THE ECONOMICS OF MULTIPRODUCT LOYALTY PROGRAMS

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In this I paper I review the economic theory of loyalty discount programs. The emphasis is on recent developments, both in economic understanding and its application to recent cases. I begin with a taxonomy of loyalty programs within which the majority of litigated cases can be identified. A key feature of recent theorizing about loyalty programs is the importance of the dominant firm's uncontestable market, a market which in which entrants cannot compete, either because of insufficient capacity, or because in multiproduct cases, the entrant does not have the technology or expertise to produce in some products supplied by the dominant firm. Other issues that are discussed are the analogy between loyalty programs and price discrimination, which is a helpful one, and the less helpful analogy with predatory pricing theory and case law. I also assess the potential for "bright-line" tests for anticompetitive loyalty programs to emerge.

Dans cet exposé, je passe en revue la théorie économique des programmes d'escompte de fidélisation. L'accent est mis sur les faits nouveaux, tant sur le plan de la compréhension économique que sur le plan de son application aux affaires récentes. Je débute par une taxonomie des programmes de fidélisation auxquels la majeure partie des litiges peuvent être rattachés. Occupe une place de premier plan dans les théories au sujet des programmes de fidélisation l'importance du marché non disputable de la société dominante, marché sur lequel les entrants ne peuvent pas livrer concurrence, parce que le manque de capacité ou la multiplicité des produits les empêche de disposer de la technologie ou de l'expertise nécessaire pour fabriquer certains produits fournis par la société dominante. Sont également analysées l'analogie entre les programmes de fidélisation et la discrimination par les prix, qui est utile, ainsi que l'analogie, moins utile, avec la théorie et la jurisprudence sur les pratiques de prix d'éviction. J'évalue également la possibilité que ressortent des critères clairs en matière de programmes de fidélisation anticoncurrentiels.

Introduction

The law and economics of loyalty programs have been in a state of flux for decades due to a lack of a well identified theoretical framework from which to analyze the competitive effects.

The lack of consensus has been reflected in divergent decisions taken in the antitrust courts. As Scott Morton and Abrahamson (2016) have described, U.S. Courts have often "analogized" loyalty rebates to doctrines on tying, exclusive dealing and predatory pricing due to this absence of a solid theoretical framework for loyalty discounts.

As Giolio Federico (2011) argues, the European Commission seemed to have developed a stronger framework to guide antitrust cases related to loyalty discounts with the release of a Guidance Paper in 2009. However, even subsequent to the paper's release in the European Union the General Court has varied from an almost per se prohibition of loyalty rebates when offered by dominant firms (e.g. *Tomra*) to a more nuanced rule of reason approach (e.g. *Intel*).[1] This wide variation in how the European courts treat these different cases suggests that there is still a need for clarifications and strengthening of the economic theory of loyalty programs.[2]

In Canada, several important cases have helped to flesh out the legal treatment of loyalty programs under section 79, the Abuse of Dominance section, of the *Competition Act*. *Nutrasweet*, the first Abuse of Dominance case filed by the Commissioner, concerned the use of loyalty discounts to exploit and abuse market power. NutraSweet offered customers for its aspartame product a substantial discount if they would both purchase NutraSweet aspartame exclusively and agree to display the NutraSweet logo on the retail products (most of which were canned or bottled soft drinks). The sum of the logo and promotion allowances was on the order of 40% of the list price, with the logo display allowance accounting for most of the discount. As with many loyalty programs, the major incentive was for *exclusive* purchases by the buyer from NutraSweet, and the competitive effects analysis has significant overlap with that of exclusive dealing.

The Tribunal found that the loyalty scheme created substantial switching costs for customers. Also that the set of restrictions on customers taken together amounted to a practice of anticompetitive acts which had the effect of preventing or inhibiting entry by competing suppliers.

The *Canada Pipe* case is discussed in a separate section at the end of this article so will be reviewed only briefly here. Canada Pipe offered a bundle of loyalty discounts to distributors who agreed to carry Canada Pipe's cast iron drain, waste and vent products exclusively (the distributors were completely free to carry plastic DWV products). The loyalty

program involved multiple products in that Canada Pipe supplied both pipe and fittings to distributors. The Tribunal found that although Canada Pipe was dominant in the relevant markets, the loyalty program did not constitute a practice of anticompetitive acts. The decision was reversed by the Federal Court of Appeals and settled shortly thereafter.

The Federal Court of Appeal decision in *Canada Pipe* was important in clarifying the legal framework, not just for loyalty programs, but for Abuse of Dominance cases in general. First, the FCA emphasized the importance of a "but for" analytical framework for analyzing competitive effects. The anticompetitive acts must be compared with a counter-factual world where they were absent, not with some hypothetical absolute standard of competition. Second, the FCA interpreted section 79 (i) (b) of the Competition Act as referring to the purpose of a practice of anti-competitive acts, and not to their effects.

Finally, in 2003 the Competition Bureau investigated the loyalty program operated by IKO Industries Ltd., Canada's largest manufacturer of asphalt roofing shingles. The Bureau negotiated a change in the program involving a switch to volume based discounts.

