The Pros and Cons of Price Discrimination

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Preface

Price is at the very core of the market economy, all the characteristics of the product; quality, quantity, timing, options etcetera, are embodied in this one simple number. The starting point of industrial economics is the notion of a market with perfect competition. In this setting, all firms are price takers; they simply do not set prices (which may come as a surprise to those of you who go out and buy stuff now and then) and competition drives prices down to marginal cost (yet another surprise…). Fortunately, there are very good models of imperfect competition that allow for more elaborate firm behavior and more realistic predictions on pricing.

In particular, firms in most markets tend to price discriminate, i.e. to charge consumers different prices for the same (or almost the same) product. In some instances, this is a problem because it hinders competition, in others it is not; in fact, it is beneficial for the consumers. In the present volume some of the worlds leading researchers present their view of the use of price discrimination and how it is, could and should be handled by the competition authorities. The issue is high on the agenda at present. We will soon see the first ever European Commission guidelines on the application of Article 82 and there are some recent, hotly debated, cases on price discrimination and the abuse of dominant position. Together, the contributions in this volume cover many aspects of the key issues. It has been a pleasure for the Swedish Competition Authority to edit the book and organize the seminar and special thanks go to Niklas Strand who has managed the project and our chief economist Mats Bergman who has been the editor.

Stockholm, November 2005

Claes Norgren

Director-General

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Mr. Geradin has held visiting professorships at many leading academic institutions including King's College London, the University of Paris II, the Autonomous University of Barcelona, and Peking University Law School. He has also held visiting Professorships at leading US law schools, including Columbia, Harvard and Yale. In the winter 2006, he will be for the second time a visiting Professor at Harvard Law School teaching a course on global antitrust law and economics with Professor Einer Elhauge.

Mr. Geradin has published 15 books and more than 50 legal and economic papers in leading academic journals, including the *Journal of Competition and Economics*, *World Competition*, the *Common Market Law Review*, the *European Law Review*, the *Network Economics Review*, the *Berkeley Technology Law Journal, the Columbia Journal of European Law, the Journal of World Trade, the Journal of International Economic Law, the European Foreign Affairs Review,* and the *Utilities Law Review*.

Nicolas Petit is a Ph.D. Researcher at the University of Liège. His Phd. subject focuses on oligopoly control in EC Competition Law. Together with Professor Geradin, he is the author of several pioneering studies on price discrimination under EC competition rules and the concept of dominance as well as the founder of the Antitrust Hotch Potch, the first academic web log dedicated to EC Competition Law (http://www.professorgeradin.blogs.com).

In addition to this, Mr Petit has also published articles on the essential facilities doctrine, the interface between competition law and sector-specific regulation, judicial remedies under EC competition law, the introduction of competition rules within international agreements etc. Nicolas Petit holds degrees in Law from the universities Paris V (René Descartes) and Paris II, (Pantheon Assas) and a LL.M in European Law from the College of Europe in Bruges (Belgium). He served as an assistant to a Judge at the French Supreme Court (Cour de Cassation, Chambre Commerciale).

Simon Bishop has worked in economic consultancy since 1991. He has advised on a number of major cases before the EC Commission and national competition authorities. Clients advised by Simon include GE, Carlton, British Airways, Microsoft, FA Premier League, BUPA, Canal+ and UEFA. He has particular expertise in the application of quantitative techniques both in the context of assessing the likely competitive effects of mergers and also in non-merger settings.

Mr. Bishop has published widely including reports and articles on market definition, collective dominance in merger control, bidding markets and vertical restraints. He is the co-author of The Economics of EC Competition Law (2nd edition, Sweet & Maxwell, 2002).

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He is also working on incentives to produce information and Schumpeterian models of innovation. Professor Gehrig has been a visiting professor at Northwestern University (1993), Rice University (1998-2000) and the University of Pennsylvania (2003). He held a Hanken senior distinguished fellowship at the Swedish School of Economics in Helsinki in 2001. Professor Gehrig is a fellow of the Center for Economic Policy Research (CEPR) in its Industrial Economics and Financial Economics programs and a member of the executive council of the European Association for Research in Industrial Economics (EARIE).

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Rune Stenbacka is an associate editor of European Economic Review, International Journal of Industrial Organization and Journal of Economic Behaviour and Organization.

Professor Stenbacka has been a member of the Competition Council in Finland and he is presently a member of the Economic Advisory Group for Competition Policy at the European Commission.

Anne Perrot is Vice-Chair at Conseil de la Concurrence since October 2004. She was previously full professor at University of Paris I-Panthéon Sorbonne.

Anne Perrot received a Ph.D. in Mathematics and a Ph.D. in Economics.

In addition to her work at the Université de Paris I, she was former Head of Laboratoire d'Economie Industrielle (CREST). She belongs to the Economic Advisory Group on Competition Policy working with the Chief Economics of the DG Comp L-H. Röller.

Before becoming a full professor at the Sorbonne, she was a teaching fellow at the University Pierre et Marie Curie, a lecturer, then assistant professor, at the Sorbonne and a professor at the University of Le Mans. From 1992 to 1995, she worked as the scientific advisor to the Observatoire Economique et Statistique des Transports, the French Ministry of Transports. She was also a member of the Economic Council of the Electricity Regulator.

Anne Perrots research fields include industrial economics, competition policy, regulation, and network economics. During her studies she was awarded prizes by the Association Française de Sciences Economiques and the Chancellerie des Universités. She has been a member of the expert group on the telecommunications deregulation in France, a member of the TACIS-ACE expert group on the savings market in Russia, and she is co-editor of an economics journal, Economie et Prévision. She has published extensively in international economic reviews in the field of competition policy and

has edited the book *Réglementation et concurrence*, a collection of papers on regulation and competition.

David Spector is a Professor of Economics at the Centre National de la Recherche Scientifique in Paris. He also teaches Industrial Organization and Law and Economics at the Ecole Normale Supérieure. Prior to taking up this appointment, he was an Assistant Professor of Economics at the Massachusetts Institute of Technology (MIT). His research in Industrial Organization and its applications to competition law has been published in numerous journals such as the *Quarterly Journal of Economics*, the *European Economic Review*, the *Journal of International Economics*, the *International Journal of Industrial Organization*, *Annales d'Economie et de Statistique* and *Competition Policy International*.

David Spector is also a co-author of several books, including *Issues in Competition Law and Policy* (American Bar Association, ed.), and *Le nouveau droit communautaire de la concurrence* (Librairie Générale de Droit et de Jurisprudence, ed.) He is also a co-author of a forthcoming report on competition policy for the French Prime Minister's Conseil d'Analyse Economique.

David Spector has provided expert testimony before the French Competition Authority, the European Commission and the Court of First Instance in Luxembourg.

1. Introduction

Mats Bergman

Price discrimination is a pervasive phenomenon in many markets, such as consumer products markets, travel and transport, telecommunication, and many other services markets. It takes many forms and it is a phenomenon which can have both positive and negative effects, for consumers as well as for welfare. The analysis of price discrimination has deep roots in the economics discipline, where it has long been recognized that it can be for good and for bad – and sometimes even necessary.

Price discrimination has also featured prominently in many of the recent high-profile competition law cases. In the legal rhetoric, one sometimes gets the impression that price discrimination is all evil. At the same time, since most instances of price discrimination – even by dominant firms – goes unchallenged, it is clear that the legal practice is not as simple-minded as that. Consequently, discussing the pros and cons of price discrimination appears natural in a conference volume that brings together the views of academic economists and competition law experts.

According to Article 82 (c), if a dominant firm applies "dissimilar conditions to equivalent transactions with other trading parties, thereby placing them at a competitive disadvantage", the firm abuses its dominant position. A possible interpretation is that all kinds of price discrimination are prohibited, if they are undertaken by a dominant firm. Note, however, the emphasis on the competitive position of the buyers that suffer from price discrimination. With this in mind, another interpretation is that price discrimination vis-à-vis final consumers is not illegal, while discrimination of downstream firms can constitute an abuse only if the firm that is discriminated against suffers a competitive disadvantage. In other words, it may be that for price discrimination to be abusive, the customers must be

firms (and not consumers), the good that is sold on discriminatory terms must be an important (costly) input for the downstream industry – and the seller must be dominant.

In order to introduce the reader to the legal practice concerning price discrimination, the first paper in this volume is the only one not written by economists. In the paper, **Damien Geradin** and **Nicolas Petit**, who are both legal scholars and experts of competition law, analyse the scope of Article 82 (c). They distinguish between three main types of price discrimination that can be found in the EC competition law practice. First, primary-line price discrimination describes a situation in which a dominant firm price discriminates in order to exclude rivals. Typical examples are fidelity rebates and selective price cuts, both of which are employed in order to exclude a rival from the dominant firm's market.

Next, secondary-line price discrimination occurs when one or more downstream firms are offered better terms than one or more other downstream firms, putting the latter in a position of competitive disadvantage. In one subtype of cases, the victims of secondary-line price discrimination have been foreign firms. For example, the owner of a port or an airport could offer better terms for domestic shippers or airlines, respectively. In another subtype of cases, involving essential facilities, the dominant firm favours its own downstream operations by providing access to the bottleneck facility on discriminatory conditions only.

Third, geographic price discrimination is used when a firm wishes to sell a product at different prices in different member states. Typically, this requires some measures in order to prevent trade between the member states from eliminating the price differentials.

Geradin and Petit argue that, for the most part, the legal practice on price discrimination has been misguided since it has failed to distinguish between these different types of price discrimination – and their different rationales. They argue that primary-line price discrimination should be challenged under Article 82 (b), i.e., that it

should be abusive only to the extent that it is exclusionary, not because of the price discrimination as such. The same argument applies, according to the two authors, for secondary-line price discrimination employed by a vertically integrated firm. Furthermore, they argue that geographical price discrimination should not in itself be seen as an abuse. Instead, the competition authorities should focus on the measures that are used to prevent the arbitrage trade that geographical price discrimination stimulates. This leaves only secondary-line price discrimination undertaken by a non-integrated firm. In practice, such cases are few, since it would rarely or never be in the interest of the dominant firm. Mostly, this category of cases concerns undertakings that discriminate against foreign firms.

The following five papers are placed in alphabetical order. In the second contribution, **Simon Bishop** focuses on one specific form of price discrimination: loyalty rebates. Bishop begins by remind the reader of some of the pro-competitive reasons for using loyalty rebates: to give the retailer (or, more generally, the downstream firm) stronger incentives to provide complementary services, to reduce the problem of double marginalization and to allow efficient recovery of fixed costs. In favourable circumstances, this can be achieved by offering the retailers rebates on marginal quantities. Consequently, Bishop argues, a per-se prohibition of loyalty rebates (even if offered by a dominant firm) does not make sense. It follows that rebates should be analysed on a case-by-case basis.

The main contribution of the paper is a discussion of a step-by-step economic methodology for assessing the anti-competitive effects of loyalty rebates. First, one needs to establish that the firm that offers the loyalty rebates has market power (a dominant position). Second, one must examine whether rivals have alternative routes to the market; i.e., whether it would make a difference or not that some downstream firms are locked up with the dominant provider. Third, one must evaluate if the rivals can match the rebates or nor. As a final step – if it has been found that a firm with market power locks

up essential customers in a way that an efficient rival cannot match – the adverse consequences of this must be weighed against the possible efficiency-improving effects of the rebates.

Bishop is most specific in his discussion of the third step. He suggests that the competition authorities compare the incremental revenues (including the effects of the loyalty rebates) and the incremental costs for those quantities that are in practice open to competition. Under this analytical scheme, a loyalty rebate would not be prohibited because of its form, but because the effective rebates over the competitive range are so large that the dominant firm is in effect pricing below costs for these quantities.

In the third paper, **Yongmin Chen** focuses on price discrimination in a symmetric duopoly situation. In the first of the two models he presents, the products of the two firms are initially identical, but once a consumer has bought from one of the firms, the consumer will experience switching costs if he or she buys from the other firm in the next period. This creates a lock-in situation, but it also creates a temptation for the two firms to try to "poach" each others customers. If they can price discriminate by the customers' purchase history, both firms will offer lower prices to the other firm's customer. This intensifies competition, lowers prices and lowers profits – but the practice may or may not benefit consumers.

In the second model that Chen presents, the products of the two firms are assumed to be differentiated. This means that some consumers will prefer to buy from one firm, while other consumers will prefer the other firm. However, when the firms compete by offering better prices to their rivals' customers than to their own, some consumers will be lured to buy from the "wrong" firm, i.e., from the firm that produces products that they like the least. The outcome of this type of competition will still benefit consumers, since the lower prices more than compensate for the worse consumer-producer fit. However, total welfare (and profit) will be lower than if price discrimination were not possible.

Which type of model is the best representation of real-world competition depends on the characteristics of the market that we want to analyse. However, a general conclusion is that price discrimination based on purchase history intensifies competition. This is in contrast with the view taken by competition authorities and courts in a number of cases under the competition laws. However, these cases typically concern asymmetric markets, i.e., markets where a dominant firm competes with one or more smaller firms, while the theoretical analyses focus on symmetric competition. Chen acknowledges that there is little economic theory that deals with price discrimination based on purchase history in asymmetric settings.

Thomas P. Gehrig and **Rune Stenbacka**, in the fourth contribution to the volume, take a step back and ask: What are the arguments in favour of – and against – price discrimination? They identify a number of arguments in both directions. First, price discrimination increases the flexibility of pricing, often with the effect of increasing efficiency. For example, higher prices during peak-demand periods allow for a more efficient use of capacity. Second, price discrimination improves fairness between consumers: consumers that would gain much from buying a product at an average price will have to pay a high price, while consumers that would gain little at the average price can now buy at a low price. Third, and finally on the positive list, in markets that are reasonably competitive, the use of price discrimination makes competition more intense.

However, there are also possible reasons to oppose price discrimination. First, it appears that many people prefer simple rules, for example one price only, over more complex rules (here, multiple prices). Second, one can argue that equal prices imply greater equality than unequal prices, hence disregarding that the latter may imply a fairer distribution of gains from trade. Third, if competition is not effective, price discrimination may not be good for consumers.

The conclusion of the authors is that a ban on price discrimination cannot be justified with reference to fairness considerations since, in their view, price discrimination will typically tend to increase fairness. Furthermore, in relatively competitive markets, price discrimination will typically tend to make the competition even keener. However, in markets without effective competition, price discrimination will tend to hurt consumers. This conclusion is consistent with the fact that the prohibition only applies for dominant firms. (On the other hand, in situations where two or more firms are dominant in their own home markets, while they have a small presence in each others' markets, the prohibition of price discrimination will tend to reinforce the divided market structure.)

