



VOLUME 1 | NUMBER 2 | AUTUMN 2005

Competition Policy International

Below-Cost Pricing and Loyalty-Inducing Discounts: Are They Restrictive and, If So, When?

Alberto Heimler

Below-Cost Pricing and Loyalty-Inducing Discounts: Are They Restrictive and, If So, When?

Alberto Heimler

Abuse of dominance is the area where the divergence between U.S. and EC antitrust enforcement practices is still very significant. In particular, in the European Community, the identification of price abuses is mostly based on the abstract ability to exclude, while in the United States, the emphasis is mainly on visible and tangible effects. Some refinements in the analysis may be necessary in both jurisdictions. In the European Community, the lack of sound economic analysis is a clear problem. In the United States, the emphasis on actual exclusions is probably too rigid. A more sensible approach based on the ability of an equally efficient competitor to match the pricing policy of the dominant firm may be a constructive way forward in both jurisdictions.

The author is Director of Research and Institutional Relations at the Italian Competition Authority, Rome. The author would like to thank Giorgio Zanarone for very capable research assistance, and Ginevra Bruzzone, Sean Ennis, David Evans, Eleanor Fox, Gary Hewitt, Kirkitumar Mehta, David Reitman, Hal Singer, participants at the first conference of the Association of Competition Economics, Madrid (Sep. 20 2003), and participants at the meeting of Directors General of competition, Brussels (Sep. 22 2004) for helpful discussions and comments. The views expressed herein are the author's own and do not necessarily represent those of the Italian Competition Authority.

I. Introduction

The debate over the convergence and divergence of U.S. and EC antitrust enforcement has been based less on the different wording of legal provisions (which indeed is quite substantial) than on the way in which these provisions actually are interpreted in enforcement decisions.

In the area of cartels, irrespective of the different formulations of the relevant laws, the provisions of both jurisdictions against hard-core violations are sternly enforced—although with some differences in the nature of the sanctions (e.g. only fines for the companies in the European Community, prison terms for executives as well as fines in the United States). As for the broader area of restrictive agreements, the European Commission was strongly criticized in the past for the lack of economic reasoning used in the evaluation of the restrictiveness of vertical agreements. With the adoption of the Block Exemption Regulation on Vertical Agreements in 1999¹ and the Guidelines on Vertical Restraints in 2000,² that gap has been filled. In this area, EC and U.S. practices are now largely convergent. One remaining difference is that absolute territorial restrictions are treated more severely in the European Community than in the United States. But that is the result of the European Community's commitment to the political and economic objective of creating a single common market.

In mergers, irrespective of the fact that the legal test in the European Community has been different from that in the United States, there has been a substantial convergence of enforcement practices. In both jurisdictions, the definition of the relevant market is strongly based on economic analysis, as is the evaluation of the substantive restrictions of competition originating from the merger. Instances of genuine disagreement have been quite rare in practice and, in general, the analysis follows very similar steps so that there is a high degree of probability that the results of a merger investigation on both sides of the Atlantic will lead to a very similar conclusion. This is especially true now that, since the introduction of Regulation 139/2004,³ the substantive tests have become closer.

The situation is very different in abuse of dominance and monopolization cases. In the particular case of price abuses, in the European Community, the assessment of their restrictiveness is mostly based on the abstract ability to exclude, more

1 Commission Regulation (EC) No. 2790/1999 of Dec. 22, 1999 on the application of Article 81(3) of the Treaty to categories of vertical agreements and concerted practices, 1999 O.J. (L 336) 21–5.

2 Commission Notice on Guidelines on Vertical Restraints, 2000 O.J. (C 291) 1–44.

3 Council Regulation (EC) No. 139/2004 of Jan. 20, 2004 on the control of concentrations between undertakings (the EC Merger Regulation), 2004 O.J. (L 24) 1–22.

than on the actual effects⁴. In the United States, on the contrary, the emphasis is mainly on realized effects so that, in the absence of visible and tangible exclusions, the courts have tended to conclude that there is no violation.

Indeed, while excessive pricing abuses are extremely rare in the European Community (and non-existent in the United States where high prices are not an antitrust violation), low-pricing abuses have been found to be restrictive much more frequently than in the United States. In this area, dominant firms in the European Community are not only prohibited from effectively excluding competitors, but also from hurting them too much with aggressive pricing strategies. What counts in EC case law is the abstract possibility of excluding competitors: evidence of intent to exclude becomes a sufficient (but not necessary) element for proving the case. In U.S. case law, on the other hand, the courts require direct evidence that the practice has or will lead to an increase in market power and, in this respect, actual evidence of exclusion seems to be a very important element for proving a case.

A more sensible approach to low-pricing abuses, as proposed in this paper, is one based on the evaluation of the ability of an equally efficient competitor to match the pricing policy of the dominant firm. This approach may provide a constructive way forward in both jurisdictions.⁵

After a brief discussion of the EC and U.S. practices on predation, the paper provides a detailed analysis of the effects of target and sliding scale discounts. It then proposes a possible checklist for identifying abusive discounts. It defends the proposed approach with respect to recent theoretical criticism and then applies it to one EC case (*Michelin II*⁶) and to two leading U.S. cases (*Concord Boat v. Brunswick*⁷ and *LePage's v. 3M*⁸).

4 The EC concept of abuse of dominance originates from the German ordo-liberal tradition which, by the 1920s, had distinguished "impediment competition" (to be prohibited), which included predatory pricing, loyalty rebates and boycotts, from "performance competition" (to be favored), which included all conduct that made a firm's product more attractive to consumers. See D. Gerber, *Constitutionalizing the Economy: German Neo-Liberalism and the "New" Europe*, 42(1) AM. J. COMP. L. (1994).

5 Judge Richard Posner, in his book *Antitrust Law*, takes a very similar position. See RICHARD A. POSNER, *ANTITRUST LAW* (2nd ed. 2001).

6 Case T-203/01, *Manufacture française des pneumatiques Michelin v. Commission* (Sep. 30, 2003, not yet reported) [hereinafter *Michelin II*], upholding Commission Decision 2002/405/EC, *Michelin*, 2002 O.J. (L 143).

7 *Concord Boat Corp. v. Brunswick Corp.*, 207 F.3d 1039 (8th Cir. 2000) [hereinafter *Concord Boat*].

8 *LePage's v. 3M*, 324 F.3d 141 (3rd Cir. 2003) [hereinafter *LePage's*].