Loyalty programs can be defined as any program that offers a discount to a buyer based on the volume of that buyer's sales. The discount can be offered either in a previous time period, or the same time period.[3] Volume may also be expressed in terms of market share (e.g. if instead of the supplier requiring that the buyer purchase at least 8 units of the 10 they require from the supplier, the requirement may alternatively be that the buyer source at least 80% of their needs for this input from the supplier). The discounts are most often provided only once purchases have reached a threshold. Usually these types of programs require the firm to have knowledge about the buyer's purchases, not just with the seller, but also with other firms in the market.[4] This last point is where the concern for antitrust is greatest.

A Taxonomy

I present below a series of four examples, designed to capture the essential attributes of the common variations of loyalty programs that we observe in practice and that have comprised the majority of competition cases in Canada, the U.S. and Europe.

Example 1

Volume-based All Units Discounts (AUDs). A computer OEM requires 100 memory chips. The dominant chip maker offers a schedule to the buyer such that the first 80 chips are $1, but purchasing any subsequent units reduces the price on *all units* purchased to 90 cents. The entrant/smaller rival is usually restricted from competing for the whole market by a capacity constraint, so that the market can be divided into a "contestable" segment and a monopoly segment in which the dominant firm faces no competition.

Key cases

Two important cases involving AUDs are *Tomra*[5] and *Michelin II*.[6] In *Tomra*, the dominant manufacturer of "reverse vending machines" offered a variety of loyalty discounts to customers (mostly grocery stores) which the Competition Commission found had impeded entry and competition and constituted an abuse of a dominant position. In *Michelin II*, Michelin offered AUDs on purchases of replacement tires, usually with more than one tier of discount.

Example 2

Share-based All Units Discounts (AUDs). This time the dominant memory chip maker offers a pricing schedule: 1$ per chip if the buyer fills no greater than 80% of their needs from the dominant firm, but 90 cents per chip if greater than 80% of their needs are met by the dominant firm. This is an example of what Fiona Scott Morton has called "contracts that reference rivals" because meeting the seller's threshold depends on the rival's behaviour as well as that of the dominant firm.[7]

Examples 1 and 2 are closely related. If the buyer has perfectly inelastic demand (their demand is constant independent of price changes) then they are identical i.e. it makes no difference whether the threshold for the loyalty rebate is a specific volume or whether it is expressed as a market share. But if the buyer's demand has some price elasticity, then with a volume based rebate the entrant could still increase their market share by lowering their price sufficiently.

Key cases

In the *Concord Boat*[8] case, *Brunswick Corporation* used three types of market share based loyalty discounts in the sale of stern drive and

inboard marine engines. The agreements specified a 3% discount to boat builders who bought 80% of their engines from Brunswick, a 2% discount for a 70% share and a 1% discount for a 60% share. Although the jury originally found for the plaintiffs, the decision was reversed by the Eighth Circuit on appeal. One interesting aspect of the appeals court decision is the finding that Concord's prices were above costs, and thus did not violate the predatory pricing standard set out in *Brooke Group*.[9]

Example 3

Multiple products, Bundled Loyalty Discounts. Suppose that there are two leading types of boat engine, powered by diesel and gasoline respectively. Engine Maker A, the dominant firm, makes both types but has a monopoly in the market for diesel engines. The market for gasoline engines is competitive: as well as A, firm B also supplies them, but firm B does not have the capacity or the technology to enter the market for diesel engines. Firm A offers a 5% discount over the list price for buying both types of engine from them.

Key cases

Two key cases that have defined US legal standards with respect to multiproduct loyalty discounts are *Lepage's*[10] and *Meritor*[11]. In *Lepage's*, 3M offered bundling rebates to office supply stores that carried multiple 3M products. In Meritor the maker of a full line of truck transmissions offered discounts to truck manufacturers who maintained high market share thresholds with the incumbent across all product lines. In both cases the plaintiffs were successful despite the incumbent's pricing in the identified product line being found to be above cost.

Example 4

Preferential dealing contracts. A supplier of multiple products offers two pricing menus: one in which the buyer can pick and choose which products to take, with the remainder of their needs being met by other suppliers; and one in which the buyer undertakes to meet all of their needs from the seller's product line i.e to purchase from the dominant firm exclusively. Clearly this is an extreme form of a Contract that References Rivals (CRR), where the rivals share must not exceed zero.[12]

NutraSweet and *Canada Pipe*[13], both described elsewhere in this article, are examples of the above contract type.

Some Dimensions of a Competitive Effects Analysis of Loyalty Programs

The importance of the Dominant Firm's uncontestable market

Several dimensions of the competitive effects of loyalty programs are worthy of note. In this article I place an emphasis on multiproduct loyalty programs, in which a dominant producer supplies several products (which may be substitutes, complements or unrelated) of the sort described by my Examples 3 and 4 above. An illustrative case is *Lepage's v. 3M*,[14] in which 3M, a maker of a multitude of office supply products, offered loyalty discounts to distributors who met volume goals across a range of six product categories in purchases from 3M, thereby foreclosing the entry of Lepage's, the leading manufacturer of unbranded transparent tape, who made only Scotch tape but had no capacity to supply the other products.