In the fifth contribution to this volume, **Anne Perrot** argues that competition authorities' policies towards price discrimination should by governed by the effect of a particular type of price discrimination, not by its form. To set the stage for such an analysis, she provides an overview of what economic theory has to say about price discrimination.

Traditionally, economists have distinguished between three types of price discrimination. Under first-degree price discrimination, the seller is able to extract all consumer surplus by setting each consumer's individual price exactly equal to the maximum price that consumer would be willing to pay. (Of course, this is a theoretical concept, but sometimes it is very useful in theoretical analyses.) Under second-degree price discrimination, the seller offers different prices according to the terms of the sale – e.g., quantity discounts and high (low) peak (off-peak) prices – so that the buyers can self-select according to their willingness-to-pay. Under third-degree price discrimination, buyers are asked for different prices depending on their characteristics. An example would be lower prices for children, students or the elderly.

However, when assessing the competitive effects of a price-discrimination scheme, Perrot argues that it is useful also to make a distinction between the strategic and the non-strategic effects of price discrimination. Simply put, non-strategic price discrimination refers to practices employed by monopoly sellers that aim to increase their revenues. At first glance, one would think that higher revenues, while good for the seller, are always bad for the collective of consumers. However, price discrimination will tend to benefit low-valuation consumers. If the total volume increases because of price discrimination, the practice may actually benefit consumers collectively. In some situations, e.g., when fixed costs are high, price discrimination may actually be necessary for any production at all to take place.

Strategic price discrimination, in contrast, occurs in oligopoly situations and in vertical relations. Sometimes, strategic price discrimination is efficiency increasing, for example when it is used to create economically correct incentives for down-stream customers. In an oligopoly setting, the possibility to price discriminate will sometimes tend to intensify competition (along the lines argued by Chen and Gehrig and Stenbacka in this volume). In other instances of strategic competition, however, price discrimination can be used as a component of a predatory or exclusionary strategy. Perrot argues that, in order to make a proper effects-based analysis of price discrimination, the competition authorities must lay bare the mechanisms through which the practice tends to reduce competition.

In the final contribution, **David Spector** focuses on the strategic use of price discrimination. He argues that price discrimination can be an essential element of a predatory strategy, because it makes predation less costly for the dominant. It is often argued that predation is a costly strategy for a dominant firm because, being dominant, it will experience the greatest profit loss due to lower prices of all firms. However, price discrimination allows the predatory activities to be targeted directly at the rival, making the dominant's immediate profit loss – and the consumers' immediate

gain – smaller. Because of this, price discrimination can be an aggravating circumstance in exclusionary-abuse cases.

A similar mechanism is at work in bundling and exclusive-dealing practices: price discrimination makes these practices less costly – and therefore more effective – for the dominant. It follows that analysing the effect of price discrimination can often be a key step when analysing exclusionary behaviour.

An isolated ban on price discrimination, however, can be counter-productive, according to Spector. This is so, since price discrimination has many positive effects. As argued in some of the other contributions to this volume, benefits can arise from both non-strategic price discrimination and from strategic price discrimination; in the latter case because price discrimination sometimes intensifies competition. Spector identifies one possible exception to the principle of not seeing price discrimination in isolation as abusive. In the context of a vertically integrated firm, price discrimination between the dominant's downstream activities and the downstream rivals can make sense, from the point of view of the dominant. However, this brings us into the realm of the essential-facilities doctrine.

An interesting point raised by Spector is that banning what Geradin and Petit (and others) call secondary-line price discrimination can hurt the competitive process and that a ban can actually be in the interest of the dominant. The reason is that a manufacturer selling to competing retailers will be tempted to increase its profit by selling to many retailers, in effect undercutting itself. This process will drive down both wholesale and retail prices, even if the manufacturer holds a monopoly. In order to escape this paradoxical result, the manufacturer needs to commit to a high price; one way to achieve this is to commit not to price discriminate between the different retailers. In situations like this, a legal prohibition of price discrimination will be an ideal commitment device.

The overall conclusion of this volume appears to be that price discrimination is a complex phenomenon and that competition authorities would be ill-advised to see all instances of price discriminations as violations of Article 82, in particular since price discrimination can increase efficiency and intensify competition. Indeed, the authors appear to agree that price discrimination in itself, i.e., not associated with other abusive practices, should with very few exceptions not be seen as a violation of the prohibition of abuse of dominance. On the other hand, price discrimination can often be an essential element of a successful – from the point-of-view of the perpetrator – exclusionary strategy.

This suggests that a thorough analysis of the effects of the price discrimination is required. Hopefully, this volume contributes towards a better understanding of the mechanisms through which price discrimination has an impact on markets – and towards a more effective enforcement of the competition rules.

2. Price discrimination under EC competition law

Damien Geradin[*] *and Nicolas Petit*[**]

2.1 Introduction

The main objective of this paper is to throw some light on the compatibility of price discrimination with EC competition law.[1] In order to do so, this paper does not seek to propose a grand unifying theory that would provide a single test offering a way to distinguish between practices compatible and incompatible with the EC Treaty. Instead, we offer an analytical framework which distinguishes between different categories of price discrimination depending on their effects on competition. Different tests may thus be needed to assess the compatibility of the practices belonging to these categories with EC competition law. Another objective of the paper is to show that Article 82(c) should only be applied to the limited circumstances where a non-vertically integrated dominant firm price discriminates between customers with the effect of placing one or several of them at a competitive disadvantage vis-à-vis other customers (secondary-

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[1] See Michel Waelbroeck, *Price discrimination and Rebate Policies under EU Competition Law*, (1995) Fordham Corporate Law Institute, p. 148.

line price discrimination). In contrast, Article 82(c) should not be applied to pricing measures designed to harm the dominant firm's competitors (first line price discrimination) or to fragment the single market across national lines. As will be seen, relying on Article 82(c) to condemn such practices goes against the letter and the spirit of this provision and may also apply the wrong test to such practices. In addition, it is unnecessary, since other Treaty provisions can be used to achieve this objective.

This paper is divided into four parts. Part 2.2 seeks to identify the exact scope of Article 82(c). This provision has been used by the Commission and the Community courts to condemn practices that should have been assessed under other provisions of the EC Treaty. It also tries to determine why Article 82(c), the only Treaty provision dealing with discrimination, has been intensively applied by the Commission and the Community courts instead of more adequate provisions. Part 2.3 provides an analytical framework for examining the various categories of price discrimination imposed by dominant firms. It divides price discrimination practices into three categories depending on whether they create primary-line injury, secondary-line injury or involve geographic price discrimination and/or measures facilitating this form of discrimination. Our analysis of these three categories follows the same pattern. We first analyse the main types of practices belonging to these categories and discuss the relevant case-law. We then discuss whether Article 82(c) was the right legal basis to be applied in these cases or whether another legal basis may have been more adequate. Finally, Part 2.4 contains a short conclusion.

2.2 The scope of Article 82(c) of the EC Treaty

Article 82(c) states that, for one or several firms holding a dominant position, "applying dissimilar conditions to equivalent transactions with other trading parties, thereby placing them at a competitive disadvantage" is an abuse of a dominant position. The European

Court of Justice (hereafter, the "ECJ") also considers as an abuse the application of similar conditions to unequal transactions.[2] The ECJ case-law indicates that "dissimilar conditions" also include dissimilar prices. Price discrimination thus clearly falls within the scope of Article 82(c).

The language of this provision triggers the following remarks. First, among the conditions which need to be met for applying Article 82(c) is a requirement that the measure under investigation applies dissimilar conditions to "equivalent transactions". The evaluation of the equivalence of two transactions is not an easy matter as there are a myriad of factors that can be invoked to justify the lack of equivalence between two transactions. The most obvious reason for stating that two transactions are not equivalent is that they have different costs of production/distribution.[3] The problem is of course to determine how significant cost differences should be for two transactions to be considered non-equivalent. It could also be argued that differences regarding the moment of sales render two transactions non-equivalent. For many products or services (airline tickets, package holidays, etc.), the moment at which a sale is made has a major impact on its price. Finally, there is some uncertainty as to whether differences relating to the situation of the buyers can be taken into consideration when assessing the equivalence or lack of equivalence of two transactions.[4] For instance, applying prices inversely related to the elasticity of buyers is a strategy frequently

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[2] See ECJ, *Italian Republic v Commission*, 13-63, 17 July 1963, ECR-165 in the context of the ECSC Treaty.

[3] See Jonathan Faull and Ali Nikpay, *The EC Law of Competition*, Oxford University Press, 1999 at §3.237.

[4] See, however, ECJ, *United Brands Company v. Commission*, 27/76, 14 February 1978, ECR [1978]-207, where the ECJ indicated at §228 that: "[...] Differences in transport costs, taxation, customs duties, the wages of the labour force, the conditions of marketing, the differences in the parity of currencies, the density of competition may eventually culminate in different retail selling price [...]".

used by firms to expand output. Yet, it is not clear whether differences in elasticity of demand can render transactions non equivalent under the terms of Article 82(c). Unfortunately, the decisional practice of the Commission and the case-law of the Community courts fail to provide any clear guidance on the above issues. In fact, the Commission and the courts generally assume that two transactions are equivalent without much analysis.[5]

The application of Article 82(c) also requires that dissimilarly treated equivalent transactions should place some of the dominant firm's trading parties at a competitive disadvantage against others. This condition clearly indicates that Article 82(c) essentially seeks to prevent "secondary-line" injury.[6] Scholarly discussions regarding price discrimination often draw a distinction between "primary-line" injury, which is occasioned by the dominant firm to its *competitors* by applying different prices to its own customers, and "secondary-line" injury, which is imposed on one or several *customers* of the dominant firm as against one or several other customers.[7] The reference to the placing of the dominant firm's "trading parties at a competitive disadvantage" clearly indicates that the parties Article 82(c) seeks to protect are the customers of the dominant player and not its

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[5] See Van Bael & Bellis, *Competition Law of the European Community*, Kluwer Law International, 2005 at p. 915.

[6] In fact, the rationale of Article 82(c) might have been quite close to the primary rationale behind the US Robinson-Patman Act, which was to protect competition on the downstream market and, more specifically, small purchasers against large purchasers. See *Federal Trade Commission v. Morton Salt*, 334 U.S. 37: "The legislative history of the Robinson-Patman Act makes it abundantly clear that Congress considered it to be an evil that a large buyer could secure a competitive advantage over a small buyer solely because of the larger buyer's quantity purchasing ability".

[7] See e.g. Alison Jones and Brenda Sufrin, *EC Competition Law*, 2nd Ed., Oxford University Press, 2004 at 411; J. Faull and A. Nikpay, supra note 3 at §3.235.

competitors. Literally all legal scholars seem to agree on this point.[8] The need for a "competitive disadvantage" to occur also suggests that for Article 82(c) to apply, the dominant firm's customers should be in competition with each other. This requirement makes the finding of a discriminatory abuse dependent on the finding of a downstream market on which these firms compete.

The Commission and the Community courts have largely ignored the above condition with the result that they have applied Article 82(c) to aspects of dominant firms' pricing practices, which have little to do with putting their trading parties at a competitive disadvantage.[9] For instance, Article 82(c) has been applied to pricing practices, such as fidelity rebates or selective price cuts, which were allegedly designed to harm the dominant firms' competitors. These practices are classic examples of primary-line discrimination which should not be covered by Article 82(c). As pointed out by several authors, they should instead be treated under Article 82(b), which is the proper legal basis for dominant firms' practices which produce exclusionary effects.[10] Similarly, Article 82(c) has been used to condemn practices which essentially sought to partition markets along national lines. Here again, such practices have little to do with the secondary-line injury scenarios which Article 82(c) is designed to prevent.

One could, however, argue that the selection of the proper legal basis - Article 82(b) v. Article 82(c) - is essentially an academic issue with limited practical implications. Such a view would be too simple,

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[8] See Santiago Martinez Lage and Rafael Allendesalazar, "Community Policy on Discriminatory Pricing: A Practitioner's Perspective", *Paper presented at the 2003 Annual EU Competition Law and Policy Workshops - What is an Abuse of a Dominant Position?*, Florence at 1; Richard Whish, *Competition Law*, 5th ed., LexisNexis Butterworths, 2003, at pp. 716 and 710.

[9] See S. Martinez Lage and R. Allendesalazar, supra note 8 at p. 15.

[10] See John Temple Lang and Robert O'Donoghue, "Defining Legitimate Competition: How to Clarify Pricing Abuses under Article 82 EC", (2002) 26 *Fordham International Law Journal*, 83 at p. 115.

however, as the choice of the proper legal basis under Article 82 EC may have serious implications. As will be seen below, the problem with Article 82(c) is that, as interpreted in the current case-law, the evidentiary level it requires to reach a finding of abuse of a dominant position is quite low. After all, Article 82(c) only requires the application of dissimilar prices to equivalent transactions with the effect of placing some trading parties at a competitive disadvantage.[11] The requirement that trading parties be placed at a "competitive disadvantage" is not very demanding. It falls short, for instance, from asking the demonstration that such parties would be forced to exit the market should the discriminatory practice continue. Moreover, in most instances, the Commission and the Community Courts have simply ignored this condition for finding a violation of Article 82(c).[12] In contrast, Article 82(b) has been interpreted as requiring a showing of exclusionary effects. The language of this provision also conditions the finding of an abuse on the showing of a prejudice to the consumers. As price discrimination measures taking the form of rebates generally benefit consumers, the evidentiary burden imposed by Article 82(b) thus seems higher.

This low evidentiary threshold is not of major concern when dealing with cases of secondary-line discrimination which do not produce exclusionary effects. After all, this form of discrimination is quite rare and hardly justifiable when it occurs. In contrast, when the matter in question involves primary-line discrimination, a simple finding of price discrimination is clearly insufficient to reach a finding of abuse of a dominant position. Such cases, which, for instance, concern rebates and selective price cuts, require at the minimum the showing that the measure in question produces exclusionary effects, which may drive rivals out of the market. In fact, not unlike essential facilities cases, secondary-line price discrimination cases involve a strategy whereby a dominant firm

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[11] See J. Temple Lang and R. O'Donoghue, supra note 10 who consider it is a strict test which is however not applied in practice.

[12] See J. Faull and A. Nikpay supra note 3 at p. 176.

restricts the output of its rivals by excluding them from the market. The right legal basis to deal with such cases is Article 82(b).

2.3 Proposed analytical framework for examining price discrimination measures

The objective of this Part is to provide an analytical framework for examining the various forms of price discrimination imposed by dominant firms. Price discrimination can take the form of many different practices whose objectives and effects can substantially differ. Because of such differences, we propose to divide these practices into three categories depending on whether they create primary-line injury, secondary-line injury, or whether they involve geographic price discrimination. The various kinds of measures falling within these categories are summarized in Table I (see p. 63).