II. Predatory Prices and Loyalty Rebates: Is There a Common Theory?

The theory of predation as developed in the United States is based on two pillars:

- 1) a dominant firm sells its products at prices below cost so as to drive competitors out of a market and
- 2) new entry or re-entry in the market is prevented.

Therefore,

- 2b) the dominant firm is able to increase its prices so as to recoup the losses it made while predating.

Indeed, on this last point, U.S. courts have made it clear that in order to successfully prosecute predation it is not just pricing below costs that matters, but that there were also realistic expectations of recoupment.⁹ In other words, predation is condemned not because it results in lower prices now, but because it is likely to lead to reduced output and higher prices in the future and, therefore, ultimately harm consumers. In order for this to occur, other firms must be weak, there must be barriers to re-entry into the market so that restoration of competition is not possible after existing competitors have exited, and the profits to be gained in the post-predation period must outweigh all losses. These conditions are quite rigorous (and rightly so), and as a result, genuine instances of predatory pricing have been extremely rare.

In the European Community, predation has been assessed on a somewhat weaker standard and recoupment has not been considered essential in an explicit way. In particular, in the *Akzo v. Commission* judgment,¹⁰ the European Court of Justice (ECJ) noted that a dominant firm has no interest in pricing below cost except for the purposes “of eliminating competitors so as to enable it subsequently to raise its prices by taking advantage of its monopolistic position.”¹¹ As a consequence, the Court presumed recoupment and did not expressly require the need to prove it in order to establish predation. A slightly different position was taken in the *TetraPak II* case where, “according to the specific circumstances of the case,” the ECJ ruled that it was not necessary to prove recoupment.¹² By explicitly stating that recoupment does not need to be proven given the specific

9 See *Brooke Group Ltd. v. Brown & Williamson Tobacco Corp.*, 509 U.S. 209 (1993),

10 Case C-62/86, *AKZO Chemie BV v. Commission*, 1991 E.C.R. I-3359.

11 *Id.* at para. 71.

12 See Case C-333/94 P, *Tetra Pak International SA v. Commission*, 1996 E.C.R. I-5951 [hereinafter *Tetra Pak II*], at para. 44.

circumstances of the case, the *Tetra Pak II* judgment implies that recoupment does need to be proven in most other cases.

In any case, while predation is a very challenging subject theoretically, it is not very common to see genuine instances of predation. First of all, firms that consider engaging in predatory behavior are certain to incur some costs in the initial period, while future benefits are uncertain. Furthermore, the strategy can be very risky because these costs can persist for a long time if the prey does not exit the market as quickly as expected (and costs are much higher for the dominant firm than for its much smaller prey).

The awareness of the high costs involved in a predatory strategy has led dominant firms to devise alternative low-cost predatory pricing strategies. For example, dominant firms can price below cost in a selective way so as to achieve the goal of keeping competitors out, but without incurring any overall losses (e.g. recouping marginal losses with infra-marginal profits). While competitors can certainly match this low-marginal pricing strategy, the resulting relative effect on total profits can be very different. In some cases, it can lead competitors to incur heavy losses overall and, therefore, function as a powerful exclusionary device.

The U.S. and EC approaches to this more indirect, but more plausible, form of predation stand in contrast. The United States has a very lenient standard (which I will argue too lenient) whereas the European Community has a very strict one (which I will argue too strict). In *Hoffman-la Roche v. Commission*, the ECJ has prohibited loyalty rebates per se or, in EC terminology, by object.¹³ In its judgment, the Court stated that foreclosure does not originate only from exclusive purchasing agreements, but also in circumstances in which “the (dominant) undertaking...applies...a system of fidelity rebates, that is to say discounts conditional on the customer’s obtaining all or most of its requirements—whether the quantity of its purchases be large or small—from the undertaking in a dominant position.”¹⁴ After *Hoffman-la Roche*, the Commission found loyalty rebates to be abusive by object in many other cases. In particular, the Commission elaborated on the notion that discounts need to be “objective” and should reflect genuine savings associated with additional sales.

The cost-savings argument for justifying discounts, under EC law, is quite ambiguous because it can lead enforcers to consider even quantity discounts to be abusive. In fact, while cost savings may actually arise from a truckload shipment, it is unclear how objective savings can result by reaching a certain volume of sales during a reference period via a number of different shipments. What seems difficult for EC antitrust enforcers to acknowledge is that discounts pro-

13 Case 85/76, *Hoffmann-La Roche v. Commission*, 1979 E.C.R. 461 [hereinafter *Hoffman-La Roche*], at 461.

14 *Id.* at § 7.

vide a built-in incentive mechanism to continue buying from a given company. In this respect, discounts are often quite cheaper for the discounting firm than other more costly forms of incentives that would very rarely fall under antitrust scrutiny (e.g. telephone calls by a sales representative or an invitation to dinner or fancy sea resort). However, the Commission has never accepted this incentive argument and has always taken a very negative view of discounts.

Discounting practices have almost always been considered legal in the United States because the standard of proof remains that of classical predation (revenues that are below costs and eventual recoupment through higher prices). However, several decades ago Director and Levi (1956) pointed out that discounts by monopolists may sometimes impose even greater costs on rivals, a comment which has been largely ignored by the U.S. courts.¹⁵

In both jurisdictions, sound economic analysis can improve decision making and enforcement practices. Indeed, from the perspective of a firm offering discounts, what matters is total profits—that is, the difference between revenues and costs. Therefore, if the profits of a discounting, single-product dominant firm are positive, then competition problems may only arise if the discounting policy can be matched only at a loss by an efficient competitor. The same is true of a multi-market context, when a firm, dominant in market A and operating in B, bundles the two purchases with a discount so as to also achieve dominance in market B, and in doing so, excludes an equally efficient competitor either in A or B.

III. Dominance, Rebates, and Marginal Predation

Discounts, as Ridyard (2003) argues, can be structured in different ways: standard quantity discounts, loyalty discounts granted in exchange for exclusivity, or target discounts where a discount is granted on all purchases after a pre-specified level of sales (which may differ for different retailers) has been reached.¹⁶ In the European Community, quantity discounts are not considered abusive in so far as they imply some objectively identified cost savings.¹⁷ Loyalty discounts are always prohibited, while non-objectively justified target discounts have been considered abusive, irrespective of the impact on prices that such discounts have or whether competitors are able to match them profitably. The economic justification of such a rigorous approach is that these discounts, since they drastically

15 A. Director & E. Levi, *Law and the Future: Trade Regulation*, 51 *Nw. U. L. Rev.* 281, 292–294 (as cited in E. ELHAUGE, *DEFINING BETTER MONOPOLIZATION STANDARDS*, (Harvard Law School, Working Paper 434, 2003)).

