discount At Risk}}{\text{Number of Contestable Units}} \quad (2)$$

Table 1 below walks through the net price per contestable unit calculation for the hypothetical example discussed in Section 2. In this example:

- i. The *List Price Per Unit* is \$100 and the *Number of Contestable Units* is 5,000.
- ii. If the customer purchased the 5,000 contestable units from the smaller rival, then the customer will lose the \$100,000 lump-sum discount offered by the leading firm. The *Total Discount on Contestable Units* is \$100,000.
- iii. From equation (2), we can see that the *Discount Per Contestable Unit* is equal to

$$\frac{\text{Total Discount on Contestable Units}}{\text{Number of Contestable Units}} = \frac{\$100,000}{5,000} = \$20.7$$

- iv. From equation (1), we can see that the *Net Price Per Contestable Unit* = *List Price Per Unit* – *Discount Per Contestable Unit* = \$100 – \$20 = \$80.

Table 1

List Price Offered by Leading Firm	Lump-Sum Discount Offered by Leading Firm	Contestable Units	Discount Per Contestable Unit	Net Price Per Contestable Unit
[a]	[b]	[c]	[d] = [b] / [c]	[e] = [a] – [d]
\$100	\$100,000	5,000	\$20	\$80

As noted above, the net price per contestable unit denotes the effective price that a rival needs to offer to match the prices and discounts offered by the leading firm. To see this, consider the following two scenarios.

- i. **Scenario #1:** The customer purchases all 10,000 units from the leading firm. The customer’s total expenditure will be (\$100 List Price * 10,000 units) – (\$100,000 lump-sum discount) = \$900,000.
- ii. **Scenario #2:** The customer purchases 5,000 units from the leading firm and 5,000 units

⁶ When customers receive discounts from a posted “list price” that are *not* conditional on loyalty, exclusivity or a bundled purchase, these non-conditional discounts should be treated as reductions to the list price and should not be included in the calculation of discount per contestable unit. The list price per unit term in equation (1) represents the product price without the conditional discount, while the discount per contestable unit term in equation (1) represents the total amount of the conditional discount, divided by the contestable units. See *Universal Surveillance Corp. v. Checkpoint Sys., Inc.*, No. 5:11-CV-1755, 2015 WL 6561241, at *13 (N.D. Ohio Oct. 19, 2015) (confronting, but not deciding, this issue).

⁷ Note that this is a higher discount than if one were to calculate the effective discount across all units, which is \$10.

from the smaller rival. In this scenario, the customer's expenditure at the leading firm will be $(\$100 \text{ List Price} * 5,000 \text{ units}) = \$500,000$.⁸ To match the prices and discounts offered by the leading firm, the smaller rival will have to offer a price that ensures that the total expenditure of the customer is the same as Scenario #1 where the customer purchased all 10,000 units from the leading firm. As discussed above:

- a. The customer's total expenditure in Scenario #1 was \$900,000.
- b. In Scenario #2, the customer's expenditure at the leading firm is \$500,000.

Thus, the smaller rival will have to offer to sell the 5,000 contestable units for a total revenue of $\$900,000 - \$500,000 = \$400,000$. This works out to a net price of $\$400,000/5,000 = \80 per unit.

As we can see from this discussion, the number of contestable units has a significant impact on the discount per contestable unit, which in turn impacts the net price per contestable unit. If the leading firm overestimates the number of contestable units in the AEC test, then it will understate the antitrust risk associated with the prices and discounts offered to customers. To see this, note that in the example in Table 1, if the contestable units were 1,000 instead of 5,000, then the discount per contestable unit would have been \$100 and the net price per contestable unit would be \$0. (*See Table 2 below.*) Assuming a cost of \$75 was used to perform the AEC test, the leading firm would pass the AEC test if the contestable units were 5,000 but fail the AEC test if the contestable units were 1,000. The hypothetical examples in Tables 1 and 2 illustrate how the estimate of contestable units impacts the results of the AEC test.