2.3.1 Price discrimination in primary-line injury settings

This section first seeks to demonstrate that while the wording of Article 82(c) clearly aims at preventing price discrimination practices placing a dominant firm's customers at a competitive disadvantage vis-à-vis other customers (secondary-line price discrimination), a significant number of Commission decisions and Community courts' judgments rely on Article 82(c) to condemn primary-line price discrimination measures. It also explores why the Commission and the Community courts relied on Article 82(c) while other provisions might have been better suited to the cases at hand.

2.3.2 Main forms of primary-line price discrimination measures examined under Article 82(c)

Hereafter, we successively review cases involving rebates, selective price cuts and tied and bundled prices.

Price discrimination in the form of rebates

A first form of price discrimination consists in rebates, i.e. discounts paid retrospectively by a seller to a purchaser in respect of past purchases.[13] Rebates generally entail price discrimination because the customer who receives a rebate pays a lower price than other customers purchasing a similar good or service.[14]

There exist several categories of rebates. A first category relates to "quantity rebates", i.e. discounts granted on the basis of the volume purchased. The Commission and the Community courts have generally considered that quantity rebates reflecting cost efficiencies resulting from the larger amount of products sold are not discriminatory.[15] In contrast, the judgment of the CFI in Michelin II suggests that quantity rebates not based on such efficiencies are not economically justified and thus should be found discriminatory within the meaning of Article 82(c).[16] So far, there has, however, been

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[13] This definition is taken from Lennart Ritter and David Braun, *European Competition Law: A Practitioner's Guide*, Kluwer Law International, 2004, at p. 465.

[14] See ECJ, *Suiker Unie and others v. Commission*, 16 December 1975, 40/73, ECR [1975]-1663 at §122.

[15] To the contrary, uniform pricing of different volumes can be seen as discriminatory. This is why the Commission considers that quantity rebates are normally unobjectionable. See Commission Decision 97/624 of 14 May 1997, *Irish Sugar plc.*, OJ L 258 of 22 September 1997, pp.1-34 at §153.

[16] See CFI, *Manufacture française des pneumatiques Michelin v Commission*, (*Michelin II*), 30 September 2003, T-203/01 at §§98 and 100.

no case where pure quantity rebates have been found discriminatory under Article 82(c).

A second form of rebates relates to "fidelity rebates", i.e. discounts offered conditional on a commitment from the purchaser to place all or most of its orders (be they large or small) to the seller granting the rebate. Fidelity rebates are generally seen as horizontal exclusionary devices aiming at foreclosing competitors or impeding their expansion. Nevertheless, Commission decisions and ECJ judgments involving fidelity rebates have condemned them on the basis of Article 82(c), omitting in their analysis the "competitive disadvantage" condition built in this provision.

This can, for instance, be observed in Hoffmann-La Roche, a case where the dominant company had granted rebates to a number of purchasers, as a counterpart to the commitment from the purchasers to acquire all or most of their vitamins or certain vitamins from Hoffmann-La Roche.[17] The Commission held that these rebates, on the one hand, had a horizontal effect by distorting competition between vitamins producers and, on the other hand, had a discriminatory effect in that they applied dissimilar conditions to equivalent transactions. The ECJ ruled on the question of discrimination by holding that:

> "the effect of a fidelity rebate is to apply dissimilar conditions to equivalent transactions with other trading parties in that two purchasers pay a different price for the same quantity of the same product depending on whether they obtain their supplies exclusively from the undertaking in a dominant position or have several sources of supplies".

The Court sanctioned the discrimination on face value and did not engage in an analysis of the competitive situation downstream as required under Article 82(c).[18] Hoffmann La Roche, however, argued

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[17] See ECJ, *Hoffmann-La Roche v. Commission*, 13 February 1979, 85/76, ECR[1979]-461.

[18] Id. at §35. The trading parties were 22 large firms of different industries.

that the rebates were not of such a kind as to place its customers at a competitive disadvantage. The Court eluded the question declaring:

> "[...] since the course of conduct under consideration is that of an undertaking occupying a dominant position on a market where for this reason the structure of competition has already been weakened, within the field of application of article [82] any further weakening of the structure of competition may constitute an abuse of a dominant position".[19]

The ECJ's reference to the weakening of the structure of competition on the producer's market confirms that the discrimination was sanctioned for its primary-line injury effect rather than for the secondary-line injury required by Article 82(c). The Court did not deal with the question of the competitive disadvantage. Instead, it relied on abstract arguments to establish a violation of Article 82(c).[20]

In some cases, however, the Commission and the Community courts examined both primary and secondary-line effects of fidelity rebate schemes. In British Plasterboard Industries, for instance, BPB, the dominant plasterboard producer in Great Britain and Ireland (through its subsidiary BG) was faced with increasing competition

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[19] Id. at §122 and following.

[20] A similar approach can be observed in Suiker Unie, ECJ, supra note 14. In that case, the Commission had considered that the fidelity rebates granted by SZV, a dominant sugar producer in Southern Germany to its customers, amounted to an "unjustifiable discrimination against buyers who also buy sugar from other sources than SZV". The Commission, in particular, seemed concerned by the fact that the rebate policy had been adopted so as to "limit possibilities for imports" and "to strengthen the dominant position of the producer". The Commission thus examined the horizontal effects of the rebates scheme. The Court followed the Commission's reasoning as it essentially disregarded the "competitive disadvantage" requirement contained in Article 82(c) and preferred linking the discrimination to foreclosure effects generated by the rebates.

from imports from France and Spain.[21] In Northern Ireland, BPB withdrew a rebate from its customers who intended to import Spanish plasterboard. Moreover, it offered an additional rebate to all customers who agreed to purchase exclusively from BG and not deal with imported products.[22] The CFI held that such a practice "by virtue of its discriminatory nature was clearly intended to penalize those merchants who intended to import plasterboard and to dissuade them from doing so, thus further supporting BG's position in the plasterboard market".[23] Although it did not elaborate on the issue and made no reference to Article 82(c), the CFI's statement seemed to point in the direction of two effects, i.e. a secondary-line injury for those merchants not committing to loyalty and a primary-line one with the maintenance of BG's dominant position. As far as the secondary-line injury was concerned, the Commission's decision indicated that imports had prompted increased price competition at the merchants' level.[24]

A third form of rebates that can be discriminatory are "target rebates", i.e. those conditional on a company meeting a sales target that is higher than previous purchases. The Community courts' case-law provides several illustrations of target rebates being found discriminatory pursuant to Article 82(c). In Michelin I, the dominant tyre producer on the Dutch market for new replacement tyres for trucks, buses and similar vehicles paid an annual bonus to its dealers depending on their reaching a sales target, which was set at a level

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[21] See Commission Decision 89/22 of 5 December 1988, IV/31.900, *BPB Industries plc.*, OJ L 10 of 13 January 1989 pp. 50-72.

[22] Id. at §148.

[23] See CFI, *BPB Industries plc and British Gypsum Ltd. v. Commission*, T-65/89, ECR 1993 II-389 at §119.

[24] See Commission decision at §49.

higher than the purchases made in the previous years.[25] The bonus was determined individually and selectively for each dealer. In addition to showing that this practice had the effect of tying independent dealers to Michelin (thereby foreclosing competitors), the Commission identified a discrimination contrary to Article 82(c). Different bonuses were indeed granted to dealers whose situations were comparable. These bonuses were not linked to cost efficiencies, but to the loyalty that had been shown to Michelin. The Commission, however, paid no attention at all to the conditions mentioned in Article 82(c). In its assessment of the effects of the discount, the Commission only relied on the horizontal effect of the practice, namely that it "distorts the competition between tyre producers" and impedes "access to the Netherlands market for [Michelin's] competitors".[26] The Commission's findings were annulled by the ECJ, which considered that the differences in the treatment of dealers could be explained by a number of commercial reasons. It could thus not be inferred from these differences that Michelin had engaged in discrimination.[27]

In *Irish Sugar*, the Commission found that target rebates offered by Irish Sugar to major food wholesalers in Ireland were discriminatory because they were dependent on percentage increases in purchases rather than absolute purchase volumes.[28] Thus, companies ordering small volumes but having improved their sales compared to the previous year were treated similarly to companies ordering large volumes but having not increased their sales. In its reasoning, the Commission was, however, less concerned by the

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[25] See Commission Decision 81/969 of 7 October 1981, *Bandengroothandel Frieschebrug BV/NV Nederlandsche Banden-Industrie Michelin*, OJ L 353 of 9 December 1981 pp. 33-47 at §38.

[26] Id. at §49.

[27] See ECJ, *NV Nederlandsche Banden Industrie Michelin v. Commission*, 9 November 1983, 322/81, ECR [1983]-3461 at §90.

[28] See Commission Decision, supra note 15 at §154.

discrimination the rebate system introduced between distributors, than by the fact the rebates were "making it difficult for competitors to gain a foothold in the market" and "part of a policy of restricting the growth of competition from domestic sugar packers".[29] Once again, the Commission focused on the primary-line effects of the measure in question rather than on its secondary-line effects.

Price discrimination in the form of selective price cuts

A second form of price discrimination can be found in selective price cuts strategies whereby an operator cuts its prices selectively, but not below costs, to customers that might switch to a competitor, while leaving prices to other customers at a higher level.[30] The Commission has originally been quite cautious in equating these practices with price discrimination pursuant to Article 82(c). In ECS/Akzo, the Commission sanctioned as an abuse of a dominant position the predatory prices selectively offered and charged by Akzo to ECS's customers with a view to excluding the latter from the market.[31] Although the decision was largely based on the predatory nature of the prices, the Commission also referred to the discriminatory nature of the conduct. However, the Commission decided not to apply Article 82(c) to the matter at hand:

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[29] Id. at §152 and §154.

[30] See, on this, Einer Elhauge, "Why Above-Cost Price Cuts To Drive Out Entrants Are Not Predatory--and the Implications for Defining Costs and Market Power" (2003) 112 *Yale Law Journal*, 681; Aaron S. Edlin, "Stopping Above-Cost Predatory Pricing" (2002) 111 *Yale Law Journal*, 941; R. Whish, supra note 8 at p. 653.

[31] Commission Decision 85/609 of 14 December 1985, *ECS/Akzo*, OJ L 374 of 31 December 1985, pp. 1-27.

> "Discrimination between similarly-placed customers is expressly prohibited by Article [82](c) when it places certain firms at a competitive disadvantage. In the present case however the anticompetitive effect of AKZO's differential pricing involved not so much direct injury to customers but rather a serious impact on the structure of competition at the level of supply by reason of its exclusionary effect".[32]

The Commission prohibited Akzo from offering or applying prices which would result in customers of ECS paying Akzo prices dissimilar to those being offered by Akzo to comparable customers.[33]

In Eurofix-Bauco v. Hilti the Commission did not apply Article 82(c) either. Hilti had implemented a discriminatory strategy taking the form of selective price cuts and other advantageous terms in favour of its competitors' main customers. Hilti's other customers did not benefit from these special conditions. The Commission considered that these practices were part of a strategy to limit the entry of competitors in the market for Hilti-compatible nails and thus relied essentially on a primary-line injury reasoning.[34] The Commission held:

> "An aggressive price rivalry is an essential competitive instrument. However, a selectively discriminatory pricing policy by a dominant firm designed purely to damage the business of, or deter market entry by, its competitors, whilst maintaining higher prices for the bulk of its other

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[32] Id. at §83.

[33] Id. at Article 3(3). Article 3(5) was however annulled by the Court of Justice. See ECJ, Akzo *Chemie BV v Commission*, 3 July 1991, C-62/86, ECR [1991], I-3359.

[34] See Commission Decision 88/138 of 22 December 1987, *Eurofix-Bauco v. Hilti* OJ L 65 of 11 March 1988 pp. 19-44. At §§80-81 of the Decision the Commission considered that the practice was deemed to be "designed to damage the business of, or deter market entry by, its competitors". Some have seen in the Commission's qualification of the practice a reference to both primary and secondary-line injuries, see Van Bael & Bellis, supra note 5 at p. 915.

> customers, is both exploitative of these other customers and destructive of competition".

In more recent cases, however, the Commission and the Court held that selective price cuts could amount to price discrimination incompatible with Article 82(c) EC. In Irish Sugar, the target rebates scheme that was described above had an additional feature that rendered it similar to a selective price cut. The size of the target rebate varied depending on the customer at stake, i.e. being more favourable to particular customers of competing sugar packers. The Commission held that this constituted "selective and discriminatory pricing". However, in analysing its effects, the Commission relied on a primary-line injury analysis by stating that this practice was part of a policy of restricting the growth of competition from domestic sugar packers.[35]

A more explicit finding of price discrimination incompatible with Article 82(c) appeared in *Compagnie Maritime Belge.* The members of CEWAL, a liner conference holding a joint dominant position on shipping routes between northern Europe and Zaire had operated a "fighting ships" scheme pursuant to which they offered (i) liner services at the closest dates of sailing possible to the sailings of its main competitor, G&C, (ii) at special rates different from the rates normally charged by CEWAL and that were the same or lower than the prices of G&C. In its decision, the Commission showed that the practice amounted to a primary-line injury abuse because the members of CEWAL were seeking to eliminate their principal competitor through the use of fighting ships. In addition to this finding, however, the Commission added that the practice constituted "a clear abuse of a dominant position in breach of Article 82(c)" in that it had:

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[35] See Commission Decision, supra note 15 at §154. This was upheld by the CFI, Irish Sugar plc v. Commission, 7 October 1999, T-228/97, ECR [1999] II-2969 at §§215-225.

> "[...] a discriminatory effect against shippers who, having to load on dates some time from the sailing dates of G&C ships, must therefore pay the higher regular conference tariff for the carriage of the same goods [...]. This is because shippers have dissimilar conditions imposed on them for equivalent transactions, which places those who are forced to pay higher rates at a competitive disadvantage".[36]

The decision was appealed by the parties which argued *inter alia* that there was no discrimination because at any given time, all shippers were treated in the same way.[37] In fact, the parties were merely applying a uniform price differentiation scheme with respect to timing. The CFI and the ECJ eluded the question of price discrimination and relied on the exclusionary nature of the practice to consider it an abuse of a dominant position.[38]

The question nevertheless arises whether a different price structure between traditional customers and competitors' customers or those contemplating shifting to a competitor should always be deemed discriminatory. Pricing selectively according to the elasticity of customers is widely admitted as an efficiency-enhancing conduct by economists. The Commission and the Community courts have not, however, resolved the issue of whether customers with different

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[36] See Commission Decision 93/82 of 23 December 1992, *Cewal*, OJ L 34 of 10 February 1993 pp. 20-43 at §83.