16 D. Ridyard, *Article 82 Price Abuses – A More Economic Approach* (2003) (mimeo).

17 As I have already argued, the reason that an estimate of the actual savings was never considered necessary to prove that such discounts were not abusive, was probably because such cost savings are really conjectural and almost impossible to prove.

reduce marginal prices around the threshold, may transform the type of competition occurring in a market. As Gary Hewitt (2003) argues, these discounts may change competition from “something occurring continually at the margin, to periodic rivalry for each buyer’s total requirement.”¹⁸ This strategy may be abusive in so far as firms differ in terms of reputation, of productive capacity, or of portfolio of products, so that only the dominant firm is able to get de facto exclusivity in supply.

AN ANALYSIS OF MARKET CHARACTERISTICS IS NECESSARY FOR EVALUATING THE RESTRICTIVENESS OF DISCOUNT SCHEMES. THE DIFFICULTY IN THE ANALYSIS LIES IN THE FACT THAT WHILE NON-LINEAR PRICES CAN SOMETIMES BE EXCLUSIONARY, THEY CAN ALSO BE A VERY POWERFUL INSTRUMENT OF COMPETITION.

An analysis of market characteristics is necessary for evaluating the restrictiveness of discount schemes. If all firms compete for the total demand of a given customer, rivalry occurs at the beginning of the reference period and target discounts cannot be predatory in so far as they lead to total revenues above costs. However, if there are asymmetries among firms, in the sense that only the dominant firm can supply total demand and its competitors either do not have the capacity to do so, do not have enough reputation so as to satisfy all potential customers, or supply only a limited part of the portfolio of

products of the dominant firm, then discounts can become exclusionary. The difficulty in the analysis lies in the fact that while non-linear prices can sometimes be exclusionary, they can also be a very powerful instrument of competition.

I will concentrate next on two very common forms of discounts—target rebates and volume sliding scale discounts.

A. TWO COMMON FORMS OF DISCOUNTS

1. Target Rebates

Target rebates are discounts granted when purchases by the retailer exceed a pre-determined, customized turnover. These discounts are lost by the retailer if additional purchases from a competitor impede the retailer from achieving the established target. Although there is uncertainty on the part of the retailer about whether the target will be reached or not, there is no uncertainty about the amount of savings the retailer achieves by reaching the target. In this sense, although target discounts can be costly to match by a competitor, the amount of savings they entail is certain and, therefore, in the case of turnover-based target rebates, competitors have all the information necessary to replicate the discounting policy of the dominant firm.

18 G. Hewitt, *Background note*, in OECD COMPETITION COMMITTEE, LOYALTY AND FIDELITY DISCOUNTS AND REBATES, ROUNDTABLE ON COMP. POL'Y 40 (2003).

Another characteristic of target discounts is that retailers that have a similar level of purchases from a given supplier (but different targets) receive different discounts. On many occasions, the European Commission has considered this “discrimination” a separate violation of competition rules because it allegedly restricts competition among retailers.¹⁹ I will not pursue this further because of the lack of economic analysis underlying such arguments. In fact, the Commission never asks why it would be in the interest of a supplier to reduce competition among its retailers, provided that a reduction of competition downstream reduces sales upstream. Furthermore, applying discount rates which are independent of the size of the retailer and in some sense in proportion to its sales efforts tends to increase, not decrease, competition among retailers, eliminating possible disadvantages that a small retailer would possibly have with respect to a larger one. Such discrimination, at least at first sight, looks pro-competitive.

Market share discounts (i.e. the discount that is granted when purchases from the firm exceed a given share of the retailer’s total purchases) are a special case of target rebates and reflect what a supplier would like to achieve with these discounts—that is to improve its performance with respect to its competitors in terms of sales to a given retailer. In order to analyze the impact of target rebates, I will use the particular example of market share rebates since it is much easier to study them analytically. In any case, the conclusions that I will draw in the case of market share discounts are quite general. The major difference with respect to turnover-based target discounts is that market share discounts are much more uncertain for both competitors and retailers in terms of the level of discounts that will be granted to the retailer that has reached the target. This is because total purchases cannot be known with certainty until the end of the reference period. However, the experience a firm gains by being in the market year after year can strongly reduce such uncertainty.

Market share discounts by a dominant firm can be exclusionary when a competitor, willing to compete away a small but significant share of the dominant firm sales (in principle, the incremental sales originating from the discounting policy), has to match the discounts lost to the retailer with a discount that forces his total revenues with that retailer below his costs. The entrant’s resulting loss is called “lost discounts,” because it at least equals the discounts that the retailer foregoes by purchasing from the entrant instead of the dominant firm.²⁰ The discount rate the competitor has to offer in order to make the retailer indifferent is higher than the discount rate offered by the dominant firm, the lower the competitor’s relative sales to the retailer and the lower the incremental sales originat-

19 See, e.g., Commission Decision 2000/74/EC, *Virgin/British Airways*, 2000 O.J. (L 30) 1 [hereinafter *Virgin/BA*].

20 For a more formal analysis of target rebates and sliding scale discounts, see the Appendix contained in §V of this paper.

ing from the introduction of the discounting policy. If the competitor is a new entrant, market share discounts by a dominant firm can be very penalizing.

2. Sliding Scale Volume Discounts

Sliding scale volume rebates are discounts that are granted when retailers reach a predetermined level of purchases. Such discounts are not customized for each retailer, but are set up in a general scheme and made known to all retailers at the beginning of the year. The uncertainty that retailers face is that, ex-ante, they do not know which turnover bracket they will find themselves at the end of the year, and so are uncertain about the actual savings they will achieve. If this is the case, then it is difficult for a competitor to match an uncertain outcome. However, such uncertainty should not be over-emphasized because retailers are in the market period after period and purchases from a given supplier are, to a certain extent, predictable.

Sliding scale volume discounts are much less exclusionary than target rebates because they are exclusionary only in so far as the sales a competitor needs to compete away lead the retailer to move to a lower discount bracket. Furthermore, the lost discount a competitor has to match depends only on the difference between the discount rates of the two brackets—the brackets into which the retailer would have fallen with and without entry.