Table 2

List Price Offered by Leading Firm [a]	Lump-Sum Discount Offered by Leading Firm [b]	Contestable Units [c]	Discount Per Contestable Unit [d] = [b] / [c]	Net Price Per Contestable Unit [e] = [a] - [d]
\$100	\$100,000	1,000	\$100	\$0

IV. Concept of Critical Contestable Share

The preceding discussion shows that, in our example, the net price per contestable unit increases when contestable volume increases because the same total discount is spread across more units, and so the per-unit discount decreases. As a result, if the leading firm passes the AEC test performed using a specific estimate of contestable volume, it will also pass the AEC test for any higher estimate.

In the context of real-world litigation, however, the precise share of demand that is contestable is generally subject to difficult factual and economic disputes between the parties. As a practical matter, to the extent that there is uncertainty about the volume of sales that are contestable, the antitrust risk associated with the leading firm's pricing strategy can still be assessed by calculating the lowest contestable volume that would pass the AEC test as a share of its own sales.

This is the "Critical Contestable Share," which essentially establishes a "floor" for passing the AEC test.

[A] Estimating the Critical Contestable Share

To understand the concept of Critical Contestable Share, note that in the example in Table 1, if the contestable units were 6,000 instead of 5,000, then the discount per contestable unit would

⁸ Note that since the customer purchases units from the smaller rival, the customer loses out on the \$100,000 lump-sum discount offered by the leading firm.

have been \$16.67 and the net price per contestable unit would be \$83.33, greater than \$80. (See Tables 1 and 3.) Consequently, if the net price per contestable unit was greater than the cost when the contestable units were 5,000, it will still be greater than the cost if the contestable units were 6,000.

Table 3

List Price Offered by Leading Firm [a]	Lump-Sum Discount Offered by Leading Firm [b]	Contestable Units [c]	Discount Per Contestable Unit [d] = [b] / [c]	Net Price Per Contestable Unit [e] = [a] – [d]
\$100	\$100,000	6,000	\$16.67	\$83.33

As a practical matter, to the extent that there is uncertainty about the volume of sales that are contestable, the leading firm can still assess the antitrust risk associated with its pricing strategy by calculating the lowest contestable volume that would still pass the AEC test, as a share of its own sales (*i.e.*, the Critical Contestable Share). If the true share of the leading firm’s sales that are contestable (*i.e.*, contestable share) is greater than the Critical Contestable Share, then the leading firm passes the AEC test. If the contestable share is lower than the Critical Contestable Share, then the leading firm fails the AEC test. The leading firm can use the estimate of the Critical Contestable Share to assess its antitrust risk. In the case of lump-sum discounts offered by a leading firm in exchange for exclusivity, the Critical Contestable Share is calculated using equation (3) below:

$$Critical\ Contestable\ Share = \frac{Lump\ Sum\ Discount}{(List\ Price - Cost) * (Units\ Demanded\ by\ Customer)} \quad (3)$$

In the example discussed in Section 3, the Lump Sum Discount is \$100,000, List Price is \$100, Cost used in AEC test is \$75, and Units Demanded by Customer is 10,000. The Critical Contestable Share is therefore equal to:

$$Critical\ Contestable\ Share = \frac{\$100,000}{(\$100 - \$75) * (10,000)} = 40\%$$

If at least 40% of the units demanded by the customer are contestable (*i.e.*, at least 4,000 units are contestable), the leading firm passes the AEC test. To see this, note that if 4,000 units are contestable, then the discount per contestable unit is \$100,000/4,000 = \$25, and the net price per contestable unit is \$100 – \$25 = \$75. In this scenario, the net price per contestable unit is exactly equal to the cost used in the AEC test (*i.e.*, \$75). On the other hand, if fewer than 4,000 units were contestable, then the discount per contestable unit would be higher than \$25. Consequently, the net price per contestable unit would be lower than \$75. Since the cost used in the AEC test is \$75, the leading firm would fail the AEC test in the scenario where the contestable share was under 40%.