[37] See CFI, *Compagnie Maritime Belge Transports SA and Others v. Commission*, 8 October 1996, Official Journal C 336, 9 November 1996, T-24/93, T-25/93, T-26/93 and T-28/93, ECR[1996] II-1211 at §124.

[38] It is of note, however, that Advocate General Fennelly stated: "normally, non-discriminatory price cuts by a dominant undertaking which do not entail below-cost sales should not be regarded as being anti-competitive". A contrario, this seems to imply that discriminatory selective price cuts above costs could be held abusive under Article 82 EC. See Opinion of Advocate General Fennelly of 29 October 1998, ECR [2000] I-1365, at §132.

price elasticity could be considered as being in different situations, thereby rendering Article 82(c) inapplicable.

Tied and bundled pricing

Tied and bundled pricing practices represent a third form of primary-line injury price discrimination. In some instances, firms subordinate the granting of a discount to the acquisition by the purchasers of two distinct products. In Eurofix-Bauco v. Hilti, the Commission sanctioned Hilti on the ground that it had granted special discounts for the combined purchase of cartridge strips and nails and/or that it refused or reduced normal discounts for customers buying cartridge strips only.[39] In spite of the reference to the discriminatory character of this policy, the Commission did not rely on Article 82(c). It merely held that the practice had the effect of both exploiting the customers, as well as producing a horizontal effect by "excluding independent nail makers who may threaten the dominant position Hilti holds".

The lack of attention given to the discriminatory effects of tied or bundled pricing appeared even more clearly in *Napier Brown*. In that case, a dominant sugar supplier, British Sugar, had refused to grant an option to its customers between purchasing sugar on an ex factory (i.e., without delivery) or delivered-price basis. The Commission considered that British Sugar's conduct whereby it only sold sugar provided that it also delivered it was contrary to Article 82 EC. The Commission did not make any reference to Article 82(c) and relied on the fact that the practice produced an exclusionary effect on the neighbouring market for the delivery of sugar. The Commission could, however, have identified a discriminatory effect because a price including the cost of delivery was charged even when the purchasers did not wish to have the sugar delivered by British Sugar.

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[39] See Commission Decision, supra note 34 at §§34(5) and 75.

The discriminatory effects of tied or bundled pricing have received more attention from the Commission in recent years. In the Digital case, the Commission considered that Digital, a dominant operator in the field of software maintenance services and other hardware services, had abused its dominant position by engaging in discriminatory practices and tied sales.[40] Digital was charging discriminatory prices depending on whether the customer bought computer hardware services from the same supplier. The Commission relied on a primary-line injury argumentation. It stated that this policy "revealed a clear desire to obstruct the ability of independent service suppliers to compete with Digital on the markets for maintenance services and other, hardware services (for Digital computers)".

Further, in *Van den Bergh Foods*, the Commission relied on the wording of Article 82(c), although this provision was not explicitly mentioned.[41] A dominant ice cream manufacturer in Ireland had adopted a pricing policy towards its retailers whereby it supplied its ice cream products and freezer cabinets at an "inclusive price", i.e. the freezer cabinets and the ice cream were bundled together in a single price. This produced discriminatory effects as retailers that already had their own freezer cabinet paid the same price as those that acquired a freezer cabinet from Van den Bergh foods. In its statement of objections, the Commission considered that this policy breached Article 82 EC in that it:

> "[...] gave rise to discrimination between trading partners, by treating dissimilar situations in a similar fashion. Retailers with their own freezer cabinets effectively paid for a service which they did not receive and, in so doing, were forced to subsidise cabinet provision to those taking HB

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[40] See XXVIIth Report on Competition Policy – 1997, at §69. See also, L. Ritter and D. Braun, supra note 13 at p. 452.

[41] See Commission Decision 98/531 of 11 March 1998, *Van den Bergh Foods Limited*, OJ L 246 of 4 September 1998, p. 1.

> cabinets; the former retailers thereby placed themselves at a competitive disadvantage vis-à-vis the latter ones".[42]

The issue was subsequently resolved, with Van den Bergh foods abandoning the inclusive pricing policy and replacing it by a "differential" pricing scheme, whereby retailers that would not purchase the freezers would receive from Van den Bergh foods a lump sum reflecting the purchase and maintenance cost savings of the latter in not supplying and servicing a freezer cabinet to the retailer.[43]

2.3.3 Why have the Commission and the Community courts mistakenly relied on Article 82(c) to address primary-line cases?

As we have seen above, it is clear from the wording of Article 82(c) that this provision was designed to prevent price discrimination practices which placed a dominant firm's customers at a competitive disadvantage vis-à-vis other customers. Article 82(c) thus seeks to prevent secondary-line price discrimination. Interestingly, the majority of cases in which the Commission and the Community courts evoked Article 82(c) essentially dealt with primary-line injury. The mechanisms put in place by the dominant firms in question typically sought to produce exclusionary effects designed to encourage competitors to exit the market and to prevent entry.[44] The question why the Commission nonetheless relied (explicitly or implicitly) on Article 82(c) thus arises. Several reasons may have

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[42] Id. at §76.

[43] Id. at §77.

[44] In most of these cases, complainants were not the trading parties, but the competitors, suffering the exclusionary effect of the practice. This probably reveals that the trading parties did not consider having themselves been put at a competitive disadvantage.

prompted the Commission and the Court to use this provision in an extensive fashion.

A first reason for the Commission's extensive interpretation of the concept of price discrimination lies in the early history of the application of Article 82 EC. Besides the fact that the European Steel and Coal Community Treaty's provision on price discrimination did not draw any distinction between primary-line and secondary-line injuries,[45] the possibility to apply Article 82 to primary-line discrimination settings was supported early by a group of scholars appointed in the 1960's by the Commission to advise it on the application of Article 82 EC.[46] In *Hoffmann-La Roche*, the Court delivered a signal whereby to reach a finding of price discrimination under Article 82(c), it was not necessary to apply strictly the conditions imposed by that provision. As Advocate General Van Gerven rightly observed in his Opinion under *Corsica Ferries*:

> "It appears implicitly from the Community case-law, [...] that the Court does not interpret that phrase [i.e. "applying dissimilar conditions to equivalent transactions with other trading parties, thereby placing them at a competitive disadvantage"] restrictively, with the result that it is not necessary, in order to apply it, that the trading partners of the undertaking responsible for the abuse should suffer a competitive disadvantage against each other or against the undertaking in the dominant position".[47]

The requirement of a secondary-line injury for evidencing an abuse of a dominant position having been largely removed from Article

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[45] It merely prohibited "[...] discriminatory practices involving, within the common market, the application by a seller of dissimilar conditions to comparable transactions [...]". See Article 60(1) of the ECSC Treaty.

[46] See David Gerber, *Law and Competition in Twentieth Century Europe – Protecting Prometheus*, Clarendon Press Oxford, 1998, at pp. 356-357.

[47] In its ruling on the case, the Court of justice did not even mention the condition of competitive disadvantage in its judgment. See Van Bael & Bellis, supra note 5 at p. 917.

82(c), the Commission enjoyed a large scope for developing a praeter legem policy against price discrimination. This explains why the Commission has been able in a number of cases to rely on a primary-line injury reasoning to sanction discriminatory business conduct. The Commission was further comforted in its approach by subsequent judgments of the Community Courts (e.g., Tetra Pak II) holding that the proof of an abuse did not require bringing evidence of the anticompetitive effects of the conduct at stake.[48]

Second, in a number of cases, the Commission seized the opportunity that was given to it to apply Article 82(c) beyond the limited scope of secondary-line price discrimination in support of a finding of abuse of dominance in a primary-line setting. Indeed, in most cases involving primary-line price discrimination, the question arises whether the practice at stake is a normal competitive strategy that should not be condemned (the so-called "meeting competition" strategy) or whether it is an exclusionary behaviour that seeks to exclude competitors from the market. This is, in particular, important in the context of above cost selective price cuts, where the case-law requires to show, for a finding of an abuse of a dominant position, that the firm under scrutiny has the intent to eliminate its competitors.[49] In these cases, a finding of discrimination may have helped reaching the evidentiary threshold required for a finding of abuse under Article 82 EC. This is apparent in the Irish Sugar case where the imposition of discriminatory prices was interpreted as one

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[48] For instance, in the recent *Deutsche Post AG* case, the Commission justified its superficial assessment of the discriminatory conduct at stake by recalling the *Tetra Pak II* ruling pursuant to which "Article 82 may be applied even in the absence of a direct effect on competition". See Commission Decision, infra note 66 at §133. See CFI, *Tetra Pak International SA v. Commission* (*Tetra Pak II*), 6 October 1994, T-83/91, ECR [1994] II-755.

[49] See ECJ, *Compagnie Maritime Belge Transports SA* (C-395/96 P), *Compagnie Maritime Belge SA* (C-395/96 P) *and Dafra-Lines A/S* (C-396/96 P) *v. Commission*, 16 March 2000, ECR [2000] I-1365 at §119.

of the elements showing a policy of restricting the growth of competition from domestic sugar packers.[50]

Third, linked to the prior observation may also be the fact that most forms of pricing abuses involve some aspect of discrimination. A finding of discrimination may thus not only lower the evidentiary threshold for the finding of an abuse, but also allow the Commission to impose a higher fine, considering it has established two separate infringements. In Irish Sugar and in British Airways, for instance, the Commission combined a finding of exclusionary abuse (under Article 82(b)) with a price discrimination abuse (under Article 82(c)).

Finally, if it had not been extended by the Commission, Article 82(c) would have remained "dead letter". Indeed, from an economic viewpoint, a seller that is not vertically-integrated often would seem to have little incentive to want to distort downstream competition, since it benefits from a competitive downstream market for distributing its goods. A pricing practice that removes distributors from the market may produce two kinds of adverse effects on the seller. First, the distributors may compete less aggressively for the distribution of the goods at stake. Second, a risk of consolidation of the market structure downstream may reduce the bargaining power of the upstream firm and consequently negatively affect its revenues. This may explain why the Commission has only shown little interest towards secondary-line price discrimination and has preferred curbing the provision towards an active policy against primary-line discrimination.

[50] See Commission Decision, supra note 15 at §§145 and following.

These reasons explain to one degree or another why Article 82(c) has been extended by the Commission and the Community courts to primary-line price discrimination.[51] As noted above, we believe this extension is unfortunate as it applies the wrong legal test to primary-line abuses. Since such abuses involve exclusionary effects, they would be better dealt with under Article 82(b).

2.4 Price discrimination in secondary-line injury settings

The purpose of this section is first to identify the different scenarios of secondary-line price discrimination, i.e. discrimination affecting the conditions of competition at the downstream level. The decisional practice of the Commission and case-law of the ECJ has applied Article 82(c) to secondary-line injury settings in two main situations, which will be discussed below. This section then discusses whether Article 82(c) is the right legal basis for sanctioning these practices of secondary-line price discrimination.

2.4.1 Main forms of secondary-line price discrimination measures examined under Article 82(c)

A first scenario can be found when non vertically-integrated operators apply discriminatory prices to their customers. A second

[51] Interestingly, the US Robinson Patman Act, which was historically adopted with the main aim to prevent price discrimination from damaging competition between downstream customers (secondary-line effects) has also been applied from the start to primary-line effects. The main difference between EC law and US law, however, is that price discrimination has hardly been subject to enforcement since the 1980's.

scenario involves discriminatory pricing by vertically-integrated operators.

Secondary-line injury price discrimination by non vertically-integrated operators

The decisional practice of the Commission and the case-law of the Community courts provide various examples of secondary-line injury price discrimination by non vertically-integrated operators, in particular in the transport sector where an undertaking (often a public company) has been granted an exclusive right to operate an essential facility without, however, being active on the downstream market. Most of the cases dealt with by the Commission and the courts involved discrimination on the ground of nationality, or measures trying to favour domestic activities over international and/or non domestic ones.

In *Corsica Ferries II*, the corporation of pilots of the port of Genoa had received from the public authorities the exclusive right to provide compulsory piloting services in the port of Genoa.[52] The piloting tariffs had been fixed by the corporation of pilots and approved by the Minister. Various reductions of the basic tariff applied for vessels permitted to carry out maritime cabotage, i.e. traffic between two Italian ports. Only vessels flying the Italian flag could obtain permission to engage in maritime cabotage and, thus, benefit from the tariff reductions. Corsica Ferries, a maritime transport operator which operated a liner service between the port of Genoa and various Corsican ports complained of the discriminatory nature of the tariffs. The ECJ held that:

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[52] See ECJ, 17 May 1994, *Corsica Ferries Italia Srl v Corpo dei Piloti del Porto di Genova*, C-18/93, ECR [1994] I-1783.

> "Article [82](1) and Article [86] of the Treaty prohibit a national authority from enabling an undertaking which has the exclusive right of providing compulsory piloting services in a substantial part of the common market to apply different tariffs to maritime transport undertakings, depending on whether they operate transport services between Member States or between ports situated on national territory".[53]

Indeed, as Advocate General Van Gerven had explained in his Opinion, the compulsory piloting services carried out by the corporation of pilots were "strictly the same" for companies active on the cabotage market or for companies on an international line.[54] The measure was in fact a subtle and indirect way to confer an advantage on national economic operators.

Similar examples of sellers conferring a preferential treatment on specific undertakings can also be observed in a number of cases involving airport facilities. For instance, in the *Brussels National Airport* case, the Belgian legislation provided for a system of stepped discounts on landing fees, which favoured airlines that had a large volume of traffic at Brussels airport over airlines having a lower traffic.[55] The thresholds established by the Belgian legislation were such that only a carrier based at the airport could benefit from the discounts to the detriment of other Community carriers. This had the effect of favouring the Belgian public carrier over its competitors. The Commission considered that Article 82(c) could be applied to cases where:

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[53] Id. at §45. This ruling was subsequently confirmed by the Commission in a decision which condemned the Italian Republic for not complying with the ruling. See Commission Decision 97/745 of 21 October 1997, OJ L 301 of 5 November 1997 pp. 27-35.

[54] See Opinion of Advocate General Van Gerven delivered on 9 February 1994 under C-18/93, ECR [1994] I-1783 at §19.

[55] See Commission Decision 95/364 of 28 June 1995 OJ, L 216 of 12 September 1995 pp. 8-14.