B. A CHECKLIST FOR ESTABLISHING ABUSIVE DISCOUNTS

In order to establish the abusive nature of loyalty-inducing discounts, the proposed analysis requires that one:

- 1) prove dominance in a relevant market;
- 2) show that purchases by retailers are neither too far above nor too far below the target (otherwise a competitor could not be excluded because if purchases are far below the target then the target is unreachable for the retailer even without entry; if purchases are far above then the target also would be reached with entry²¹); and,
- 3) prove that matching discounts have or will lead an equally efficient competitor to price below costs.

The below-cost character of discounts should be calculated with respect to a small but significant increase in sales by the competitor—in principle, equal to the incremental sales originating from the discounting policy. As in the case of predation, it should also refer to the price-cost margin of the dominant firm (and only in very exceptional circumstances, i.e. when there are clearly demonstrated efficiencies to be gained by the new entrant, calculated with respect to the aver-

21 As it will be argued later in this paper, this was the case in *Concord Boat* where, notwithstanding the target of 80 percent, Brunswick was selling 100 percent of the stern engines to many boat builders.

age incremental cost associated with the small but significant increment in sales), so as to ensure that exclusion is assessed with respect to an equally efficient competitor.

Appropriate consideration should be given to the fact that in a pluralistic market structure (where the number of competitors is greater than two), expansion or new entry is limited by rivalry from all market participants, not just from the dominant firm. In this respect, the record of entry in the industry and the relative movements of market share from year to year should be given proper consideration.

While classical predation can occur only when the dominant firm is losing money, abusive discounting leads to prices below costs only at the margin and the dominant firm remains profitable overall. The exclusionary nature of discounts is related entirely to the inability of competitors to spread discounts over the same turnover as the dominant firm.

Loyalty-inducing discounts can exclude competitors both in single-market and multiple-market contexts. The common feature of single and multiple markets is that competitors of the dominant firm are much smaller, either in the single market where the firm is dominant or across markets. In the particular case of discounts across multiple markets, Greenlee and Reitman (2005) state that “if a firm sets the target level so high that it loses money on incremental sales, then there is a valid inference of exclusionary intent.”²²

Greenlee and Reitman (2005) also address the case of a monopolist that links a rivalrous market through a discount, a case also addressed by Nalebuff (2004).²³ According to these authors, if the discount is a lump-sum, as I assumed in the previous section, the equally efficient competitor test continues to hold. If, however, the discount takes the form of a lower price in the monopolized markets in exchange for loyalty and an associated supra-competitive price in the rivalrous market, the equally efficient competitor test is only a safe harbor. According to these authors, bundle discounts cannot be abusive if they exclude less-efficient rivals. On the other hand, they suggest that there are instances when an equally efficient competitor is excluded but bundled discounts may nonetheless be consumer welfare-increasing.

22 P. GREENLEE & D. REITMAN, *COMPETING WITH LOYALTY DISCOUNTS* (U.S. Department of Justice, EAG Discussion Paper 04–2, 2004, revised Feb. 4, 2005).

23 B. NALEBUFF, *BUNDLING AS A WAY OF LEVERAGING MONOPOLY* (Yale School of Management, Working Paper No. 36, 2004).

However, the pricing strategy suggested by Nalebuff (2004) and Greenlee and Reitman (2005),²⁴ where consumer welfare increases even though an equally efficient competitor is excluded, does not lead to a long-run equilibrium. While this can be seen easily in the numerical analysis proposed by Greenlee and Reitman (2004),²⁵ the same argument applies to more general theoretical results where the monopolist in the first market, having monopolized the second market with his discounting strategy, always has the incentive to increase prices in both markets to their monopoly levels, leading to a decrease, not an increase, of consumer welfare.

Moreover, as Greenlee and Reitman (2004) argue, consumers benefit from the lower prices that originate from rebates. As a matter of fact, short-run consumer welfare can increase in the case of predatory prices. They argue, however, that in predatory pricing, contrary to what happens with respect to loyalty discounts, the “consumer benefit...is presumed to be transitory if the predator can eventually recoup the costs of predation through higher prices.”²⁶ Indeed, the same happens with loyalty-exclusionary discounts. They may benefit the consumer in the short

THE EUROPEAN COMMISSION,
WHEN ANALYZING THE EFFECT OF
DISCOUNTS, HAS NEVER LOOKED
SERIOUSLY AT THE ABILITY OF
COMPETITORS TO PROFITABLY
MATCH THE PRICING STRATEGY
OF THE DOMINANT FIRM.

run, but they can also lead to monopolization of a previously rivalrous market if they exclude equally efficient competitors. In addition, while loyalty-exclusionary discounts can be as harmful as predatory prices, they are much less costly for the dominant firm to implement because recoupment occurs through the higher prices of infra-marginal units. In this sense, exclusionary discounts should not be treated with any more leniency than should predatory prices.

Therefore, the equally efficient competitor standard remains valid since the increase in consumer welfare that can exist even when an equally efficient competitor is excluded, most of the time, only exists in the short run—as in predation.

C. THE EC PRACTICE WITH DISCOUNTS AND THE *MICHELIN II* CASE

Contrary to what is suggested in this paper, the European Commission, when analyzing the effect of discounts, has never looked seriously at the ability of competitors to profitably match the pricing strategy of the dominant firm. For exam-

24 Nalebuff (*id.*) and Greenlee & Reitman (2005) (*supra* note 22) show that a discounting policy that takes the form of a lower price in the monopolized markets in exchange for loyalty and an associated supra-competitive price in the rivalrous market may exclude equally efficient competitors, but may nonetheless be consumer welfare-enhancing.

25 P. Greenlee & D. Reitman, *Distinguishing Competitive and Exclusionary Uses of Loyalty Discounts* (2004) (mimeo, U.S. Department of Justice).

26 *Id.* at p. 20.

ple, in 1999, the Commission found British Airways (BA) travel-agent-discounting schemes abusive.²⁷ In that case, which was confirmed by the Court of First Instance (CFI),²⁸ discounts were granted to travel agents according to predetermined, customized turnover targets. The Commission tried to show that BA discounts led to very strong increases in the commissions an aggressive competitor might be obliged to provide to travel agents so as to make them indifferent to the BA offer. The Commission calculated the effect of the discounting scheme on a new entrant wishing to compete away 2 percent of the BA market. However, in its calculation, the Commission did not consider that BA's market share was slightly below 50 percent and that a competitor also competed with other airlines—not just with British Airways. Furthermore, after showing that matching the discount was more costly to a competitor, the Commission simply presumed that competing airlines did not have the ability to profitably match BA discounts. This is quite an unrealistic presumption considering that, irrespective of the discounts, Virgin was able to enter the market profitably.