Central to *Lepage's* and many similar cases is the concept of an *uncontestable market* for the incumbent.[15] The idea is that the incumbent is already supplying a set of products to the buyer which the entrant does not have either the capacity, or access to the required intellectual property, or the knowhow, to manufacture. Equivalently, in the single product case, the entrant may have a capacity constraint such that they can produce equivalent or even superior products to those of the incumbent but in a limited volume, but cannot match the full volume supplied by the incumbent.[16]

The concept of a contestable and uncontestable market has played a critical role in many U.S. cases involving loyalty discounts. However, the application of the concept is not as straightforward as it may sound. For example, the contestable and uncontestable parts of the dominant firm's product line should be defined *with respect to a particular buyer.* For example, in *Lepage's* the big retailers like Wal Mart were presumably purchasing a full line of 3M products but a smaller retailer might not be. The implication is the share of market that is contestable will vary across different buyers and would have to be evaluated on a case-by-case basis.[17]

A separate issue is that the contestable and uncontestable markets that are relevant to a particular loyalty discount may not match well, or at all, with the identification of relevant product markets. To illustrate again from *LePage's* – 3M supplied products in several distinct product markets which were considered uncontestable to Lepage's and one product market which was contestable to Lepage's. Thus the traditional approach to market definition is of only limited usefulness, because the strategic use of market power cuts across several traditionally defined antitrust product markets.

The two cases, that of multiple products where the smaller rival can only compete in some markets, and the case of a homogeneous or nearly homogeneous market where the smaller rival is capacity constrained, are more or less symmetric from a strategic and a competitive effects perspective. One potential difference could arise from the presence of demand side interactions in the multiproduct case e.g. where the buyer needs to stock the full range of products supplied by the seller, as was suggested in *Canada Pipe*. In *Lepage's* also, the buyers had a preference for buying a bundle of products all from 3M, as opposed to buying them separately from individual suppliers. There are also potential supply side interactions that are relevant – the dominant firm may exploit economies of scope between the different products that are supplied to the buyer, and as a result there may be an efficiency advantage for the buyer to keep a single supplier for all of the relevant products. Some examples of such economies of scope could arise with economies of joint delivery of multiple products from a single supplier, or common in store display advertising of an array of products from a single supplier.

The reason why the uncontested market concept is critical to the competitive analysis of loyalty discounts is that without it, it can always be argued that an equally efficient entrant could potentially supply the entire market and that no loyalty discount program could exclude such a firm.[18] For example, in *Canada Pipe*, the Tribunal accepted that Canada Pipe's Stocking Distributor program contained no contractual restrictions to a customer purchasing from rival suppliers, and that at the beginning of each calendar year, all suppliers and potential suppliers were actually in a symmetric position since no accrued rebates were owing at that point.

Tying and Price Discrimination

The competitive effects of loyalty programs support a close analogy to the analysis of tying, a point made by several commentators. The

uncontestable and contestable markets play the role of the tying and tied goods in tying analysis. By leveraging their control of the tying good, the dominant firm is able to increase the price of the tied good above competitive levels and possibly induce the exit of rival producers in the tied good market.

The analogy of loyalty programs with tying is not exactly one-to-one, however. In the classic analysis of tying by Whinston (1990) the decision to tie has the effect of making the dominant firm more aggressive in its pricing in the competitive tied market. In turn, more aggressive pricing can force the exit of one or more rival firms in the tied market. There are, however, two striking and related differences between the use of tying and the use of loyalty programs as strategic devices to improve the position of the incumbent. First, as Chao, Tan and Wong (2016) show, a loyalty program can induce a *partial foreclosure equilibrium* where the competitor survives but with a reduced market share. By contrast, a profitable tying contract would generally only be profitable if the entrant were excluded completely.

The second point is really a corollary of the first. In a tying equilibrium, the incumbent induces exit by creating price competition that is *more aggressive* than without the tying contract.[19] But, as Chao *et al* and Scott Morton and Abrahamson both show, loyalty programs make the pricing in the competitive segment *less aggressive* i.e. they soften price competition. It is even possible for a loyalty program to make the competitive firm better off. The reason for this is that the loyalty program creates a "cliff" in the smaller firms profit function, where it cannot expand market share without charging significantly lower prices, and hence a more profitable option is actually to increase prices and extract more profits from the smaller customer base to which it has access.

The Analogy with Predatory Pricing

Because loyalty programs appear to involve aggressive discounting aimed at the buyers in the competitive market, an analogy with predatory pricing is a natural one to consider. Predatory pricing involves aggressively low pricing by an incumbent dominant firm that is explicitly designed to induce the exit of a smaller rival. Predatory pricing also involves a profit sacrifice by the dominant firm in the short term with the expectation that, after the exit of the "victim" firm, the dominant firm will be able to increase prices to monopoly levels and recoup the earlier loss in profits.[20]

A well designed loyalty program need not involve any profit sacrifice at all, however. By a strategic choice of the threshold (h) and the discount (d) the incumbent can ensure that their profits increase as a result of the loyalty program.[21] Moreover, the goal of the program may not be the exit of the rival, but rather an increase in market share and a softening of price competition in the contestable market. And finally, there is no need for a recoupment phase when the predator seeks to regain their lost profits from strategically low pricing, since a well-designed loyalty program can help to preserve the market power of a dominant firm indefinitely.