> "an undertaking in a dominant position [gives] preference to another undertaking from the same State or another undertaking which is pursuing the same general policy".[56]

In this case, the State, acting through its intermediary, i.e. the Belgian Airways Authority enjoying an exclusive right on the market for aircraft landing and take off services, was giving "preferential treatment" to a specific undertaking, i.e. the national public airline Sabena. The Commission hence applied Article 86 in combination with Article 82(c).

A similar line of reasoning was followed by the Commission in the *Portuguese Airports* case, where discounts on landing fees *de facto* created an advantage in favour of national airlines.[57] Furthermore, this case also concerned the application of different landing charges to domestic and international flights (and in particular intra-EEA flights). These measures were also held to be discriminatory within the meaning of Article 82(c) because the landing and take off services provided by the airports were the same, irrespective of the fact whether the airline had an international or domestic activity.[58]

In *Alpha Flight/Aéroports de Paris*, ADP, the manager of the Paris airports had charged commercial fees to Alpha Flight and OAT, two suppliers of ground-handling services in return for the granting of a licence to operate in one of the airports.[59] The commercial fee paid by

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[56] Id. at §17.

[57] See Commission Decision 1999/199 of 10 February 1999, *Portuguese Airports*, OJ L 69 of 16 March 1999, pp. 31-39 at §26. A similar line of reasoning was followed in a decision concerning the landing charges applied by the Spanish Airport Authorities, see Commission Decision 2000/521 of 26 July 2000, OJ L 208 of 18 August 2000 at pp. 36-46 at §§48-53.

[58] See Commission Decision 1999/98 of 10 February 1999, *Ilmailulaitos/Luftfartsverket*, OJ L 69 of 16 March 1999, pp. 24-30 and Commission Decision 1999/199, *Portuguese Airports*, supra note 57.

[59] See Commission Decision, 98/153 of 11 June 1998, *Alpha Flight Services/Aéroports de Paris*, OJ L 230 of 18 August 1998, pp. 10-27.

each of the suppliers was calculated on the basis of their respective turnover.[60] Following a complaint filed by Alpha Flight, the Commission's investigation revealed that the fees were applied in a discriminatory manner. It appeared indeed that on the basis of equivalent turnovers, the fees paid by OAT were substantially different. In addition, self handling airlines were charged much lower fees than the companies providing ground-handling activities to airlines, although the management services supplied by ADP to both kinds of operators were strictly similar.[61] The Commission thus considered that the variation of the fee from one supplier to another within a same airport distorted competition between suppliers or users of ground-handling services and thus was a discrimination contrary to Article 82(c).[62] The hypothesis of a discrimination on the ground of nationality, although not explicitly referred to in the decision, could not be ruled out, given that at the time of the case, ADP and OAT (a subsidiary of Air France) were both national public companies, whereas Alpha Flight was a subsidiary of a UK company.

Secondary-line injury price discrimination by vertically-integrated operators

Markets structures where vertically-integrated firms control essential inputs are often prone to secondary-line injury price discrimination. Indeed, vertically-integrated operators have generally a strong incentive to charge a lower price to their downstream subsidiary than to the latter's competitors. The decisional practice of the

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[60] OAT global fee's structure was, however, slightly different.

[61] Id. at §§119 and 121.

[62] Id. at §126 of Commission Decision. Confirmed by CFI, *Aéroports de Paris v. Commission*, 12 December 2000, T-128/98 [2000] ECR II-3929 and ECJ, *Aéroports de Paris v. Commission*, 24 October 2002, C-82/01, ECR [2002] I-9297.

Commission and the case-law of the Community courts contain several examples of this.

A first illustration can be found in the *Deutsche Bahn* case. Transfracht, a subsidiary of the German Railway operator, was active in the carriage of maritime containers to or from Germany passing through German ports. Intercontainer was active in the carriage of maritime containers to or from Germany, passing through western ports (Belgium and Netherlands ports). Although providing a similar service (i.e., the carriage of maritime containers to and from Germany), the two firms had been charged different prices by Deutsche Bahn for access to the rail infrastructure. The facts revealed, for instance, that the price differences ranged from 2 to 77% in respect of the carriage of empty containers in favour of Transfracht. The Commission and the CFI thus considered that Deutsche Bahn had infringed Article 82(c) in applying dissimilar conditions to equivalent services. The discrimination had the effect of placing the parties operating from western ports at a competitive disadvantage vis-à-vis Deutsche Bahn and its subsidiary.[63] In support of this, the Commission had gathered evidence that Deutsche Bahn's price discrimination had substantially limited the carriage of containers between the western ports and Germany in favour of imports and exports to and from Germany through the port of Hamburg.[64]

A similar scenario took place in the famous *ITT Promedia* saga. Belgacom, the Belgian national telecommunications operator, was active on the market for the publishing of telephone directories through its subsidiary, Belgacom Directory Services (BDS).[65] ITT

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[63] See CFI, *Deutsche Bahn AG v. Commission*, T-229/94, ECR [1997] II-1689 at §93.

[64] See Commission Decision 94/210 of 29 March 1994, *HOV-SVZ/MCN*, OJ L 104 of 23 April 1994 pp. 34-57 at §254.

[65] See XXVIIth report on Competition Policy, 1997 at §67 and Commission press release, IP/97/292 of 11 April 1997, "Settlement reached with Belgacom on the publication of telephone directories - ITT withdraws complaint".

Promedia N.V., a directory-publishing company that wanted to have access to data regarding Belgacom's subscribers, complained to the Commission that the latter had applied, inter alia, discriminatory prices for access to the data on its subscribers for voice telephony services. In particular, ITT had been charged a price representing 34% of its turnover. The Commission considered that there was no justification for this, except the market power associated with Belgacom's dominant position. In the course of the proceedings, Belgacom, however, agreed to abolish the turnover price component and to adopt a calculation based on the ratio of total annual costs to the number of publishers. Absent any published decision on this element of the case, it would be speculative to guess whether the Commission relied on Article 82(c) during the proceedings. At any rate, however, the facts of the case are a blatant illustration of secondary-line price discrimination by a vertically-integrated operator.

In *Deutsche Post*, the Commission decided that Deutsche Post had infringed Article 82 EC by *inter alia* surcharging incoming cross-border letter mailings from the UK sent by senders outside Germany but containing a reference in its contents to an entity residing in Germany.[66] By surcharging such mailings, Deutsche Post tried to put an end to ABA remailing, a practice whereby German customers would mail from the UK letters to be sent to German addresses. The Commission found that Deutsche Post committed an abuse of a dominant position on the market for the forwarding and delivery of incoming cross-border letter mail in Germany by price discriminating between incoming cross-border letter mail which it considered to be genuine international mail and incoming cross-border letter mail which it considered to be virtual ABA remail. The Commission found that this conduct could fall under Article 82(c) as Deutsche Post imposed dissimilar prices to equivalent transactions, a situation that placed some of its trading parties (mail order

[66] See Commission Decision 2001/892 of 25 July 2001, *Deutsche Post AG - Interception of cross-border mail*, OJ L 331 of 15 December 2001, pp. 40-78.

companies operating from the UK indicating in the contents of their mailings a reference to an entity residing in Germany) at a competitive disadvantage vis-à-vis other trading parties (mail order companies operating from the UK not indicating such a reference).

This was a clear example of secondary-line price discrimination. Incidentally, the Commission noted that the price discrimination in question could also place the British Post Office (BPO) at a competitive disadvantage against Deutsche Post not in the relevant market but in the UK market for outgoing cross-border letter mail. The additional costs incurred by the BPO as a consequence of the surcharge claimed by Deutsche Post, combined with the frequent disruptions of the mail traffic carried out by Deutsche Post, could indeed induce UK customers to use the service of the latter in the UK for the conveyance of their mail addressed to Germany. Thus, Deutsche Post's control of the mail delivery segment of postal items in Germany could be used to gain a competitive advantage on the market for outgoing cross-border letter mail in the UK by discriminating against the BPO with which it was in competition on that market. Deutsche Post's conduct amounted to secondary-line price discrimination on the UK market for outgoing cross-border mail. It also qualifies as an exclusionary abuse as Deutsche Post used its dominant position on the market for the forwarding and delivery of cross-border mail in Germany to extend it to the market for outgoing cross-border mail in the UK.

In 2004, the Commission adopted a decision finding that Clearstream Banking AG and its parent company Clearstream International SA had violated Article 82 EC inter alia by applying discriminatory prices to its customers.[67] This case concerned the provision of clearing and settlement services for securities issued according to German Law. Such services are provided by Central Securities Depositories (CSDs) entities which hold and administer securities and enable securities transactions to be processed.

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[67] See Commission Decision of 2 June 2004, *Clearstream*, COMP/38.096, not yet published.

Clearstream AG, a CSD, had a monopoly for the provision of such services for German securities. It was providing clearing and settlement services to other CSDs but also to International Central Securities Depositories (ICSDs).[68] There are two ICSDs in the EU: Euroclear Bank (EB) and Clearstream Banking Luxembourg (CBL), a subsidiary of Clearstream International SA and a sister company to Clearstream Banking AG. The discrimination issue in this case was that, from 1997 to 2002, Clearstream had charged higher fees to Euroclear Bank than to CSDs outside Germany. The Commission established that these fees were discriminatory because the service provided by Clearstream to CSDs and to Euroclear Bank was equivalent, and because there was no objective justification (cost differences) for the difference in fees.

This case is interesting because the discriminatory effects seem to have taken place at two different levels. First, Euroclear Bank was discriminated vis-à-vis CSDs entities with which it is competing on several different markets. This was thus a clear case of secondary-line discrimination. At the same time, it seems that the primary rationale for the price discrimination put in place by Clearstream AG was to penalize Euroclear Bank, which was a direct competitor of its sister company CBL on the market for secondary clearing and settlement of securities in cross-border trades. The reason why this discrimination on a second level was possible was that Clearstream AG and CBL were part of the same group. This is where the presence of a degree of vertical integration could be found.

Finally, in the recent *BdKEP* case, the Commission considered that some provisions of the German Postal Law were inducing Deutsche Post AG (DPAG) to engage in price discrimination

[68] ICSDs are organizations whose core business are clearing and settling securities (traditionally Eurobonds) in an international (non-domestic) environment.

contrary to Article 82(c).[69] The disputed provisions had the effect of allowing large senders (in general corporations) to feed self-prepared mail directly into sorting centres and enjoy discounts for doing so, while commercial mail preparation firms were denied the right to enjoy similar discounts. The Commission considered that DPAG was applying dissimilar conditions to equivalent transactions because large senders and commercial firms handing over similar volumes of prepared mail at sorting centres (thus leading to the same savings in handling operations and efficiency gains for DPAG) paid different tariffs.

Yet, the secondary-line competitive injury resulting from this practice was not that manifest because commercial mail preparation firms and large senders were not competing on a relevant market. The Commission considered nonetheless that there was a secondary-line injury element in DPAG's conduct. Indeed, the investigation had revealed DPAG had launched two mail preparation services to large senders. It was thus active at the same level as commercial preparation firms.[70] By virtue of the discriminatory discounts conditions, the failure of mail preparation firms to qualify for quantity-based discounts put those firms at a competitive disadvantage vis-à-vis DPAG because they did not have the possibility to procure their clients savings on postage whereas DPAG was able to allow for a consolidation of its clients mail items in order to procure them savings on postage.[71] The discrimination thus additionally constituted an exclusionary abuse because DPAG could extend its dominant position on the market for basic postal services into the market for mail preparation services.

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[69] As well as Article 86(1). See Commission Decision of 20 October 2004, COMP/38.745, *BdKEP/Deutsche Post AG and Bundesrepublik Deutschland*, not yet published.

[70] Id. at §60.

[71] Id. at §94.

2.4.2 The choice of Article 82(c) as the legal basis for the secondary-line injury cases

As far as secondary-line injury price discrimination by non vertically-integrated firms is concerned, Article 82(c) seems to be the appropriate legal basis. Indeed, unlike in the case of primary-line discrimination examined in the preceding section, most of these cases do not contain an element of leveraging/extension of a dominant position. They represent clear examples of situations where price discrimination by a supplier distorts competition between its trading parties. However, the cases of secondary-line discrimination by non vertically-integrated firms examined above are not "genuine" cases of secondary-line discrimination because they all involve an element of discrimination on the ground of nationality. Indeed, in most of these cases the dominant suppliers' conduct must have been motivated by the willingness to favour domestic operators. The practices in question in these cases nonetheless fit well in the concept of secondary-line discrimination irrespective of the aims pursued by the dominant firms involved. This is probably why both the Commission and the Community courts have proceeded on the basis of Article 82(c). In addition, it is not sure that the other legal basis provided for by the EC Treaty to condemn discrimination (i.e., Article 12 EC) could have been applied to sanction such practices.

The choice of the proper legal basis for secondary-line price discrimination by vertically-integrated firms raises more complex questions. Unlike cases of primary-line discrimination, the pricing schemes in question did not aim at excluding rivals operating at the same level as the firm engaging in price discrimination. These cases typically involved a strategy of leveraging by the dominant firm designed to exclude rivals of its downstream (or upstream) operations. For reasons already explained above, Article 82(b) EC is the proper legal basis for assessing this type of price discrimination.

2.5 Geographic price discrimination and measures facilitating this form of discrimination

In this section, we discuss geographic price discrimination schemes, as well as measures to facilitate such schemes. The case law of the Community courts and the decisional practice of the Commission are first analysed.

2.5.1 Case law of the EC Courts and Commission decisions on geographic price discrimination

The leading case on geographic price discrimination is *United Brands*.[72] United Brands Company (UBC) unloaded at Rotterdam and Bremen ports bananas of a similar quality with identical unloading costs and then sold these bananas to customers (distributors/ ripeners) from various Member States at significantly different prices. Customers were delivered the bananas at one of the ports of unloading and carried them to their own ripening rooms in their own Member States. UBC's general sales conditions incorporated a clause which had the effect of preventing parallel imports from one Member State to another by prohibiting the exports of green, unripened bananas. In its decision, the Commission considered that both the practice of differentiating prices according to the Member State of the customers and the clause seeking to prevent parallel imports amounted to abuses of a dominant position.

In its judgment, the ECJ upheld the decision of the Commission on both points. As far as the clause preventing arbitrage was concerned, the ECJ found that:

> "[T]he prohibition on resale imposed upon duly appointed Chiquita ripeners and the prohibition of the resale of unbranded bananas [...] were without any doubt an abuse of the dominant position since they limit markets to the

[72] See ECJ, *United Brands Company v. Commission*, supra note 4.