[B] Practical Use of the Critical Contestable Share

The precise share of demand that is contestable is generally subject to difficult factual and economic disputes between the parties that can be addressed by calculating the Critical Contestable Share. For example, in *Eisai, Inc. v. Sanofi Aventis U.S., LLC*,⁹ an entrant drug

⁹ 821 F.3d 394 (3d Cir. 2016).

manufacturer claimed that a portion of demand for the incumbent's drug was non-contestable because the entrant's otherwise highly similar drug lacked an indication to treat "certain more severe forms of heart attack."¹⁰ Plaintiff's expert also identified some demand as non-contestable based on the preferences of prescribing hospitals and doctors.¹¹ Among several reasons for rejecting the entrant's overall argument, the court questioned whether demand based on a unique indication was actually non-contestable, given that a manufacturer could make investments to obtain approval for the indication.¹² The court further noted that plaintiffs had not split out the portions of demand that were non-contestable for reasons other than the indication.¹³

Calculation of a Critical Contestable Share could have mitigated the issues with determining contestability that *Eisai* demonstrates. Rather than requiring the AEC test to be performed based on some specified contestable share, the Critical Contestable Share metric identifies (in binary terms) the outcome of the AEC test across all possible contestable shares. If the Critical Contestable Share is sufficiently high or sufficiently low, resolution of thorny contestable share issues can be simplified because (a) a precise value is no longer necessary and (b) identifying a proper bound on the contestable share becomes sufficient.¹⁴

V. Possible Cost Metrics That Can Be Used in an AEC Test

As explained above, an AEC test is a price-cost test, requiring comparing the calculated net price per contestable unit with the cost to produce a contestable unit. However, economists, courts, and regulators have not achieved consensus on a single cost metric that should be used to perform the AEC test. The methodology used to calculate costs therefore may influence the outcome of the AEC test, and so selection (and justification) of a cost methodology is an important consideration.

The cost metrics used most frequently in AEC tests include (a) average variable cost (AVC) per contestable unit, (b) average avoidable cost (AAC) per contestable unit, (c) long-run average incremental cost (LRAIC) per contestable unit, and (d) average total cost (ATC) per contestable unit.

In this section, we provide an overview of these cost metrics, including the advantages and disadvantages of each. We also discuss the guidance issued by courts on the cost metrics that can be used in an AEC test. Finally, we acknowledge that, in the normal course of business, a firm may not necessarily maintain cost metrics that map to the AVC, AAC, LRAIC, or ATC. Consequently, we discuss how a leading firm can use the cost data maintained in the normal course of business to perform the AEC test to assess antitrust risk.

¹⁰ *Id.* at 399.

¹¹ *Id.* at 405.

¹² *Eisai*, 821 F.3d at 405. Although the plaintiffs in *Eisai* advanced a theory premised entirely on pricing evidence, with no comparison to cost, *see id.* at 404, the contestable share issues identified by the court would have been equally fatal to an argument grounded in the AEC test.

¹³ *Id.* *See also In re EpiPen (Epinephrine Injection, USP) Mktg., Sales Pracs. & Antitrust Litig.*, 44 F.4th 959, 1002 n.23 (10th Cir. 2022) (criticizing AEC test on administrability grounds where plaintiff's expert could "only guess that [the dominant firm's] entrenched share was somewhere between 50%–70%"), *petition for cert. filed sub nom., Sanofi-Aventis U.S., LLC v. Mylan, Inc.* (U.S. Jan. 9, 2023) (No. 22-628).

¹⁴ Of course, a plaintiff must always identify *some* portion of incontestable demand, even if difficult to quantify precisely, for the theory to apply. *See In re EpiPen (Epinephrine Injection, USP) Mktg., Sales Pracs. & Antitrust Litig.*, 507 F. Supp. 3d 1289, 1358–59 (D. Kan. 2020) (granting summary judgement against claims premised on AEC test because evidence could not support *any* non-contestable demand), *aff'd*, 44 F.4th 959 (10th Cir. July 29, 2022), *petition for cert. filed sub nom., Sanofi-Aventis U.S., LLC v. Mylan, Inc.* (U.S. Jan. 9, 2023) (No. 22-628).