Finally, the Commission's analysis of the way travel agents operate was quite abstract and incomplete. In particular, the exclusionary nature of target discounts was ascertained without an analysis of the way travel agents actually competed in the market and whether consumers were actually misled by travel agents who withheld less-expensive alternatives or strongly discounted BA tickets in order to achieve the BA target. There was no analysis of any kind of the extent to which consumers directly informed themselves by contacting the airlines and were not completely captive to the suggestions of the travel agent.

After the case, the Commission outlined its policy on commissions paid by airlines to travel agents.²⁹ First, the Commission required that discounts be cost-justified. It limited the reference period for extra discounts to six months and prohibited target discounts. Moreover, discounts had to increase linearly, they could not be retroactive, and travel agents had to be free to sell the tickets of all airlines. There was no reference in the list of prohibited discounting practices that addressed the effect the allegedly abusive discounts might have on competition or the ability of competitors to match them. The only flexibility that the Commission seemed to grant, and that was clearly related to the practice's effect on the ability of competitors to compete, was to limit the period during which target rebates should be calculated to six months.

27 *Virgin/BA*, *supra* note 19.

28 Case T-219/99, *British Airways plc v. Commission* (Dec. 17, 2003, not yet reported), upholding *Virgin/BA*, *supra* note 19, appeal to the ECJ is pending as Case C-95/04, *British Airways v. Commission*.

29 See J. Finnegan, *Commission sets out its policy on commissions paid by airlines to travel agents*, 3 COMPETITION POL'Y NEWSL. 23 (1999).

As for other more substantive aspects, EC case law does not leave much room for an evaluation of the actual foreclosure exercised by such discounting schemes. Recently, the judgment by the CFI in *Michelin v. Commission*³⁰ upheld the Commission's decision on the abusive character of both volume and target rebates.

1. The *Michelin II* Case

In May 1996, the Commission started an investigation into the commercial practices of Michelin in order to ascertain its abusive character. During the course of the investigation, the Commission established that Michelin—which held more than 50 percent of the French market for tires while its competitors held much lower shares³¹—was a dominant firm that operated a complex system of quantitative rebates, bonuses, and commercial agreements. The Commission alleged that this system constituted a loyalty-inducing and unfair pricing scheme vis-à-vis its dealers. And, furthermore, the effect of such a discounting policy was to keep dealers dependent on Michelin and prevent them from freely choosing their suppliers.

The Commission's decision and the subsequent judgment of the CFI found that the volume and target rebates were abusive in so far as they were able to exclude competitors from the market. The decision is largely based on the following elements:

- 1) Although it is not necessarily contrary to EC law for a company in a dominant position to grant a system of discounts under which the rate of the discount increases with the volume of purchases made, the system must be based on a countervailing advantage which is economically justifiable (e.g. economies of scale which are passed on to the customer). However, Michelin gave no economic justification for its system of quantity discounts, which, because it was loyalty-inducing, tended to prevent French dealers in truck and bus tires not only from ascertaining the price at the time of purchase, but also from obtaining supplies from competing manufacturers.
- 2) The system of preferential prices linked to Michelin's loyalty club, Michelin Friends Club, also amounted to an abuse. Conditions of club membership included requiring dealers to give Michelin undertakings related to market share, to stock a certain number of Michelin tires, and to promote the Michelin brand, in return for which Michelin provided dealers with training and financial support towards investment. According to the CFI, those conditions were intended, overall, to

³⁰ *Michelin II*, *supra* note 6.

³¹ Note that over the period covered by the inquiry this share fell quite substantially.

eliminate competition on the part of other manufacturers as well as to ensure that Michelin's position was maintained and that competition in the market for new replacement truck and bus tires was restricted.

In what follows, I will try to provide some counter arguments to the above lines of reasoning based on some estimates of the harm the system of discounts operated by Michelin might have had on competition.

2. The *Michelin II* Case: Some Additional Considerations

Besides not considering the possibility that competitors could have profitably matched Michelin's pricing policy, the Commission's decision is based on the questionable assumption that all discounts that cannot be objectively justified are unlawful. As I have argued above, the main reason that such discounts may be efficiency-enhancing is that they align the interest of the supplier with that of the retailer and induce extra sales efforts on the part of the retailer. Furthermore, some of the benefits the retailer receives are passed on to consumers via lower prices. These discounts may exclude more efficient rivals because of predation operating at the margin. Unfortunately, the Commission's decision contains enough information to cast doubt on the analysis used and the conclusions reached; at the same time it does not contain enough information to assess whether these discounts have resulted in significant exclusion of competitors. Further doubts about the analysis and conclusions come from the observation that, in the period under consideration, when the alleged exclusionary policy was in place, Michelin lost a significant size of the market to competitors.

THE COMMISSION'S DECISION CONTAINS ENOUGH INFORMATION TO CAST DOUBT ON THE ANALYSIS USED AND THE CONCLUSIONS REACHED; AT THE SAME TIME IT DOES NOT CONTAIN ENOUGH INFORMATION TO ASSESS WHETHER THESE DISCOUNTS HAVE RESULTED IN SIGNIFICANT EXCLUSION OF COMPETITORS.

a) *Michelin's sliding scale volume discounts*

The grid contained in the Commission's decision shows that the discounts varied from a minimum of 7.5 percent (associated with total annual revenues of FF 9000) to a maximum of 13 percent (associated with annual revenues of FF 22 million), and progressed by 0.5 percent at the beginning of the scale and by 0.05 percent at the end. In its judgment, the CFI calculated the effect on an additional FF 1 worth of purchases right at the amount of purchases where discounts change.³² The CFI concluded that these marginal discounts were as high as 7500 percent of the list price and that the amount was impossible to compete away.

³² *Michelin II*, *supra* note 6, at para. 87.