> prejudice of consumers and affect trade between Member States, in particular by partitioning national markets.
>
> Thus UBC's organization of the market confined the ripeners to the role of suppliers of the local market and prevented them from developing their capacity to trade vis-à-vis UBC, which moreover tightened its economic hold on them by supplying less goods than they ordered."[73]

The language used in the above quoted passage seems to suggest that the clause in question was considered abusive because: (i) it had the effect of partitioning national markets and (ii) prevented distributors/ripeners from developing an activity of cross-border traders in bananas.

As far as the imposition of different prices was concerned, the ECJ relying expressly on the language of Article 82(c) found that:

> "These discriminatory prices, which varied according to the circumstances of the Member States, were just so many obstacles to the free movement of goods and their effect was intensified by the clause forbidding the resale of bananas while still green and by reducing the deliveries of the quantities ordered.
>
> A rigid partitioning of national markets was thus created at price levels, which were artificially different, placing certain distributor/ripeners at a competitive disadvantage, since compared with what it should have been, competition had thereby been distorted.
>
> Consequently the policy of differing prices enabling UBC to apply dissimilar conditions to equivalent transactions with other trading parties, thereby placing them at a competitive disadvantage, was an abuse of a dominant position."[74]

The analysis of the ECJ in the above passage postulates that the partitioning of national markets placed distributors/ripeners at a competitive disadvantage, one of the conditions required for a measure to fall under Article 82(c). In fact, the opposite is true. Price discrimination between different distributors/ripeners could have

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[73] Id. at §159.

[74] Id at §§232-234.

placed some of them at a competitive disadvantage on the cross-border market for the resale of bananas, thereby creating a secondary-line injury. By contrast, once the markets were partitioned across national lines, different prices could no longer create a competitive disadvantage among ripeners/distributors since these traders could not compete with each other.

A similar practice of geographic price discrimination was held to be an abuse of a dominant position in *Tetra Pak II*.[75] In that case, Tetra Pak, the dominant undertaking in aseptic machines and cartons intended for the packaging of liquid foods, was charging considerably different prices for cartons and machines across Member States. Prices were considerably lower in Italy than in other Member States.[76] The fact that these disparities remained between Member States while the analysis had shown that the relevant geographical market was the Community as a whole and that the transport costs were fairly limited suggested that the differences in price could not be attributed to objective market conditions.[77] Both the Commission and the CFI thus estimated that these differences in pricing were the result of an overall market-partitioning strategy pursued by the dominant operator.[78] The

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[75] See CFI, *Tetra Pak International SA v. Commission*, 6 October 1994, T-83/91 ECR [1994] II-755 and Commission Decision 92/163 of 24 July 1991 *Tetra Pak II*, OJ L 72 of 18 March 1992 pp.1-68. There were also a number of discrimination elements in the case which were not concerned with geographic price discrimination, but which related to price discrimination, within the Italian market, between users. See §158, 160, 161, 62-68 of the Decision.

[76] See Commission Decision supra note 75 at §52. Tetra Pak was indeed facing fierce competition from Elopak in Italy.

[77] See CFI, supra note 75 at §170 and Commission Decision, supra note 75 at §160

[78] See CFI supra note 75 at §171 and Commission supra note 75 at §160

Commission and the CFI concluded that Article 82(c) had been infringed.[79]

The application of Article 82(c) in this case was problematic for the following reasons. First, the Commission and the Court failed to analyse whether Tetra Pak's trading parties were placed at a competitive disadvantage. Second, the fact that the Commission decision and the CFI judgment condemned as abuses of a dominant position a large number of contractual clauses through which Tetra Pak had compartmentalized markets should have sufficed to bring the geographic price differentials to an end. There was thus no need to condemn geographic price discrimination as a distinct abuse.

A distinct, though related, pattern of price discrimination arose in two other cases In *British Leyland*, the Commission and the ECJ sanctioned a discriminatory pricing practice that sought to insulate the UK market for the selling of *Metro* cars from import competition.[80] In the UK, a person seeking to register a vehicle for usage on the roads had, unless he was importing the vehicle for personal use, to produce a certificate of conformity certifying that the vehicle conformed to a previously approved type of vehicle. UK legislation gave British Leyland a monopoly on the market for issuing the certificates for imported British Leyland vehicles. British Leyland marketed its vehicles in Great Britain through a selective distribution network. However, a stream of re-imports from Metro cars took place from Belgium, as a result of the differences between the prices charged by British Leyland in the UK for right-hand-drive vehicles, and in the EC for left-hand-drive vehicles. This was made possible because conversion of left-hand-drive to right-hand-drive vehicles was fairly easy. In order to protect its domestic distributors,

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[79] See CFI supra note 75 at §173.

[80] See Commission Decision 84/379 of 2 July 1984, *BL*, OJ L 207 of 2 August 1984 pp. 11-16. Confirmed implicitly by the ECJ on appeal, 226/84, *British Leyland plc v. Commission*, 11 November 1986, ECR [1986]-3263.

British Leyland tried to impose higher fees for the grant of certificates of conformity for imported left-hand-drive vehicles than for certificates of identical right-hand-drive vehicles (for which there were almost no exports/re-imports except for diplomatic or military personnel). The Commission found this difference of treatment discriminatory and held it to be an abuse of a dominant position.[81] In this case, the Commission was obviously concerned by the fact that the practice in question amounted "to a penalty on parallel trade" and "impeded [...] the free movement of goods and economic interpenetration which the EC Treaty aims to encourage".[82]

Similarly, in Irish Sugar, the Commission and the Court condemned the discriminatory "border rebates" granted by Irish Sugar to customers located close to the Northern Ireland border. The Commission mentioned in passing that the rebate was placing those who did not qualify for it at a competitive disadvantage. However, its analysis essentially focused on the fact that the rebate was intended to deter imports from Irish Sugar's competitors as part of a policy of dividing markets and excluding competitors.[83] The CFI confirmed the finding of discrimination of the Commission and insisted on the fact that the practice ran contrary to the "essence of a common market" in that it created an obstacle to the achievement of [the] common market" and therefore constituted an abuse.[84]

In these last two cases, unlike in *United Brands* and *Tetra Pak II,* Article 82(c) did not strictly apply to geographic price discrimination. Rather these cases concerned practices taking the form of price discrimination (not necessarily geographically, e.g.

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[81] See Commission Decision, supra note 80 at §26.

[82] See Commission Decision, supra note 80 at §29.

[83] See Commission Decision, supra note 15 at §129.

84 See CFI, supra note 35 at §183. In addition, the export rebates (granted to Irish Sugar's customers exporting sugar in processed form to other Member states) seemed designed to make sure that its customers contemplating sourcing to foreign suppliers would no switch to the latter in order to obtain supplies. See CFI at §139.

British Leyland) which helped ensure that a given geographic market remained shielded from imports from other Member States. Of course, these practices may have contributed indirectly to the maintenance of different prices across different territories. But this effect was indirect and did not constitute the core target of the Article 82's infringement findings.

2.5.2 Is Article 82(c) the appropriate legal basis for geographic price discrimination and facilitating measures?

United Brands and *Tetra Pak II* cases were mistakenly based on Article 82(c) EC. The conditions of Article 82(c) and, in particular, the condition that customers be placed at a competitive disadvantage did not appear to be fulfilled, precisely because the customers in question operated on different geographic markets and thus were not competing with each other. More generally, condemning outright geographic price discrimination runs contrary to the central goal of attaining a common market. The existence of price differentials among Member States is indeed the main driver for the emergence of patterns of parallel trade within the Community, which in turn ensures that prices across Member States converge towards the lower prices. Thus, provided resale is possible and profitable, the market mechanisms should be sufficient to eliminate prices differences. Competition policy should thus not be concerned with the existence of price differentials, but rather seek to ensure that outside competition from parallel trade is not impeded by firms' practices that maintain artificial obstacles to trade.

Under EC competition law, a number of provisions can be used to ensure that firms do not artificially try to restrict trade between Member States. First, Article 81 EC has been applied on various occasions to practices seeking to prevent parallel trade. Often, a producer will try to induce its distributors not to resell the products in question so as to partition geographic markets and price

discriminate along geographic lines. This is acknowledged in the Guidelines on Vertical Restraints which underline the anticompetitive effect of:

> "[...] territorial resale restrictions, the allocation of an area of primary responsibility, restrictions on the location of a distributor and customer resale restrictions. The main negative effect on competition is a reduction of intra-brand competition that may help the supplier to partition the market and thus hinder market integration. This may facilitate price discrimination."[85]

The Guidelines also evoke the facilitating effect of exclusive distribution agreements[86] as well as exclusive customer allocation agreements on price discrimination.[87] Similarly, the Guidelines on the application of Article 81 EC to technology transfer agreements underline the risks of price discrimination stemming from captive use restrictions (i.e. obligations on a licensee to limit his production of the licensed product to the quantities required for the production of his own products, thus preventing resale)[88] and of quantity limitations aimed at partitioning markets.[89]

Besides the regulatory framework in place, the Commission and the EC Courts have often sanctioned concerted practices between producers and their distributors with a view to restricting parallel

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[85] See Commission Notice - Guidelines on Vertical Restraints, OJ C 291 of 13 October 2000, pp. 1-44 at §114 that concerns market partitioning groups i.e. agreements whose main element is that the buyer is restricted in where he either sources or resells a particular product.

[86] Id at §§161 and 172.

[87] See §178.

[88] See Commission Notice - Guidelines on the application of Article 81 of the EC Treaty to technology transfer agreements, OJ C 101 of 27 April 2004, pp. 2-42 at §188.

[89] Id. at §98.

trade on the basis of Article 81 EC.[90] However, as the *Bayer* ruling showed, it may not be possible to apply Article 81 EC to measures restricting parallel trade when there is no agreement between a supplier and its retailers (i.e., when there is no "meeting of minds" or where the supplier is vertically integrated and operates himself the distribution of the products).[91]

If the supplier holds a dominant position, conduct aimed at hindering parallel imports can, however, fall within Article 82 EC.[92] As was the case in *Tetra Pak II*, such conduct may infringe Article 82(a) EC since it implies the application of unfair trading conditions to retailers. It may also fall under Article 82(b) when the dominant firm refuses to supply retailers to ensure that markets remained geographically compartmentalised.[93] As in *British Leyland* and *Irish Sugar*, Article 82(c) has also been applied to practices intended to limit trade flows between Member States to maintain price differentiation along geographic lines.

Absent measures aimed at facilitating price discrimination, the existence of price differences among different geographic markets suggests that the conditions of competition in different areas are not

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[90] See e.g., Commission Decision of 20 September 2000, *Opel Nederland BV/General Motors Nederland BV*, OJ L 59, 28 February 2001, pp. 1-42 and CFI, T-368/00, 21 October 2003, *General Motors Nederland and Opel Nederland v. Commission*, ECR [2003] II-4491 (partial annulment); CFI, T-62/98, 6 July 2000, *Volkswagen v. Commission*, ECR [2000] II-2707.

[91] See CFI, *Bayer AG v. Commission*, 26 October 2000, T-41/96ECR 2000 II-3383 at §71; ECJ, *Bundesverband der Arzneimittel-Importeure eV and Commission v. Bayer AG*, 6 January 2004, C-2/01 P and C-3/01 P, ECR [2004] I-23 at §§101and 141. The ruling of the CFI in *Micro Leader Business* seems also to support this view. See CFI, *Micro Leader Business v. Commission*, 16 December 1999, T-198/98, ECR [1999] II-3989 at §56.

[92] See CFI, *Bayer AG v. Commission*, supra note 91 at §176.

[93] ECJ, *Syfait and Others v. GlaxoSmithKline plc*, 31 May 2005, C-53/03, not yet published.

homogeneous and that there are several distinct relevant geographic markets.[94]

In such a situation, the reliance on Article 82(c) to condemn geographic price discrimination - in addition to making no sense on policy grounds - does not seem to be legally possible since Article 82(c) should only apply to differential pricing practices within one and the same market. The existence of different prices on different geographic markets should thus not be subject to challenge under Article 82(c). This does not mean, however, that the pricing policy of a dominant firm would be completely left unchecked. Indeed, there could be a case for intervention on the basis of Article 82(a) if the prices are excessive in certain markets.[95]

2.6 Conclusion

Price discrimination involves many different practices relied upon by firms in dominant, as well as non-dominant, positions. In this paper, we showed that the only competition law provision of the EC Treaty specifically dealing with (price) discrimination in the context of dominance, i.e. Article 82(c), had been applied to a range of situations that have little to do with its specific purpose of preventing secondary-line injury price discrimination. The application of Article 82(c) to practices, including rebates, selective

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[94] As implicitly confirmed in the Commission Notice on the definition of the relevant market for the purposes of Community competition law, OJ C 372 of 9 December 1997, and more explicitly by the Commission in its market definition practice. See, e.g., Commission Decision 92/553 of 22 July 1992, *Nestlé/Perrier*, OJ L 356 of 5 December 1992 pp. 1-31.

[95] In that respect, the Court held in *Bodson* that price differences in different locations may provide a basis for assessing whether or not the prices charged are excessive pursuant to Article 82(a). See ECJ, *Corinne Bodson v. SA Pompes funèbres des régions libérées*, 4 May 1988, 30/87, ECR [1988]-2479.

price cuts, tied and bundled prices, discriminatory pricing of inputs by vertically-integrated operators, and geographic price discrimination, is an unwelcome development. The progressive extension of the scope of Article 82(c) can be explained by a variety of reasons, such as the relatively low evidentiary threshold required by this provision as interpreted by the ECJ compared to Article 82(b), the fact that price discrimination can be observed in most forms of pricing abuses, etc. This extension is not without consequences since it has allowed the Commission to condemn under Article 82(c) pricing practices allegedly designed to exclude competitors by simply showing the presence of some form of vaguely defined price discrimination. In this paper, we argued that Article 82(c) should be limited to a narrow set of circumstances where price discrimination practices engaged in by non vertically-integrated firms place the dominant firm's customers at a competitive disadvantage vis-à-vis other customers.

3. Delivering benefits to consumers or per se illegal?: Assessing the competitive effects of loyalty rebates

Simon Bishop[*]

3.1 Introduction

Price discrimination, loosely defined as charging different prices to different customers, is ubiquitous in business:[1] put simply, in many markets, firms do not charge the same price to all their customers. For example, it is typically observed in a wide range of industries that lower unit prices are charged to those consumers buying in bulk than to those who only buy small amounts. Prices may also vary

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[*] This paper draws on work I have undertaken for clients engaged in loyalty rebates cases including British Airways in relation to the investigation of its travel agent rebate scheme and also on a report prepared by RBB Economics for the UK Office of Fair Trading *Selective price cuts and fidelity rebates* (2005). The author wishes to thank Adrian Majumdar and Ugur Akun for discussions on the subject matter of this paper and to Mats Bergman who provided many helpful comments and suggestions on earlier drafts of this paper. Particular thanks must go to my long term colleague and mentor Derek Ridyard. Many of the ideas expressed in this paper have either originated or benefited from detailed discussions with him.