Finally, the above analysis suggests the traditional price-cost tests for predatory pricing, which are predicated on a profit sacrifice model, will be of little use in identifying anti-competitive loyalty programs. I return to this point in a subsequent section.

Pro-competitive and anticompetitive attributes of loyalty programs

The majority of Competition Authorities have recognized that loyalty programs have complex attributes and need to be judged by a rule of reason standard.[22] The welfare effects of loyalty programs are complex, and certainly not always harmful. There is a valid analogy with price discrimination, in that both loyalty programs and price discrimination can have the effect of lowering the "marginal price" – the price paid for the marginal unit purchased, which in turn is likely to lead to an expansion of total sales. If, prior to the implementation of the loyalty program, the dominant firm is exercising market power, than an output expansion will be welfare increasing. In addition, to the extent that a loyalty program causes a displacement of sales by a more efficient dominant firm in favour of a less efficient entrant, that will also imply a welfare improvement. But loyalty programs also have the potential for causing exclusionary harm. Finally, the antitrust standard matters, whether a practice is judged according to a standard of consumer welfare, or total welfare – the latter being more likely in Canada. Since the welfare analysis of loyalty programs is complex and technical, I have summarized in the paragraphs below the properties that are of the greatest significance.

Pro-competitive attributes of Loyalty programs

It is worthwhile emphasizing an obvious point that may have been obscured in recent scholarship on loyalty programs: Loyalty programs are ubiquitous, appearing everywhere from the local coffee house or

bakery, to airlines and PC chip makers. The vast majority of programs do not raise competition concerns; to the contrary, it is reasonable to infer that since they are practices being pursued in competitive markets their role must be to enhance efficiency. A safe rule of antitrust analysis is that something so ubiquitous is highly unlikely to be anticompetitive in every case, or even in the majority of cases. The well-known observation of Ronald Coase is instructive.

> "One important result of this preoccupation with the monopoly problem is that if an economist finds something—a business practice of one sort or other—that he does not understand, he looks for a monopoly explanation. And as in this field we are very ignorant, the number of ununderstandable practices tends to be very large, and the reliance on a monopoly explanation, frequent."[23]

There are two broad categories in which loyalty programs can be pro-competitive

Loyalty programs in many cases are efficiency enhancing.

a. Loyalty programs can be used to correct inefficiencies arising from double marginalization. Double marginalization arises when an upstream supplier is already exercising market power by pricing above marginal cost and a downstream distributor or manufacturer creates additional inefficiency and distortion by marking up the manufacturers prices a second time. In the resulting pricing equilibrium the quantities supplied are too small and prices are too high, even compared to a benchmark of quantities (and prices) that maximize joint monopoly profits. A loyalty discount, because it creates an incentive to expand the quantity demanded, can correct such distortions.

b. Second, loyalty programs may help to align incentives between manufacturers and distributors. Efficient distribution may require that retailers and distributors engage in sales and marketing activities where their incentives are not easily aligned with those of the manufacturer. There are well known efficiency distortions created by the problems of hold-up and free riding. Loyalty programs can help to correct these distortions and promote efficient distribution.

c. Higher quality brands may use loyalty programs to help customers become better informed, leading to an equilibrium with better matching of customers with the high quality brand, which in turn can imply increase welfare.

Deterring a high cost entrant can increase welfare.

If the entrant is less efficient or higher cost than the incumbent - even where an entrant or smaller competitor is deterred from entering (or their market share is lower than it would have been without the loyalty program) economic welfare may be higher with the loyalty program than without it.

This is a complex issue to evaluate in any individual case. As Salop (2016) and others have pointed out, the entry of even a less efficient entrant can make consumers better off because of the increased competition that the entrant provides. The effect on total welfare would likely require a careful modelling of the specific case with and without the loyalty program (the counter factual). In the general case, by deterring a less efficient competitor a loyalty program initiated by a dominant firm could both increase or decrease welfare.

Anticompetitive properties of loyalty programs

The early discussions of loyalty programs were often in the context of oligopolistic markets, an example being airline frequent flyer programs.[24] Absent a framework of dominance a typical conclusion was that loyalty programs were likely to increase switching costs between rival producers, and possibly imply an increase in the ability of producers to exercise market power.[25]

As Guofo Tan[26] and others have observed, loyalty programs when practiced by a dominant firm resemble tying contracts practiced by a dominant firm. The dominant firm leverages its market power in its captive market to exploit additional market power in the competitive market segment (the small competitor either has a capacity constraint (examples 1 and 2) or can only produce in only one product (example 3). We can harvest intuition from the theory of tying to provide insight into the likely anticompetitive effects. First, tying is generally only profitable and anticompetitive when the dominant firm cannot exploit all of its market power in the tying good just by pricing in that market alone.[27] Second, the welfare effects of tying are ambiguous — it is not always anticompetitive.