A more realistic calculation could be made by applying formula (10) in the Appendix (Section V). Assume, for example, that a competitor wishes to compete away a share of Michelin's sales to the retailer, say 5 percent. Also assume that Michelin is a monopolist so that the starting sales of the potential competitor with a given retailer are zero (note that this assumption maximizes the alleged exclusionary nature of Michelin's discounts). In order for the retailer to accept the deal, the competitor has to offer him a rebate slightly higher than the rebate he gets from Michelin. For example, if the total purchases of Michelin's products by the retailer allow him an 11.05 percent discount (a realistic assumption according to the sliding scale volume rebates that Michelin was actually offering), then a competitor has to match it with a 13 percent discount. This additional 1.95 percent discount for the very extreme assumption that Michelin is a monopolist hardly seems exclusionary.

b) Michelin's target discounts

Michelin also offered retailers an additional discount if a predetermined individualized level of turnover was achieved. The impact of target discounts on competitors depends, as illustrated by formula (3) in the Appendix, on the turnover base a competitor has already achieved with a given retailer. For example, assume Michelin has a 60 percent share of total purchases with a given retailer and offers a 1.5 percent target discount. A competitor wishing to challenge 5 percent of Michelin's market share (corresponding to 3 percent of the retailer's total purchases), would find that it costs him 30 percent of total revenues to attract the retailer if he is a new entrant. If his share of total retailer's purchases is already 5 percent, it costs him 11.3 percent. And, if his share is 10 percent, it costs him 6.9 percent. Again, these numbers do not take into account the fact that a competitor competes with everybody in the market, not just with the dominant firm, and so would have to be weighted down to some extent. In any case, this simple calculation shows that the exclusionary effect of target discounts may be much stronger than sliding scale volume discounts. However, whether such discounts are predatory at the margin and would exclude an equally efficient competitor from the market is an empirical question that, if one is to answer, requires some information about Michelin's price-cost margins and the proper estimation of incremental sales. Unfortunately, the facts contained in the Commission's decision do not provide this information.

D. THE U.S. PRACTICE AND THE *CONCORD BOAT* AND *LEPAGE'S* CASES

Contrary to EC practices, in the United States, loyalty rebates have often been considered non-restrictive (although they may be challenged under the Robinson-Patman Act if competing firms have to pay a different price for the same product). Indeed, in a recent paper presented at an OECD Competition Committee roundtable on loyalty discounts, the U.S. authorities stated that they "cannot recall any enforcement actions challenging 'market share' discount

schemes, but a number of recent private suits have started to develop the law in this area.”³³

In particular, there are a number of judgments on discounts based on private lawsuits. In July 2001, the U.S. Court of Appeals for the Second Circuit affirmed the summary judgment of the district court, stating that a loyalty discount scheme by British Airways, allegedly used to exclude Virgin Atlantic Airways from the market, was not anticompetitive. The practice was very similar to the one the Commission prohibited in 1999, described in the previous section. An analysis of the U.S. Court of Appeals’ judgment provides a good opportunity to identify the main differences underlying the approaches of the two jurisdictions. In particular, according to the U.S. Court of Appeals, Virgin failed to demonstrate that BA’s discounts to travel agents harmed competition, since they did not lead to lower output, higher prices, or decreased quality. Furthermore, no evidence was provided to support the argument that BA’s discounting policy might lead to a monopoly. A major point in the court’s judgment was that, during the period under consideration, there was no actual exclusion. On the contrary, Virgin was able to gain considerable market share (and profitably so), becoming a major player along the U.S.-London routes.

NO EVIDENCE WAS PROVIDED TO SUPPORT THE ARGUMENT THAT BA’S DISCOUNTING POLICY MIGHT LEAD TO A MONOPOLY. ON THE CONTRARY, VIRGIN WAS ABLE TO GAIN CONSIDERABLE MARKET SHARE (AND PROFITABLY SO), BECOMING A MAJOR PLAYER ALONG THE U.S.-LONDON ROUTES.

1. The Judgment of the U.S. Court of Appeals for the Eighth Circuit in *Concord Boat v. Brunswick*

On considerations analogous to *Virgin Atlantic*, on March 21, 2000, the U.S. Court of Appeals for the Eighth Circuit denied the abusiveness of a market share discounting scheme by Brunswick in *Concord Boat Corp. v. Brunswick Corp.*³⁴ The case originated from an antitrust action by a number of boat builders against stern drive engine manufacturer, Brunswick Corporation. The boat builders contended that Brunswick had used “market share discounts, volume discounts, and long term discounts and contracts, coupled with the market power it had achieved in purchasing Bayliner and Sea Ray, to restrain trade and to monopolize the market of stern drive engines in violation of section 1 and 2 of the Sherman Act.”³⁵ In particular, Brunswick had put a market share discounting scheme in place under which, from 1984 to 1994, it offered a 3 percent discount to boat builders who bought 80 percent of their engines from the company, a 2 percent discount for

³³ See Hewitt, *supra* note 18, at 185.

³⁴ *Concord Boat*, *supra* note 7.

³⁵ *Id.* at § 1.B, p. 7.

70 percent of all purchases, and 1 percent for those who bought 60 percent. Boat builders could then receive additional discounts if they signed a market share agreement extending over a number of years.

The U.S. Court of Appeals for the Eighth Circuit did not conclude that such discounts were exclusionary. The court found that, throughout the more than ten years during which the discounting scheme had been in place, there had been some occasions of new entry and of very strong reductions in Brunswick's market share. The court, therefore, concluded that "boat builders failed to produce sufficient evidence to demonstrate that Brunswick had foreclosed a substantial share of the stern drive engine market through anticompetitive conduct."³⁶ According to the court, boat builders had not shown that Brunswick's superior market share was achieved or maintained by means other than competition on the merits.

As in *Virgin Atlantic*, the court did not analyze the effect of the market share discounts on competitors' profitability. In particular, since target discounts can be matched only at great cost to the competitor, it seems a bit contradictory to conclude—like the court did—that imposing additional costs on others is competition on the merits. In fact, if formula (3) in the Appendix is applied to this case, then a competitor selling to a boat builder 5 percent of his yearly demand of stern engines and wishing to achieve a 6.6 percent share has to reduce his prices by 12.1 percent if, as a consequence of this increase in his sales, the discount from Brunswick has fallen from 3 to 2 percent. In other words, in this particular example, keeping a competitor out would cost Brunswick one percent of its revenues, while entry would cost a competitor 12.1 percent. Determining whether the discounting policy of Brunswick was indeed exclusionary would have to be evaluated with more information than that available in the judgment.

The significant challenge to a conclusion that the discounting policy was exclusionary is that in the U.S. Court of Appeals judgment reference is made to situations where, notwithstanding the target of 80 percent, Brunswick was selling 100 percent of the stern engines to a specific boat builder. If such cases were frequent, then the exclusionary character of the discount would be more difficult to argue.

2. The Judgment of the U.S. Court of Appeals for the Third Circuit in *LePage's v. 3M*

In March 2003, reaching a decision contrary to that of *Concord Boat*, the U.S. Court of Appeals for the Third Circuit found that a multi-product rebate program by 3M was abusive in *LePage's v. 3M*.³⁷ A US\$68 million treble damage

³⁶ *Id.* at § 1, p. 30.