[1] It is difficult to provide a satisfactory economic definition of price discrimination (see Tirole (1998) Chapter 3). However, the definition that is generally used in competition policy is that price discrimination occurs when a product is sold to different consumers at different prices that do not reflect differences in the costs of supply

according to geographical location. Indeed, the prices for most goods tend to vary not only across the Member States of the European Union.

There is nothing to suggest that each instance of observed price discrimination reflects anti-competitive behaviour or the lack of effective competition. For example, the relevant economic literature shows that the welfare implications of price discrimination are ambiguous.[2] In general, where price discrimination leads to an increase in total sales, consumer welfare is likely to be improved relative to the benchmark of uniform prices.[3] This implies that obliging a firm to charge a uniform price (i.e by prohibiting firms from engaging in price discrimination) may not benefit consumers if total output falls. This is likely to happen if the move to a uniform price leads to prices rising above the willingness to pay of some consumers, who therefore stop buying the product.

Price discrimination is likely to be welfare enhancing in those industries which are characterised by high fixed costs but low marginal costs.[4] When marginal costs are close to zero, any positive price provides the firm with a contribution to fixed costs. But if the firm charges all consumers a low price (i.e. below average cost), it will not be able to cover its fixed costs. Moreover there may be no uniform price that allows the firm to recover these costs. In such instances, price discrimination provides a mechanism whereby fixed costs can be recovered. In this case, if price discrimination were to be prohibited, the supply of the product would simply not be forthcoming, with concomitant adverse effects for consumers. This

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[2] This is true whether one adheres to a consumer welfare standard or to a total welfare standard.

[3] See Schmalensee (1981) and Varian (1985).

[4] The software and pharmaceuticals industries provide good examples, but the same is true of many "old economy" industries as well.

viewpoint is echoed in the guidance provided by the UK Office of Fair Trading:[5]

> "Where marginal costs are below average costs, however, discriminatory pricing arrangements are likely to be preferable to (that is, more efficient than) uniform prices, as explained above. The more that price discrimination results in increased output or indeed opens up new markets (for example, off-peak rail travel for price sensitive travellers such as students, pensioners, families), the more likely it is to have a beneficial impact on economic welfare." (para. 3.13.)

But traditionally, the European Commission (hereafter, "the Commission") has adopted a hostile stance towards such pricing practices when undertaken by a dominant firm, adopting what is to all intent and purpose a *per se* prohibition.[6] This *per se* approach has inevitably led to the competitive assessment of such pricing practices being focused almost entirely on the question of dominance. However, there is growing recognition within the European antitrust community that pricing practices that involve price discrimination often have pro-competitive effects, even when practised by dominant firms.[7] That being the case, a case-by-case approach has been advocated in which the competitive assessment focuses on the actual effects of the pricing practice rather than being merely concerned with (a) whether the firm under investigation is dominant and (b) the particular form of the price discrimination.

But any move towards a more effects-based approach raises the important issue of how to discriminate between those situations where price discrimination practised by a firm held to be dominant

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[5] OFT 414 (1999) Assessment of Individual Agreements and Conduct.

[6] Certain national competition authorities adopt a similar approach. This is particularly true where national competition laws are modelled on Article 82.

[7] Indeed, one might conclude that a fair reading of the relevant economic literature of the practical effects of loyalty rebates that such pricing schemes are *primarily* pro-competitive.

gives rise to pro-competitive outcomes from those situations where the same or similar pricing practices give rise to anticompetitive outcomes. This paper provides a suggested framework for conducting such an analysis in respect of one particular type of price discrimination; namely, the granting of loyalty rebates.[8] A loyalty rebate scheme involves non-linear pricing that permit suppliers to price discriminate between different buyers according to how much they buy in relation to their total needs.[9] By focusing on loyalty rebates, the paper focuses on one of the main areas in which price discrimination has often been held to be contrary to European competition law. Moreover, it is hoped that the approach set out here can, appropriately modified, be applied to other forms of price discrimination.

The remainder of this paper is organised as follows. Section 3.2 provides a brief discussion of the rationale for firms to employ loyalty rebate schemes. We consider both pro-competitive and anti-competitive rationales for firms adopting such pricing practices in their dealings with their customers. This section also provides a brief overview of the approach adopted by the EC Commission and European Courts. We note that the current approach assumes that any loyalty rebate scheme employed by a firm held to be dominant is necessarily held to give rise to foreclosure.

Section 3.3 then outlines considerations that ought to be taken into account when assessing the competitive effects of loyalty rebates. In particular, this section highlights the fallacy implicit in the *per se* approach that assumes that customers are always driven to meeting targets set in loyalty rebate schemes.

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[8] Loyalty rebates are also known as fidelity rebates. This paper uses the two terms interchangeably.

[9] Loyalty rebates give rise to *second-degree price discrimination*. Second degree price discrimination occurs when certain selling practices are used to induce consumers to self-select themselves to reveal whether they have a high or low willingness to pay.

Section 3.4 provides a summary and presents some policy conclusions.

3.2 Why do firms employ loyalty rebate schemes?

The term loyalty rebate is capable of encompassing a wide class of discount schemes. However, a key characteristic of a loyalty rebate that differentiates it from other discount schemes or forms of price discrimination is that it makes the lower price conditional on increasing purchases from the supplier in question.[10]

One obvious type of a loyalty rebate may explicitly make the offer of a rebate conditional on purchase of a certain share of requirements from the supplier. For example, buyers might be offered a discount conditional on purchasing 90 per cent of their requirements from a given supplier. Such a discount depends not on absolute quantities purchased but quantities purchased relative to total requirements.

The following stylised discount types can also be viewed as loyalty rebates:

- **An exclusivity discount:** The buyer obtains a discount only by purchasing all its needs from the supplier.[11]
- **An individualised quantity discount:** Each buyer is offered a discount conditional on purchasing a given quantity within a particular reference period. In this case the targets may differ for buyers of different sizes.
- **A growth discount:** The buyer is given a discount if its purchases in the current period exceed its purchases in the

[10] A loyalty rebate need not necessarily be conditional on reducing purchases from rival suppliers. Whether this is the case depends on the precise form of the rebate scheme employed.

[11] Effectively, this is a market share discount where the threshold is set at 100 per cent.

relevant past period by a given amount. Whether meeting such growth targets result in the buyer increasing or retaining the share of the supplier depends on whether the targets are set at a higher level than the growth in the overall market.

- **A bundled discount:** The target relates to purchases across a range of products. In this case, it might be necessary for the buyer to purchase a certain amount of another product supplied by the firm in question in order to qualify for the rebate where the target amounts to a large portion of needs of that product.

The term loyalty rebate therefore covers a wide range of discount schemes. What each of these different schemes have in common is that they provide incentives for customers to purchase more product or services from the firm offering the loyalty scheme; in other words, all loyalty rebate schemes have the "effect of inducing loyalty".

But this cannot imply that all loyalty rebate schemes are anticompetitive even when employed by a dominant firm (as section 3.3 explains in more detail). The mere fact that a loyalty scheme makes the products of the firm employing the loyalty rebate scheme more attractive and therefore makes it harder for competitors to make sales does not *necessarily* imply harm to competition. Rather establishing harm to competitors is merely a necessary condition for a finding of anticompetitive behaviour (or in legal parlance, an abuse of a dominant position) but it is not sufficient. To help distinguish between the two effects it is therefore important to understand the various motivations that firms can have for employing loyalty rebate schemes.

3.2.1 Pro-competitive rationales for employing loyalty rebates schemes

The underlying pro-competitive business motivation for employing loyalty rebates is to sell more product or services at prices which increase profits. Achieving greater sales is a typical goal for all firms. One way a firm might seek to achieve higher sales volumes is to lower the price of its product. However, an across the board price reduction might not be attractive due to its effect on the profitability of the firm for the reasons described in the introduction. Loyalty rebate schemes provide one method that permit firms to make greater sales to customers without reducing the prices on all units sold.

That there are pro-competitive motivations for employing loyalty rebate schemes is clearly demonstrated by the fact that such pricing practices are also employed by firms that are not dominant. As is well accepted in antitrust economics, any business practice employed by a non-dominant firm (and here non-dominance is equated with the absence of significant market power) cannot give rise to anticompetitive outcomes.

The various pro-competitive rationales can be categorised as follows:

- providing incentives for customers to supply complementary services.
- inducing customers to lower prices to end consumers (i.e. reducing double marginalisation): and
- efficient fixed cost recovery (Ramsey pricing).

3.2.1.1 Providing incentives for customers to supply complementary services

A key pro-competitive rationale for employing loyalty rebates is to align the incentives of customers (in particular, customers) with that of the supplying firm.[12] Customers can add substantial value to a supplier's products by providing additional complementary services. These complementary services include product promotion in store, providing detailed product information to customers (sometimes including a demonstration of how to use the products or services), and keeping an appropriate stock of product so that at any time final consumers are able to purchase the product they require.

These services create benefits for the supplier while their costs mainly accrue to the customer. A customer chooses the level of these complementary services by considering their marginal benefit and marginal cost to itself. Since the customer does not take into account the benefits to the supplier when left on its own (and facing a constant wholesale price) it can be expected to underprovide these services. That is, the supplier would benefit if the customer increased the amount of these services and charged the incremental cost to the supplier.

A direct approach to solve this problem would involve the supplier writing a contract with the customer specifying the level of services to be provided and the reimbursement from the supplier to the customer. However, there are several concerns with this method. First, specifying the service levels in a contract is difficult because such services cannot be measured objectively. Second, it is costly for the supplier to engage in direct monitoring of the provision of these services. Third, even if monitoring is achievable, enforcement in case of contract breach has additional costs. Finally, and importantly, the customer has an informational advantage over the supplier for

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[12] The need to align the interests of suppliers and customers is sometimes referred to as the principal-agent problem. This issue was first addressed by the Nobel Laureate, James Mirrlees.

determining the appropriate combination of these services to expand demand since local demand conditions for the product might be highly variable.

Any method that aligns the customers' incentives with those of the supplier would allow the supplier to achieve efficient levels of service provision at different locations in a decentralised manner. A loyalty rebate scheme provides an efficient method to achieve this goal. Greater effort by the customer may be necessary for increasing the supplier's share of its total purchases of that product. Provided the customer achieves the target threshold set by the supplier, the supplier shares with the customer the benefits of the sale expansion achieved. In effect, the discounts made available in the rebate scheme seek to align the incentives of the customer with those of the supplier.

3.2.1.2 Inducing customers to lower prices to end consumers (i.e. reducing double marginalisation)

In many settings the customers of suppliers employing loyalty rebates (in particular retailers) add a margin to the wholesale price of products or services when they set their own prices. This margin includes the profit margin of the supplier´s customer as well as the customer´s costs. Since the supplier's wholesale price already includes a profit margin, the price to the end customer ends up suffering from double marginalisation. As a result, the price to the end consumer is too high compared to what the supplier would choose if it had its own integrated retail network to the detriment of both the supplier and final end consumers.

Double marginalisation could be eliminated if the supplier charged a wholesale price equal to the marginal cost of producing its products or services. In that case, each customer of the supplier would make the same retail pricing decision that the supplier would make if the customer were vertically integrated with the supplier.

But, of course, in that case, the supplier would make lower profits and most likely losses.

A loyalty rebate scheme allows the supplier to disentangle the average wholesale price from the marginal wholesale price to a specific customer. Any customer of the supplier knows that reaching the target will imply a lower price. The customers will therefore have incentives to moderate their margins over the wholesale list in order to expand sales of the supplier´s products or services in order to increase its chances of reaching the target threshold. Whenever a customer reaches the target the supplier shares part of the benefits it realises with the customer.

3.2.1.3 Efficient fixed cost recovery (Ramsey pricing)

In many instances, suppliers incur a fixed cost each year independent of the amount of product it produces. These costs might for example relate to periodic machinery servicing that the supplier needs to undertake each year. If the supplier cannot recover these costs from its sales during a given year it is likely that it will fail to do so in the following year.

The more product the supplier sells the lower the fixed cost per unit it incurs. Setting the wholesale price equal to marginal cost would lead to the highest possible sales for the supplier while covering its variable cost. However, in that case the revenue would not be sufficient to contribute to the supplier's fixed costs. On the other hand, any sale that the supplier makes at a price in excess of the marginal cost of a product contributes towards recovering fixed costs any such sale is better than the alternative of losing that sale to a competing producer.

Due to variations in competitive conditions each year some customers of the supplier may face a more elastic demand for the supplier's product than others. If those customers obtain a lower wholesale price they would be able to increase the sale of the supplier product significantly. However, the supplier may be unable

to detect the identity of those customers. Decreasing the wholesale price across the board would boost the sales of the supplier's product by those customers, but it would also lead to a decrease in overall revenues. For this reason, the supplier is reluctant to implement an across the board price reduction.

A loyalty discount allows the supplier to decrease the wholesale prices to those customers that face a more elastic demand for the supplier product while keeping the wholesale price unaltered for other customers. This is achieved through a self selection mechanism. A customer facing elastic demand recognises that by reducing the price it charges for the supplier´s product it is possible to increase the sales of the supplier's product and hence make it more likely that it reaches the target threshold set by the supplier. If the reward upon fulfilling the target is sufficient to cover the foregone profit due to the reduction in retail price, the customer will have incentives to seek additional sales so as to reach the target. For a customer that faces a relatively inelastic demand, the benefit from achieving the target would not be sufficient to increase profits over the level provided by the current level of sales of the supplier's product at the prevailing prices because it would need to offer deeper price cuts in order to reach the target. Thus, any such customer would prefer to keep paying the list price for the supplier product. Consequently, loyalty discounts allow the supplier to recover its fixed cost efficiently by lowering prices to customers that face a more elastic demand for its products.

3.2.2 Anti-competitive rationales for employing loyalty rebate schemes

Of course, the above discussion does not imply that loyalty rebate schemes can never have anticompetitive rationales. The main competition concern raised by loyalty rebates is one of foreclosure. The economics literature suggests that loyalty rebates may represent an efficient exclusionary weapon. Indeed, it has been suggested that

loyalty rebates may achieve exclusionary outcomes in situations where a predatory pricing strategy would simply not be feasible.[13]

Where a firm faces fixed costs, a reduction in demand will lead to an increase in average costs and if the demand reduction is sufficiently large this may result in the firm being unable to achieve a suuicient scale of operations to remain an effective competitor. In such cases, this will lead over time to the firm's exit from the market. To the extent that a loyalty rebate is able to reduce the demand obtained by competitors so as to place them at a significant cost disadvantage, such schemes may harm competition.