As mentioned above, the economic effects of loyalty programs are very similar to those of tying. The non-contestable market segment (in Example 1) or the incumbent monopoly product (in Example 3) can be

seen as the tying good. While the contestable market segment (Example 1) and the competitive product (Example 3) act as the tied good. It has been known since Whinston (1990) that tying can be exclusionary, and potentially anticompetitive.[28]

Bright Line Tests for Anticompetitive Loyalty Discount Programs

The analogy drawn between loyalty programs and predatory pricing suggests that a traditional cost-based pricing test might be adapted to identify whether a loyalty program is anticompetitive or not. The issue has come to the fore in several high profile U.S. cases.[29]

In classifying cases according to the application of price-cost tests, I will restrict my discussion to their use in multiproduct cases. In both *LePage's* and *Cascade Health* the courts applied a form of discount attribution test (more on this below). In *Canada Pipe* the Competition Tribunal did not explicitly apply a price cost test. However, they did make reference to price cost margins in their decision, but did not go into detail on the role of contestable and uncontestable markets in performing a test.[30]

In order to assess the usefulness of price-cost tests in this context, a first step is to review how such tests came to prominence with respect to allegations of predatory pricing. Such tests have become so familiar and embedded within the case law of predatory pricing, that it is possible to forget their underlying economic framework. In the context of predatory pricing, price cost tests owe their origin to the important paper by Areeda and Turner (1975)[31] and its various refinements, notably that by Baumol (1996)[32]. The rationale for a price cost test is that if a dominant firm is pricing no lower than its own average variable cost, an equally efficient (or more efficient) competitor would not be deterred from entering (for entry to be socially beneficial, the entrant's average total costs should be less than the incumbent's average variable costs).[33]

Several authors have pointed out that it is not necessary for an entrant to be equally or more efficient for entry to increase economic welfare.[34] This is because entry creates more competition, and competition benefits consumers. However, this issue is more important in jurisdictions where consumer welfare is the primary criterion for antitrust action, and less important where total welfare is the criterion, as it is in Canada.[35] Thus, particularly in Canada, the test of "is the practice likely to deter an equally efficient entrant?" is still an important one.

The advance in the use of price-cost tests in multiproduct cases is the recognition that the uncontestable market must be factored in to the construction of any such test for it to have any interpretative value. Suppose for example that Deep Cove Express[36], a monopolist manufacturer of gasoline engines for powerboats, also makes and supplies diesel engines where there are several competing suppliers. The manufacturer offers boatbuilders a 10% discount if they purchase both types of engine from Deep Cove. If Deep Cove's diesel engines have average variable costs of $50,000 per engine and they sell for $60,000 without the discount, the discounted diesel engine price is $54,000. A conventional price-cost test would find price exceeding variable costs and no reason to presume harm. Assume in addition that Deep Cove sells the same volume of gasoline engines and at the same price as its diesel engines. If the discount is computed as an attributed discount, comparing the incremental cost to the buyer of buying diesel engines from Deep Cove (in addition to the purchase of gasoline engines) with Deep Cove's variable costs for its diesel engine, the comparison would be of $48,000 with $50,000 so that Deep Cove would be found to be selling below cost, and at least trigger further investigation of predatory behavior.

The example above captures the concept of *exclusionary bundling* articulated by Barry Nalebuff.[37] This concept can be applied directly to my example 3 in the introductory section of this paper, where a customer who purchases both of two products from the incumbent can do so at a discount of 5%. As defined by Nalebuff:

> Exclusionary bundling arises when a firm has market power in product A and faces competition in product B. A firm engages in exclusionary bundling when the incremental price for an A-B bundle over A alone is less than the long-run average variable costs of B.[38]

The key concept with Nalebuff's test is "incremental price" which is calculated as follows. The incremental price is defined as the additional amount that the customer would have to pay in order to buy both A and B from the monopolist compared to buying just A alone. Provided that the incremental price exceeds the incumbent's average costs for product B, an equally or more efficient rival will not be deterred from entering market B. Or in Nalebuff's words "The intuition behind the test is that exclusionary bundling forecloses equally efficient rivals".[39] As Nalebuff points out, if the entrant has a capacity constraint, an incumbent may be able to pass the exclusionary bundling test but still exclude an equally efficient entrant with a capacity constraint because of an inability to

achieve sufficient scale.[40] The exclusionary bundling test is therefore at best an incomplete test.

A different but related construction of a price statistic has been proposed by Fiona Scott Morton and Zachary Abrahamson in a recent paper.[41] The authors define a statistic that they call the *Effective Entrant Burden* (EEB) which measures the magnitude of the penalty that a buyer must incur in order to purchase from an entrant in quantities that will overcome the incumbent's threshold (a parameter of the all units discount program). Although the EEB statistic is primarily designed to apply to all units discount programs for single products, it can equally be computed in the context of multiproduct loyalty discounts.[42]

The EEB statistic is defined as:

$$EEB = hd/s$$

Where h = the requirements threshold at which a buyer receives a discount across all units purchased up to that point ($0<h<1$); s = the contestable share of the market which is accessible to an entrant (possibly due to the entrant's capacity constraint or the entrant's lack of expertise and/or intellectual property in manufacturing some of the incumbent's products); and d = the discount received by the buyer upon reaching a share h of their purchases from the incumbent ($0<d<1$).

In the Deep Cove Express example, the threshold is actually 100%, the AUD discount (after exceeding that threshold) is 10% and the contestable share is 50%. The EEB statistic for this example can therefore be calculated as 0.2 i.e. the entrant must price at a discount of at least 20% below the incumbent's list price in order to gain any market share at all in the diesel engine market. In order to formulate the EEB statistic as a price cost test we would require that the incumbent's variable costs in manufacturing diesel engines were no greater than (1-EEB) × Incumbent's price as a necessary condition for an equally efficient entrant to be deterred by the multiproduct loyalty discount.