[A] Overview of Cost Metrics Typically Used to Perform the AEC Test

Average variable cost (AVC) measures all variable costs associated with the production of the contestable units¹⁵ divided by the total number of contestable units. One shortcoming of the AVC is that it requires the determinations of whether a particular cost is fixed or variable, which can be difficult.

Average avoidable cost (AAC) includes all costs, including both variable costs and product-specific fixed costs, which could have been avoided if the leading firm had not produced the contestable output.¹⁶ Combining all variable and fixed costs associated with a product avoids the potentially difficult determination of whether a particular cost is fixed or variable. By focusing on *product-specific* fixed costs, AAC does not include any fixed costs that were already sunk before the period of the alleged exclusionary conduct.

Long-run average incremental cost (LRAIC) is defined as the average cost of producing the contestable output, whenever such costs are incurred.¹⁷ Unlike AAC, it includes *all product-specific* fixed costs, “even if those costs were sunk before the period of the alleged predatory pricing.”¹⁸

Average total cost (ATC) includes all costs associated with producing the contestable output, and in particular includes *all* fixed costs. The ATC is typically higher than LRAIC, which is typically higher than AAC, and which in turn is typically higher than AVC.

[B] Legal Guidance on Cost Metrics

In *Brooke Group Ltd. v. Brown & Williamson Tobacco Corp.* (1993),¹⁹ the United States Supreme Court noted that for prices to be predatory, they must be below “an appropriate measure of [the alleged predator’s] costs.” The Court avoided specifying what “measure of cost” is “appropriate,” noting by reference disagreement among the circuits over use of average total cost, average variable cost, or some other incremental cost metric.²⁰

Although the cost metric for standard predatory pricing cases in the United States varies by circuit, courts have generally identified (a) prices below AVC as presumptively supporting liability; (b) prices above AVC as either presumptively or conclusively legal; and (c) prices above ATC as conclusively legal.²¹ Many circuits further explain that the real question of interest is the

¹⁵ Areeda, Phillip, and Donald F. Turner, “Predatory Pricing and Related Practices Under Section 2 of The Sherman Act” *HARVARD LAW REVIEW* 88 no. 4 (1975): 697–733, at 697 (“Variable costs, as the name implies, are costs that vary with changes in output. They typically include such items as materials, fuel, labor directly used to produce the product, indirect labor such as foremen, clerks, and custodial help, utilities, repair and maintenance, and per unit royalties and license fees. The average variable cost is the sum of all variable costs divided by output.”).

¹⁶ See “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,” European Commission, 2009.

¹⁷ See “Predatory Pricing: Strategic Theory and Legal Policy,” Patrick Bolton, Joseph F. Brodley and Michael H. Riordan, March 2000.

¹⁸ See “Predatory Pricing: Strategic Theory and Legal Policy,” Patrick Bolton, Joseph F. Brodley and Michael H. Riordan, March 2000.

¹⁹ 509 U.S. 209 (1993).

²⁰ See *Cargill, Inc. v. Monfort of Colorado, Inc.*, 479 U.S. 104, 117 n.12 (1986); *Brooke Group*, 509 U.S. at 222 n.1 (citing *Cargill*).

²¹ See generally, “Predatory Pricing: Strategic Theory and Legal Policy,” Patrick Bolton, Joseph F. Brodley and Michael H. Riordan, March 2000, pp. 17–18.

cost of the contestable output. Within this framework, AVC is used as a proxy for short-run marginal cost²² and when relying on ATC, only the incremental costs of the product should be considered.²³

US v. AMR Corp. provides insight into the cost metrics that can be used in an AEC test.²⁴ In *AMR*, the United States Department of Justice (DOJ) alleged that American Airlines employed a predatory pricing strategy that targeted certain low-cost airlines that were attempting to expand into certain routes. The Tenth Circuit held that the appropriate cost measure in this case was the AAC of added capacity in each route in response to competition from the low-cost carrier.²⁵ In effect, the cost used should reflect all incremental costs incurred by American to add the allegedly predatory capacity. To the extent that American incurred costs that were common to both existing (non-predatory) and new capacity, the cost metric should only include those that would be avoided had new capacity not been added. The courts rejected the DOJ's assumption that common costs could be allocated proportionally across existing and new capacity due to a lack of evidence to substantiate this assumption.²⁶ *AMR* provides important guidance for evaluation of costs when implementing AEC tests because, just as in *AMR* where the potentially predatory capacity was not the entire capacity in a given route, the AEC test is used in situations where the contestable volume impacted by a potentially predatory pricing strategy is *not* the entire product line.