³⁷ *LePage's*, *supra* note 8.

award was issued against 3M. The interesting issue in the *LePage's* case was that above-cost pricing was considered abusive in so far as it excluded competitors from the market without considering the cost of matching the discounting policy by competitors.

The issue to be solved, as 3M put it, was whether an above-cost pricing practice was considered a violation of Section 2 of the Sherman Act. Both *LePage's* and 3M agreed that 3M had a monopoly in the U.S. transparent tape market, with a market share above 90 percent. The court found that:

- 1) 3M, after *LePage's* entry into the market, offered discounts to certain customers conditional on purchases spanning over six of 3M's diverse product lines. In addition to bundling the rebates, 3M set customer-specific target growth rates in each product line. If a customer failed to meet the target for any one product, then he would lose the rebate across the line. In the judgment by the court, some consideration was given to the fact that these rebates were of a substantial amount—Kmart received almost US\$1 million in 1997 and Wal-Mart received US\$1.5 million—but no analysis was provided regarding their ability to foreclose rivals. The court just stated that the principal anticompetitive effect of bundled rebates, as offered by 3M, was that when offered by a monopolist they may have foreclosed portions of the market to a potential competitor that did not manufacture an equally diverse group of products.
- 2) There was evidence that, in order to reach the targets set by 3M, distributors dropped or drastically reduced purchases from *LePage's*. 3M's discounts were shown to strongly affect the ability of *LePage's* to compete—in fact, its earnings as a percentage of sales plummeted to below zero (to negative 10 percent) during 3M's rebate program.
- 3) There was substantial evidence that significant entry barriers prevented competitors from entering the tape market in the United States. Thus, the case presented a situation in which a monopolist remained unchecked in the market.

What is clear from the U.S. Court of Appeals for the Third Circuit's judgment is that the alleged Section 2 violation by 3M was analyzed in terms of the effects of 3M's discounting scheme on *LePage's* profitability and whether it was a permanent strategy. However, the court was satisfied to see *LePage's* share decline and its profits deteriorate. As the DOJ's *amicus curiae* brief to the U.S. Supreme Court stated, "the court of appeals was unclear as to what aspect of bundled rebates constituted exclusionary conduct, and neither it nor other courts have definitely resolved what legal principles and economic analyses should control."³⁸ The Court did not require a formal analysis of whether the discounting practice had or

38 See *Brief of the United States as Amicus Curiae*, 2004 W.L. 120591 (May 28, 2004).

would lead an equally efficient competitor to price below cost. Instead it was satisfied with the evidence that competitors suffered losses as a result of the practice.

Indeed, the judgment of both courts was taken, despite a sharp dissent. In particular, according to three dissenting judges (out of ten), LePage's did not prove the direct harm it suffered because of the abusive practice. The dissent was on the rigor of the proof, and in particular, on the consideration that LePage's had not proven the amount to which it had to reduce its prices in order to match 3M's discounts. According to the dissenting judges, the below-cost character of 3M's discounts was not rigorously assessed and was only presumed in consideration of the effect 3M's pricing policy had on LePage's sales and profits.

While controversial, the judgment in *LePage's* is, in this respect, in line with the U.S. practice of placing great importance on the exclusionary effect of a discounting practice. In particular, the main reason the courts concluded that 3M had violated Section 2 by using above-cost price cuts was that LePage's and other

WHILE CONTROVERSIAL,
THE JUDGMENT IN *LEPAGE'S* IS,
IN THIS RESPECT, IN LINE WITH
THE U.S. PRACTICE OF PLACING
GREAT IMPORTANCE ON
THE EXCLUSIONARY EFFECT
OF A DISCOUNTING PRACTICE.

3M competitors actually lost significant market share after the discounting policy was introduced. It was the effect of the discounting policy in the market that induced the U.S. Court of Appeals for the Third Circuit to conclude that it was unmatchable by competitors.

The same reasoning was used in both *Concord Boat* and *Virgin Atlantic*, where the courts concluded that there was not a violation because companies that allegedly suffered from the discounting policy saw their market share increase, not decrease. In *LePage's*, the reduction in market share was documented and the U.S. Court of Appeals for the Third Circuit confirmed the violation.

IV. Conclusion

Abuse of dominance and monopolization cases are still treated very differently on the two sides of the Atlantic—U.S. policy is more permissive and EC policy is more severe. This is particularly true in the area of selective discounting. In the European Community, the only proper justification for discounts is some objective measure of the cost savings associated with the corresponding level of sales. Otherwise, exclusionary effects are presumed. In the United States, exclusionary effects have to be proven, not as a hypothesis or logical possibility, but as a reasonable possibility. In both jurisdictions, greater reliance on economic analysis would strengthen decision making.

All of the cases surveyed in this paper deal with dominant firms imposing high reductions in average prices on competitors that try to match the pricing strate-

gy of the dominant firm. The abuse corresponds to situations where the dominant firm is globally profitable and where matching the discounting practice has or will lead an equally efficient competitor to price below cost—implying that incremental pricing is also below cost for the dominant firm.

If the discounting firm is dominant in a relevant market, the features of abusive discounting practices are such that:

- 1) there is evidence that targets are fine-tuned around the actual purchases of the dominant firm customers (otherwise competitors would not face any extra costs when matching the dominant firm's discounting policy);
- 2) if targets are on average just reached (as we should expect), then the matching of such discounts by an equally efficient competitor will lead to prices below costs;
- 3) the calculation of the below-cost character of discounts is made with respect to a small but significant increase in sales and refers to the price-cost margin of the dominant firm to ensure that exclusion is assessed with respect to an equally efficient competitor.

As in predation, if an equally efficient competitor is excluded because of the discounting strategy, then there is no need to look for efficiencies and a reduction of consumer welfare can be presumed.

In all of the EC cases, there is no evidence that matching the discount of the dominant firm has or will lead competitors to price below cost. The evidence provided is mainly on the absence of cost savings and the loyalty-inducing effect of a scheme that is uncertain in terms of the benefits it may provide. I have argued in this paper that the cost-saving argument is not taken to its logical conclusion, and that the cost savings and efficiencies associated with using discounts as incentive-enhancing devices are not even considered. Furthermore, uncertainty, sometimes mentioned in EC decisions as an additional factor that enhances the anticompetitive nature of the scheme, is not always an issue. In fact, there is no uncertainty when the target is expressed in terms of turnover, because the retailer knows exactly to what the discount amounts. On the other hand, with a market share target, the retailer does not know the level of discounts until the end of the reference period and matching the discounts of a competitor is not so easy. However, the experience a firm gains by being in the market year after year can help greatly. Experience can also help reduce the uncertainty of sliding scale discounts since, again, the bracket that the retailer will ultimately reach is not known until the end of the reference period.