In this example the applications of the Exclusionary Bundling test and of the EEB statistic are essentially the same, leading to the same conclusion. Where they could differ would be in a case where either the threshold h or the contestable share s do not coincide with a product boundary. For example, suppose that the entrant only has the capacity to produce *half* of the diesel engine market. The Exclusionary Bundling test

would remain unchanged, but since *s* is now 25% the EEB statistic would increase to 0.4 with the implication that the entrant must discount their price to 60% of the incumbent's price in order to capture any sales at all.

In this last example, the EEB statistic runs into a problem when used as a screen for predation against an equally efficient competitor. It does tell us that the entrant must price 40% below the incumbent's price in order to encourage the buyer to switch some business, but there is no reason to expect that the EEB price is either above or below the incumbents variable costs (the EEB statistic can take values greater than one, meaning that the entrant must pay buyers to take its product). Thus, an EEB price that is below the incumbent's long run variable costs is neither necessary nor sufficient for exclusion of an equally efficient entrant.

Scott Morton and Abrahamson do present some interesting calculations of the EEB statistic derived from important contested loyalty discount cases.[43] What these data suggest, albeit in an inconclusive way, is that "high" levels of the EEB statistic are likely to lead to legal findings of liability against the incumbent dominant firm, whether or not there is any normative basis for concluding that the loyalty program is responsible for a substantial lessening of competition. Prominent examples are the *Intel* litigation in both the U.S. and the EU, where the EEB was calculated at 70% and *Concord Boat* where the EEB was only 2% and the defendant escaped liability.[44]

To conclude this section, price cost tests, including the newer Effective Entrant Burden statistic are of extremely limited usefulness in determining whether a particular loyalty discount program is anticompetitive. What is required is a full competitive effects analysis of the program in question, with consideration given to the role of contestable and uncontestable markets, and there do not appear to be any simple screens available that would avoid a full investigation in some cases.

Canada Pipe (2005) seen in the context of the modern theory of loyalty discounts

The Canada Pipe Company produced cast iron drain, waste and vent (DWV) pipe and related products through its Bibby Ste-Croix division in Quebec. Bibby sold these DWV product to various distributors in Canada, who in turn sold them to contractors for use in construction projects. Bibby offered distributors a Stocking Distributor Program (SDP) wherein Bibby gave quarterly and annual rebates to distributors in return

for stocking only Bibby-supplied cast-iron DWV products. In addition, the list price was reduced by up to 40% for exclusive distributors.

The Canada Pipe case fits into the framework that I have set out as a loyalty program with a 100% threshold i.e. the distributors were required to stock Canada Pipe's products exclusively in order to receive the rebates and discounts. From an economic theory perspective of course, when a loyalty discount has a threshold of 100%, it becomes indistinguishable from exclusive dealing or possibly preferential dealing[45], and the theory of exclusive dealing applies as much as that of loyalty programs.

In *Canada (Commissioner of Competition) v. Canada Pipe Company Ltd.* the Competition Tribunal dismissed an application by the Commissioner, with the Commissioner arguing that the SDP contravened sections 79 and 77 of the *Competition Act*. The Tribunal found that Canada Pipe was dominant within the relevant markets, but that the SDP did not constitute a practice of anticompetitive acts. The decision was later reversed by the Federal Court of Appeals. The Canada Pipe case raised many important legal issues concerning the application of the Competition Act in Abuse of Dominance cases. My purpose is to comment on the economic analysis of the case as articulated by the Tribunal and the Federal Court of Appeals, in light of more recent work on loyalty discount programs.

The most significant finding of modern work on loyalty discounts is the significance of non-contestable market segments that may allow dominant firms, whether multiproduct or single product, to design loyalty schemes that offer the buyer a steep incentive to purchase from the dominant firm in the contestable segment. A second and related lesson to be drawn from modern research is that standard product market identification methodologies can be misleading in multiproduct loyalty program cases. Although several individual products may be correctly identified, it is the *interaction* of purchases of these products, incentivized through the loyalty discount, that can create anticompetitive effects. An excellent example occurred in the *Lepage's* case where the loyalty incentive offered by 3M was across many products, not the single adhesive tape product manufactured by *Lepage's*.

Applying these insights to *Canada Pipe*, several things emerge. First, three product markets were identified by the Tribunal, consisting of cast iron pipe, fittings and couplings.[46] Both Canada Pipe and its only domestic competitor, Vandem Industries, were active producers of both pipe

and fittings but not couplings. It is unclear whether Canada Pipe possessed a multiproduct advantage of the sort that I have discussed above – Canada Pipe did offer a larger variety of products than its rival. It is also true that Vandem had a small market share, holding at most 10% share of domestic production at any time during the period of alleged abuse of dominance. Had a clear articulation been made of an uncontested market theory based on a capacity constraint for Vandem, it is possible that the Tribunal would have found it compelling, but only if they were also convinced that barriers to entry were high. In fact the Tribunal was impressed by the extent of actual entry at the distribution level i.e. competition among buyers, which had an important role in their conclusion that a substantial lessening of competition had not taken place.[47]

The economic analysis presented by both sides in Canada Pipe considered the SDP more as a set of incentives for exclusive dealing rather than as a loyalty discount program. But as I have noted, this was appropriate given that the threshold for the discount was 100%, or exclusive purchasing from Canada Pipe.[48] Apart from explicitly setting out a case for a small and capacity constrained constestable market from Canada Pipe's domestic competitor, the modern research on loyalty discounts, which has focused on loyalty thresholds that are endogenous and less than 100%, would not appear to have much to add to the economic analysis that was presented at the time.