Courts considering application of the AEC test to bundled discounts and loyalty discounts have generally been guided by the more general standard for predatory pricing. For example, although *Cascade Health Solutions v. PeaceHealth*²⁷ provides a detailed justification for adopting the AEC test in bundled discount cases, on the issue of cost metric the opinion essentially just refers back to single-product predatory pricing cases, concluding that AVC is appropriate.²⁸ Other cases that use the AEC test to evaluate bundled discounts have suggested that longer run cost metrics such as ATC and LRAIC should be used to perform the AEC test.²⁹

[C] Selecting a Cost Metric in Practice

The cost data maintained by the leading firm in the normal course of business may not correspond exactly to the AVC, AAC, LRAIC, or ATC cost metrics that are typically used to perform the AEC test. In this case, the leading firm can perform the AEC test using cost data maintained by the firm in the normal course of business and assess the antitrust risk associated with its prices and discounts based on the difference between the cost data maintained by the firm in the normal course of business and the cost metrics typically used to perform the AEC test.

As discussed in Section 1, if a leading firm fails the AEC test, it does not automatically imply that the leading firm's pricing strategy is exclusionary. This is even more so if the AEC test was

²² See, e.g., *Kelco Disposal, Inc. v. Browning-Ferris Indus. of Vermont, Inc.*, 845 F.2d 404, 407 (2d Cir. 1988), *aff'd*, 492 U.S. 257 (1989) (accepting AVC as "surrogate" for marginal cost).

²³ See, e.g., *MCI Commc'ns Corp. v. Am. Tel. & Tel. Co.*, 708 F.2d 1081, 1120 (7th Cir. 1983) (rejecting fully distributed cost).

²⁴ 335 F.3d 1109 (10th Cir. 2003).

²⁵ *Id.* at 1120.

²⁶ *Id.* at 1119.

²⁷ 515 F.3d 883 (9th Cir. 2008).

²⁸ *Id.* at 910.

²⁹ See *Meijer Inc. v. Abbott Lab'ys*, 544 F. Supp. 2d 995, 1004 (N.D. Cal. 2008).

implemented using the LRAIC or ATC metric instead of the AAC or AVC metric. The failure of a leading firm to cover AAC or AVC may be seen by agencies or competitors as a stronger indicator of potential predatory conduct than the failure to cover LRAIC or ATC.

- i. Pricing below LRAIC may be economically rational. Since LRAIC includes all product-specific sunk fixed costs, a firm pricing below that cost could generate a positive cash flow (*i.e.*, cover its variable costs and contribute to its already-sunk fixed costs). Sales priced at that level would therefore be potentially profitable in the short run even if they resulted in long-term losses, and hence may reflect no more than short-run economically rational competition, not predation.³⁰
- i. ATC by its nature includes all fixed costs, including costs common with goods for which there might be no predatory pricing concern. Pricing below ATC may therefore also be economically rational and not indicative of predation.

If the net price per contestable unit is below the AAC or AVC, that increases the probability that a court or regulator may conclude that the leading firm's pricing strategy was exclusionary. The leading firm may consider modifying its prices and discount structures in a way that mitigates this antitrust risk but meets the firm's business objectives. If the net price per contestable unit is above the AAC and AVC but below the LRAIC and ATC, that reduces the probability that a court or a regulator may conclude that the leading firm's pricing strategy was exclusionary.³¹ Finally, if the net price per contestable unit is greater than LRAIC and/or ATC, that further reduces the probability that a court or a regulator may conclude that the leading firm's pricing strategy was exclusionary.