As for the U.S. courts, the actual exclusion of competitors and their sustained losses is necessary for identifying a violation, as shown by both *Concord Boat* and *LePage's*. I have argued that the existence of competitors that are sustaining losses directly linked to the discounting practice of the dominant firm should be suf-

ficient (in so far as the competitors are not less efficient than the dominant firm), and that the U.S. case law's requirement that competitors show significant loss of market share may be an unjustified additional burden. Of course, evidence to the contrary—that is, competitors' market share increases profitably as in *Michelin II* or in *Virgin Atlantic*—should significantly increase the burden of proof.

An important point worth mentioning is whether a merger should be prohibited on the grounds that there is the potential for such discounting practices to be put in place. The answer is “no.” Indeed, in its judgment annulling the Commission's prohibition of the *Tetra Laval/Sidel* merger,³⁹ the CFI stated that the Commission, in assessing the effects of a merger, is required to assess whether the prohibition of abusive conduct makes discounting practices less likely.

A final question not really addressed in the paper is whether antitrust enforcement can really be based on fine-tuning arguments—for example, whether it is abusive to exclude a less efficient competitor because, in the future, he may become more efficient. The answer is a reasoned, “yes.” In very special circumstances—those where there is direct and strong evidence of near-term efficiencies—the assessment of the exclusionary nature of rebates should be made with respect to the average incremental cost of the dominant firm associated with the small but significant increase in sales of the competitor.

39 Case T-5/02, *Tetra Laval v. Commission*, 2002 E.C.R. II-4382, declaring void Commission Decision 2004/103/EC, *Tetra Laval/Sidel*, 2004 O.J. (L 38) 1, appeals to the ECJ are pending as Cases C-12/03 and C-13/03, *Commission v. Tetra Laval*; Case T-310/01.

V. Appendix

Market share discounts can be formally described as such:

- (1) $p_d q_d < mPQ$ $R = r = 0$
- (2) $p_d q_d > mPQ$ $R = r p_d q_d > 0$

where:

p_d and q_d are respectively the price and quantity vectors of the dominant firm;

P and Q are respectively the price and quantity vectors of retailer's purchases on all substitute products;

m is the target market share;

R is the total amount of the granted discount; and,

r is the rate of discount.

In an asymmetric duopoly, assuming that the target m set by the dominant firm is reached (or that the retailer believes that it is reachable), a competitor with a share s on all purchases by a retailer and willing to compete away $1/n$ of the dominant firm sales (in principle the incremental sales originating from the discounting policy), has to match the lost discounts $rmPQ$, by providing the retailer with a discount rate equal to k :

$$(3) \quad k = rmPQ / [(1/n) mPQ + sPQ] = rm / [(1/n) m + s]$$

From (3) it is clear that k , the discount rate the competitor has to offer in order to make the retailer indifferent, is higher than r , the discount rate offered by the dominant firm, the lower s , the competitor's relative sales to the retailer, and the lower $(1/n)$, the incremental sales originating from the introduction of the discounting policy as a share of all sales by the dominant firm. Still assuming that the target m is just reached (or that the retailer believes that is reachable), when s is equal to zero, market share discounts by a dominant firm can be very penalizing for a new entrant:

$$(4) \quad k = r / (1/n)$$

The analysis on the exclusionary effect of market share discounts should be made on a case-by-case basis, identifying, with the help of (3) and (4), the ability of the competitor to match the dominant firm's discounts and whether matching such discounts have or will lead him to price below costs.

A. SLIDING SCALE VOLUME DISCOUNTS

Sliding scale volume discounts can be characterized as:

$$(5) \quad p_d q_d > T_1 R_1 = r_1 p_d q_d$$

$$(6) \quad p_d q_d > T_2 R_2 = r_2 p_d q_d$$

where T_1 and T_2 are alternative levels of turnover set up by the dominant firm. If, as before, the competitor in an asymmetric duopoly wishes to compete away the incremental sales originating from the discounting policy as a share of the dominant company turnover with a given retailer ($1/n$), then there are a number of alternative levels that can be identified that depend on the level of total purchases from the dominant firm and on the actual bracket the purchaser will reach. The first case that can be analyzed is:

$$(7) \quad T_1 < p_d q_d < T_2 \text{ and } (1 - 1/n) p_d q_d > T_1$$

where the retailer receives a discount of r_1 by the dominant firm and the sales lost to the competing duopolist do not make the retailer drop to a lower discount rate. In such circumstances, the competitor has to provide the retailer with a rate of discount k equal to r_1 and the discount scheme cannot be exclusionary.

If, on the other hand, the sales lost to the competitor do make the purchases from the dominant firm drop back to a lower turnover bracket such that:

$$(8) \quad p_d q_d > T_2 \text{ and } T_1 < (1 - 1/n) p_d q_d < T_2$$

then the competitor can match the lost discount of the retailer by applying a discount rate k on his total sales to the retailer:

$$(9) \quad k = [(r_2 - r_1) p_d q_d + r_1 (1/n) p_d q_d] / [(1/n) p_d q_d + p_c q_c]$$

where $p_c q_c$ are his existing sales with the retailer;

which is lower the higher $1/n$ and the higher the purchases by the retailer from the competitor. If the competing duopolist is a new entrant and the dominant firm is a monopolist, then $p_c q_c$ equals zero and:

$$(10) \quad k = r_1 + (r_2 - r_1) / (1/n)$$

which is the discount a competitor has to grant at the margin in order to make the retailer indifferent. In particular, the second term on the right side of equation (10) is actually the additional discount rate that the competitor has to grant so as to make the retailer indifferent between the two suppliers.

Finally, when:

$$(11) \quad T_1 < p_d q_d < T_2 \text{ and } (1 - 1/n) p_d q_d < T_1$$

the additional sales of the competitor result in the retailer losing all volume discounts from the dominant firm. In such a case:

$$(12) \quad k = d_1 p_d q_d / [(1/n) p_d q_d + p_c q_c]$$

is the discount the competing duopolist has to offer in order to match the lost discount by the dominant firm. If the competitor is a new entrant, then $p_c q_c$ are zero, and the discount the competitor has to offer is the same as that of formula (4). ▼