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Fiona M Scott Morton & Zachary Abrahamson, "A Unifying Analytical Framework for Loyalty Rebates" (2016) Yale University Working Paper at 4–5

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Steven C Salop, "Exclusionary Conduct, Effect on Consumers, and the Flawed Profit-Sacrifice Standard" (2006) 73 Antitrust LJ 311

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William J Baumol, "Predation and the Logic of the Average Variable Cost Test" (1996) 39:1 JL & Econ 49.

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Endnotes

[1] EC, *Commission Decision of 29 March 2006 relating to proceedings under Article 82 [EC] and Article 54 of the EEA Agreement (Case COMP/E-1/38.113 – Prokent-Tomra)* [2006] OJ, C 734/07 [*Prokent-Tomra*]; *Tomra Systems and Others v Commission*, T-155/06 [2010] ECR II-4361; *Tomra Systems and Others v Commission*, C-549/10 P, [2012] ECR I-0000; EC, *Commission Decision of 13 May 2009 relating to a proceeding under Article 82 of the EC Treaty and*

Article 54 of the EEA Agreement (Case COMP/C-3/37.990 — Intel) [2009] OJ, C 227/07.

[2] Some important papers by economists that address the economics of loyalty programs are David Spector, "Loyalty Rebates: An Assessment of Competition Concerns and a Proposed Rule of Reason" (2005) 1:2 Comp Pol'y Intl 89; Patrick Greenlee, David Reitman & David S Sibley, "An Antitrust Analysis of Bundled Loyalty Discounts" (2008) 26 Intl J Ind Organ 1132; Barry Nalebuff, "Exclusionary Bundling" (2005) 50:3 The Antitrust Bull 321; Janusz A Ordover & Greg Shaffer, "Exclusionary discounts" (2013) 31:5 Intl J Ind Organ 569; and the recent work of Yong Chao & Guofu Tan, "All Units Discounts: Leverage and Partial Foreclosure in Single-Product Markets" (2017) 30:1 Can Comp L Rev 93.

[3] My focus here is on contemporaneous loyalty discounts of the AUD type. When discounts are retroactive, such as receiving the 10th cup of coffee free, or airline frequent flyer miles, the appropriate framework is more one of switching costs in oligopolistic competition, which I do not discuss in this article. For a recent discussion, see Fredrik Carlsson & Åsa Lofgren, "Airline choice, switching costs and frequent flyer programmes," (2006) 38:13 Appl Econ 1469.

[4] Fiona M Scott Morton & Zachary Abrahamson, "A Unifying Analytical Framework for Loyalty Rebates" (2016) Yale University Working Paper at 4–5.

[5] *Prokent-Tomra, supra* note 1.

[6] *Michelin v European Communities*, T-203/01, [2003] ECR II-04071.

[7] Fiona M Scott Morton, "Contracts that Reference Rivals" (2013) 27:3 Antitrust Magazine at 72.

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

[9] *Brooke Group v Brown & Williamson Tobacco Corp*, 509 US 209 (1993). The Brooke Group decision by the U.S. Supreme Court created a two part test for predatory pricing: (i) Is the alleged predatory pricing below variable cost?; and (ii) Do they have a reasonable prospect of recouping any losses incurred during the predatory period?

[10] *Lepage's Inc v 3M*, 324 F (3d) 141 (3d Cir 2003) [*Lepage's*].

[11] *ZF Meritor LLC v Eaton Corporation*, 696 F 3d 254 (3d Cir 2012).

[12] The difference between Examples 3 and 4 is subtle, but significant. In Example 3, the dominant firm offers the discount (on all products) for any customer buying multiple products independent of whether the customer sources their needs exclusively from the incumbent. In Example 4 the customer is required to source all products from the dominant firm exclusively in order to obtain discounted prices.

[13] *Commissioner of Competition v Canada Pipe*, 2005 Comp Trib 3.

[14] *Lepage's, supra*, note 10.

[15] The concept of a *contestable* part of the incumbent's market as used in the literature on loyalty discounts is distinct from the concept of contestability as used in the broader literature of Industrial Organization (e.g. William

J Baumol, John C Panzar, & Robert D Willig, *Contestable Markets and the Theory of Industry Structure* (New York, Harcourt Brace Jovanovich, 1982).

[16] The effect of a capacity constraint on AMD has been often cited in descriptions of the *Intel* case.

[17] An evaluation of the contestable market at the buyer level is valid for considering access to particular buyers, as was the case in *Lepage's*. If the concern is with loyalty programs that prevent *market* entry (which was not the case in *Lepage's*) then the focus should be on contestability across the whole market. The importance of this distinction underlines the need to analyze loyalty programs on a case by case basis.