VI. Retroactive Discount Structures Can Result in AEC Test Failures

As discussed in Section 1, the AEC test is typically used to evaluate if the conditional discounts offered by leading firms (*e.g.*, loyalty discounts, bundled discounts, etc.) have a likelihood of reducing competition. In this section, we discuss the special case of certain retroactive discount structures. These structures are more likely to result in the leading firm failing the AEC test (which, as noted above, may or may not be consistent with anticompetitive conduct).

Consider discounts that leverage the leading firm's "assured base," meaning that customers obtain an increased discount if they purchase part of the contestable demand from the firm. To understand this pricing strategy, consider the following hypothetical example:

- i. Assume that a customer is looking to purchase 7,000 widgets. Assume that the leading supplier is able to supply all 7,000 units and the smaller rival is able to supply only 2,000 units. Contestable demand is therefore 2,000 units.
- ii. Assume that the leading firm offers the customer a discount of \$20 per unit if the customer purchases 5,000 or fewer units from the leading firm. However, if the customer purchases all 7,000 units from the leading firm, the leading firm offers the customer a discount of

³⁰ See generally Elzinga & Mills, *supra* note 79, at 2484.

³¹ See, *e.g.*, *McGahee v. N. Propane Gas Co.*, 858 F.2d 1487, 1503 (11th Cir. 1988) ("To withstand judgment as a matter of law, a plaintiff must have other evidence, either objective or subjective, of predatory intent"); see also *In re EpiPen (Epinephrine Injection, USP) Mktg., Sales Pracs. & Antitrust Litig.*, 44 F.4th 959, 988–89 (10th Cir. 2022) (factors relevant for exclusive dealing evaluation include share of market foreclosed, time period of agreements, commonality of usage in the market), *petition for cert. filed sub nom. Sanofi-Aventis U.S., LLC v. Mylan, Inc.* (U.S. Jan. 9, 2023) (No. 22-628).

\$50 per unit *for all purchases* made by the customer. Assume that the list price of the product is \$100.

This type of discount structure is sometimes referred to as a “retroactive” discount structure because the current purchases made by consumers modify the net prices of products purchased by consumers in the past. This discount structure can fail the AEC test if the number of contestable units is low enough.

In some instances, no calculation of cost is necessary because the net price per contestable unit is negative. In this example, if the customer purchases 5,000 units from the leading firm, the customer’s net expenditure is $(5,000 * (\$100 - \$20)) = \$400,000$. If the customer purchases 7,000 units from the leading firm, the customer’s net expenditure is $(7,000 * (\$100 - \$50)) = \$350,000$. The customer saves \$50,000 if it decides to purchase the contestable volume from the leading firm. That is, the leading firm sells the contestable units at a negative price. This discount structure therefore fails the AEC test.

VII. Conclusion

The AEC test is one type of evidence that has been used by US courts to evaluate whether the prices and discounts offered by leading firms are exclusionary. The AEC test can also be used proactively by both leading firms and smaller rivals to assess antitrust risk associated with the leading firm’s pricing strategies.

The AEC test is challenging to implement because (a) there is uncertainty about the share of demand that is contestable, and (b) the cost metrics maintained by the leading firm in the normal course of business may differ from the cost metrics typically used to perform the AEC test. This article explained how the AEC test can be performed in a way that mitigates these two challenges. Specifically:

- The uncertainty about the contestable share can be mitigated by calculating a critical contestable share, which establishes a “floor” that the contestable share needs to exceed for the leading firm to pass the AEC test.
- Even if the cost data maintained by the leading firm in the normal course of business does not correspond exactly to the AVC, AAC, LRAIC, or ATC cost metrics typically used to perform the AEC test, the leading firm can perform the AEC test using cost data maintained by the firm in the normal course of business and assess the antitrust risk associated with its prices and discounts by comparing the cost metrics maintained by the firm in the normal course of business to the cost metrics typically used to perform the AEC test.

Finally, this article discussed the special case of certain retroactive discount structures, which are more likely to result in the leading firm failing the AEC test.