[18] There can still be contractual barriers to entry, of course, such as long term contracts with the incumbent supplier.

[19] A particularly clear exposition of this point can be found in Jean Tirole, *The Theory of Industrial Organization* (Cambridge, MA: MIT Press, 1988).

[20] This description matches that found in the Competition Bureau's *Abuse of Dominance Guidelines*; Canada, Competition Bureau, "Enforcement Guidelines - The Abuse of Dominance Provisions" (Ottawa: Industry Canada, 2012) at s 3.2.2, online: <www.competitionbureau.gc.ca/eic/site/cb-bc.nsf/vwapj/cb-abuse-of-dominance-provisions-e.pdf/$FILE/cb-abuse-of-dominance-provisions-e.pdf>.

[21] These parameters are defined more fully in a later section.

[22] The exceptions are perhaps periods when the EU Competition Commission regarded loyalty programs practised by dominant firms as almost *per se* anticompetitive, such as the period prior to the publication of the Commission's EC, *Guidance on the Commission's enforcement priorities in applying Article 82 of the EC Treaty to abusive exclusionary conduct by dominant undertakings*, [2009] OJ, C 45/02.

[23] Ronald H Coase, "Industrial Organization: A Proposal for Research," in Victor Fuchs, ed, *Policy Issues and Research Issues in Industrial Organization* (New York: National Bureau of Economic Research, 1972) at 69.

[24] See for example, Roman Caminal & Adina Claici, "Are Loyalty Rewarding Pricing Schemes Anti-Competitive?" (2007) 25 Intl J Ind Organ 657.

[25] *Ibid.*

[26] Yong Chao, Guofu Tan, & Adam Chi Leung Wong, "Nonlinear Pricing with Asymmetric Competition" (Paper delivered at the John O Ledyard 75th Birthday Celebration Conference, California Institute of Technology, 11 April 2015 [unpublished].

[27] Unless tying can change the market structure in the tied good, which is the analysis in Michael D Whinston, "Tying, foreclosure, and exclusion" (1990) 80:4 Am Econ Rev 837.

[28] Whinston, *supra* note 26.

[29] *Lepage's*, *supra* note 10; *Cascade Health*, 515 F (3d) 883 (9th Cir 2007) and *Ortho Diagnostic Sys, Inc v Abbott Labs, Inc*, 920 F Supp 455 (SDNY 1996) were cases in which price-cost tests were at the forefront of the analysis.

[30] *Canada Pipe, supra* note 13.

[31] Phillip Areeda & Donald F Turne, "Predatory Pricing and Related Practices under Section 2 of the Sherman Act"(1975) 88:4 Harv L Rev 697.
[32] William J Baumol, "Predation and the Logic of the Average Variable Cost Test" (1996) 39:1 JL & Econ 49.
[33] More precisely the incumbent's average avoidable costs should be used. Average variable costs are often employed as a proxy.
[34] See, for example, Steven C Salop, "Exclusionary Conduct, Effect on Consumers, and the Flawed Profit-Sacrifice Standard" (2006) 73 Antitrust LJ 311; and Einer Elhauge, "The Failed Resurrection of the Single Monopoly Profit Theory" (2010) 6:1 Comp Pol'y Intl 155.
[35] A price decrease that is triggered by entry creates a large transfer from producer surplus to consumer surplus and a small reduction in deadweight loss. Only the latter counts under a total surplus standard, but both of the two magnitudes count under a consumer surplus standard, implying a substantially larger gain from entry, or equivalently, a substantially larger cost from the prevention of entry.
[36] A fictional firm.
[37] Barry Nalebuff, *supra* note 2.
[38] *Ibid.*
[39] *Ibid* at 329. The test of excluding an equally rival is not a total welfare test. For instance, in this example welfare may increase with the bundling discount, even though it excludes the rival diesel engine manufacturer. If the no bundling equilibrium involved a price for gasoline engines of $60,000 and a competitive price of diesel engines of $50,000, then consumers would be better off with the loyalty program. I am indebted to a referee for pointing this out.
[40] *Ibid* at 337.
[41] Fiona M Scott Morton & Zachary Abrahamson, *supra* note 4 at 47.
[42] The authors compute the EEB for several cases involving multiproduct discounts, such as *Eisai*, *Meritor* and *LePage's*.
[43] Scott Morton & Abrahamson, *supra* note 4 at 55.
[44] *Ibid.*
[45] When a program offers a discount for exclusivity, but allows non-exclusive purchases at a higher price, it is known as preferential dealing. See, for example, Richard J Gilbert, "Exclusive dealing, preferential dealing, and dynamic efficiency" (2000) 16:2 Rev Ind Org 167.
[46] In addition the Tribunal identified six geographic markets.
[47] More precisely, the Tribunal found that while Canada Pipe had been dominant in the relevant markets, the various elements of the SDP did not constitute a practise of anticompetitive acts. The decision was reversed by the Federal Court of Appeal.
[48] Interestingly, in the negotiated Consent Agreement with the Commissioner of Competition, Canada Pipe was allowed to keep many elements of its discount program, but was not permitted to make the discounts conditional on exclusivity, *Canada Pipe, supra* note 13.