3.2.3 A brief overview of existing EC case law

As noted in the introduction, EC competition law has adopted an aggressive stance towards the granting of loyalty rebates by firms that have been held to be dominant. For example, in Michelin14 the Commission held that Michelin had abused a dominant position in replacement tyres for trucks and buses in the Netherlands through the provision of off-invoice discounts and end-of-year rebates based on performance targets. The Commission stated that:

> "[W]ith the exception of short term measures, no discount should be granted unless linked to a genuine cost reduction in the manufacturer's costs. The compensation paid to Michelin dealers must be commensurate with the tasks they perform and the services they actually provide, which reduce the manufacturer's burden. In addition the system of discounts and bonuses agreed must be clearly confirmed to each dealer when the sales contract is presented and concluded."

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[13] See Spector (2005) Loyalty Rebates: An Assessment of Competition Concerns and a Proposed Structured Rule of Reason.

[14] Case 322/81 [1983] E.C.R. 3461.

This section provides a brief summary of two cases that have helped shape this current aggressive stance.

3.2.3.1 Hoffmann-La Roche[15]

In Hoffmann-La Roche the European Court of Justice (ECJ) held that Hoffmann – La Roche had abused its dominant position both by entering into exclusive purchasing agreements with some of its customers and also by offering loyalty rebates. The ECJ distinguished standardised volume rebates and loyalty rebates by stating that the former are discounts linked solely to the volume of purchases while the latter do not depend on quantities fixed objectively and applicable to all possible purchasers. The ECJ considered that, because they have the objective of increasing the dominant firm´s share of a customer's purchasers rather than being related to the size of that purchase, loyalty rebate schemes can be considered to prevent customers from obtaining their supplies from competitors.

The stance taken in this case towards loyalty rebates has led the Commission to argue that loyalty rebates are necessarily exclusionary when implemented by a firm held to be dominant unless the offered discounts reflect genuine cost savings associated with additional sales. The case law in this area has therefore developed with no regard being given to whether the competitors can match the offers or whether it is possible for such loyalty rebate schemes to foreclose a sufficient part of the market to reduce the competitive threat offered by competitors or whether consumer harm is likely.[16]

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[15] Hoffmann-La Roche & Co. AG v. Commission of the European Communities, ECR [1979].

[16] The ECJ also pointed to the discriminatory characteristic of the loyalty rebates. This theme was later developed in other cases as a secondary

3.2.3.2 BA/Virgin

In this case the CFI approved the Commission's decision against British Airways (BA) regarding Virgin Atlantic Airways' complaint concerning BA´s marketing agreements with travel agents. BA was alleged to have used its travel agent incentive scheme to foreclose the market for air travel services from and to the United Kingdom.

The Commission held that the commission schemes operated by BA had the following effect.

> "Travel agents are encouraged to remain loyal to BA rather than to sell their services to competitors of BA by being given incentives to maintain or increase their sales of BA tickets which do not depend on the absolute size of those sales". (para. 102).

The decision goes on to state:

> "The exclusionary effect of the commission schemes affect all of BA's competitors and any potential new entrants. They therefore harm competition in general and so consumers, rather than only harming certain operators who cannot compete with BA on merit". (para. 106).

Furthermore (and, to the author's mind, amazingly) the Commission stated that no analysis of the actual impact on competition was required.[17]

> "Despite the exclusionary commission schemes, competitors of BA have been able to gain market share from BA since the liberalisation of UK air transport markets. This cannot indicate that these schemes have had no effect. It can only be assumed that competitors would have had more success in the absence of these abusive commission schemes".

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anticompetitive effect of loyalty rebates by the Commission, see for example BA/Virgin.

[17] See paragraph 107 of the Decision.

Unfortunately, the CFI confirmed this "analysis".[18] The CFI noted the loyalty building character of BA's incentives and indicated that demonstrating concrete effects of the abuse is unnecessary to establish an infringement of Article 82 EC. Following this observation, the CFI subscribed to the Commission's view that whether BA's rivals had grown their market shares during the period of the alleged abuse was irrelevant and absent BA's incentives the rivals would have grown more. No explanation was provided why the current rate of growth of Virgin indicates an absence of effective competition. Indeed, this statement provides no basis for discriminating between harm to competition and harm to competitors. The fact that a loyalty rebate creates incentives for customers to buy more from a particular supplier cannot by itself be used to imply that competition is adversely affected. This is a key theme that lies at the heart of the current debate on the need for reform of the competitive assessment of alleged abuses under Article 82.

The CFI also accepted the Commission's argument that BA's incentives were harming competition in the travel agency services market by creating discrimination. The fact that the Commission argued for distortion of competition by discrimination by merely showing the dissimilar conditions that applied for similar transactions and not by providing insight or information on the damages generated did not prevent the CFI from dismissing BA's challenge on this point.

Considering "discrimination" as a separate violation of competition rules because it distorts the competition amongst retailers is contrary to any economic logic. This reasoning fails to answer a basic question: why would a dominant undertaking try to harm the competition between its retailers since tougher retail competition implies more sales for its product?

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[18] This line of reasoning is also presented in the CFI *Michelin II* judgment see for example paragraphs 241 and 245 of that judgment.

3.3 Assessing the competitive effects of loyalty rebates

The preceding section described a number of reasons why loyalty rebate schemes can be pro-competitive even when implemented by firms held to be dominant. Indeed, there is no basis in the economics literature for these rebate schemes offered by dominant firms to presume that such conduct is anticompetitive in the most instances. However, recognising that in certain circumstances loyalty rebate schemes implemented by dominant firms can have anticompetitive foreclosing effects implies that we need to conduct a case-by-case approach.[19]

This section provides an attempt at providing an economic framework for assessing the likely competitive impact of loyalty rebate schemes. The key elements in an effects-based assessment of loyalty rebate schemes are as follows:

- assessing the degree of market power;
- examining whether rivals have effective alternative routes to market; and
- assessing the impact of the loyalty rebate scheme on rival's

3.3.1 Assessing the degree of market power

The first step in the competitive assessment is to determine the extent to which the firm under investigation enjoys market power. If the firm employing the loyalty rebate scheme does not enjoy market power, its pricing practices cannot be detrimental to competition. A firm is normally deemed to possess market power based on its share

[19] To be clear, this is true even if one could be certain that a firm held a dominant position.

of the relevant market. However, there are a number of drawbacks with this approach.

First, market share provides only one indicator of a firm's market power and therefore provides only a poor proxy. Indeed, in many markets (for example, where a market can be properly characterised as a bidding market) even firms with high market shares can be subject to effective competition even from firms with very low market shares. Other factors that need to be taken into account alongside the mere calculation of market shares are the ease to which firms can expand their sales, the ease with which new firms can enter the market. Unfortunately, these factors are rarely given due weight.

Second, given the importance placed on market shares, it is important to understand the additional difficulties for defining relevant markets in the context of Article 82 which arise due to the so-called cellophane fallacy. The existence of the cellophane fallacy means that in many cases it is simply not possible on the basis of available evidence to discriminate two competing definitions of the relevant market.[20] In such cases, caution should be adopted in assessing the degree of market power a firm is deemed to possess.

These two considerations imply that market shares provide a useful first screen but that it should not be applied mechanistically. Moreover, it further undermines the *per se* approach to assessing the competitive effects of loyalty rebate schemes employed by firms with a large market share; if there is uncertainty as to whether a firm is dominant, then there must be uncertainty as to whether the loyalty rebate scheme in question is detrimental to competition.

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[20] For a more detailed discussion see Baker and Bishop *Market definition in monopoly and dominance cases*, OFT 2002.

3.3.2 Do rivals have effective alternative routes to market?

The concept of foreclosure relates (or should do) to the market as a whole and not to any particular customer. The appropriate definition of foreclosure must distinguish between behaviour that leads to a rival´s lower market share (or exit) without harming competition versus harmful exclusionary outcomes that are ultimately detrimental for final consumers. We define foreclosure as a practice by a firm with market power that harms consumers in the long run (a) by marginalising and weakening existing competition in markets where entry barriers exist; and/or (b) by raising entry barriers to markets where existing competition is not currently effective.

Even if a dominant firm's rebate scheme is targeted at certain buyers to induce them not to deal with a rival supplier, it is still important to consider how important a potential barrier to expansion or to entry that creates, and whether a rival could instead make sales via other buyers or perhaps selling directly to final consumers. In addition, in intermediate markets, the rival may be able to 'forward integrate' (i.e. establish its own downstream operations to avoid the need for selling to pre-existing buyers) if entry barriers to the downstream market are low.

This would be more likely where there are large buyers, relatively few economies of scope or density in distribution, or the intermediate stage adds little extra value to the product.[21]

Overall, there should be scope for the rival to access the market on a scale sufficient to be a viable competitor. These issues arose in the US case, *Dentsply*. This case related to the sale of prefabricated artificial teeth in the US. Dentsply was the leading manufacturer of such teeth and had accounted for approximately 80 per cent of overall sales. The end consumers in this case were laboratories. Laboratories purchased artificial teeth either directly from manufacturers or, far more commonly, from dealers. Dealers maintained inventories of artificial teeth and carried thousands of other related products acting as a 'one-stop shop' for laboratories. Dentsply prevented its 23 dealers from stocking its rival's artificial teeth (with the exception of some dealers that had grandfathered rights for sales of competing products). This was despite some requests by dealers to stock the products of rivals. A District Court found these practices not to be anti-competitive because there were alternative routes to market – i.e. the many other dealers and direct sales to laboratories. This finding was over-turned by the 3rd Circuit Court which found that dealers were the 'gate-keeper' to the market. This supported the view of the US government which argued that Dentsply controlled the key distribution points and had added distribution points to block the growth of rivals.

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[21] If there are economies of scope, it is more cost efficient to distribute several different products together than to distribute them separately. Where there are economies of density, average costs fall the more clustered are deliveries. Both factors may mean that specialist distributors are required, meaning that it is costly to 'miss out' the intermediate stage and supply direct. In addition, where the intermediate stage adds substantial value (e.g. through product promotion), it may also be costly to miss out that stage and supply direct.

3.3.3 Assessing the impact of loyalty rebate schemes on rival firms

As noted above, both the Commission and the Courts presume that loyalty rebate schemes inevitably involve customers switching part of their requirements to the dominant firm offering the loyalty rebate scheme.[22] But underlying this strong presumption are two assumptions as to the behaviour of customers.

- First, customers are able to disregard the interests of its own consumers (i.e. the final consumers).
- Second, the use of target thresholds gives each customer an overwhelming incentive to favour the sales of products of the dominant firm over sales of products supplied by other firms.

With respect to the first assumption, it should be noted that in most industries, intermediate customers possess some ability to influence the purchase decisions of their own customers. This might take the form of pre-sales advice, in-store placement or retail discounts (i.e. price inducements). It is for precisely this reason that suppliers seek to provide appropriate incentives to their customers to promote their products rather than a competitor's. This simply represents a standard form of competition between suppliers.

However, in many industries, a supplier's customers will themselves operate in a competitive market. A supplier's customers compete with one another to deliver the best possible service to their clients. Competition may take place with respect to quality of product or service, the ability to meet consumer requirements and of course the price of those products or services. An intermediate

[22] Neither the Commission nor the Courts have explained why the same "loyalty inducing" effects of such rebate schemes do not apply equally to non-dominant firms.

customer that is unable to fulfil final consumers' requirements will be unlikely to retain that business over time.

Moreover, even if it were supposed that a supplier's customers were able to exercise considerable control over the purchases of their consumers, it is not clear that the structure of loyalty rebate schemes necessarily results in the dominant firm being favoured over competitors. In those circumstances in which a customer can, with no adverse effects on its business, choose the products of supplier to sell, the customer will choose to sell the products which it expects to contribute to the highest revenue over the year. But, this does not imply that the customer *will always* necessarily choose to buy from the dominant firm.

This can be seen in the following simple example. In this example, it is assumed that, in this case, customers can, with no adverse effects on their business, sell products or services that yield the highest revenue to the retailer. Consider two suppliers, a dominant supplier A and a competing but smaller supplier B. Both suppliers operate loyalty rebate schemes which are based on customers reaching a target threshold. Once that target threshold has been reached, a retrospective discount is granted on all purchases.

Table 1 shows the target thresholds for the two suppliers, above which additional commissions become payable. In this simplified example, the loyalty rebate scheme of each supplier contains only one target threshold for each retailer.[23] The additional revenues (discounts) received are assumed to be the same for both suppliers at €20 per unit if the threshold target is met. The threshold for Supplier A is set at 220 which, reflecting its larger size of operations, is four times the threshold set by Supplier B.

[23] However, consideration of multiple thresholds does not significantly alter the conclusions to be drawn from this example.

Table 1 Incentives for customers under different sales scenarios

	Supplier A	Supplier B
Target Threshold	220	55
Revenue per unit (€)	20	20
Current Sales		
Scenario #1	210	50
Scenario #2	230	50
Scenario #3	230	60

Table 1 shows the current level of sales of a particular customer in three different scenarios. In scenario #1, the customer has not yet reached the target threshold for either supplier. In scenario #2, the customer has already exceeded its target for Supplier A but not for Supplier B and in scenario #3, the customer has exceeded the target thresholds for both suppliers.

Now suppose the customer has the ability to choose which supplier's products to increase by an additional 10 units. Which supplier the customer chooses to favour will clearly depend on which scenario we are considering. Assuming that the list price is the same on the products of both suppliers, the customer will seek to direct sales towards the supplier that generates the greatest increase in discount arising from the structure of the loyalty rebate scheme. Table 2 shows the amount received by the customer agent from the performance element at the current level of sales shown in Table 1 and the increment if the customer sells an additional 10 units of Supplier A or Supplier B.

Table 2 Choices of customers under different sales scenarios

	Supplier A		Supplier B	
	Current	**Increment**	**Current**	**Increment**
Scenario #1	-	4,400	-	1,200
Scenario #2	4,600	200	-	1,200
Scenario #3	4,600	200	1,200	200

In scenario #1, selling an additional 10 units of Supplier A's products generates additional revenue of €4,400 (i.e. 220 times €20) compared to only €1,200 additional revenue (i.e. 60 times €20) if he sells 10 more units of Supplier B's product. Clearly, the customer, if he has a choice, will choose to sell 10 more units of Supplier A.

But in scenario #2, this is no longer the case. The customer has already reached the threshold target for Supplier A and therefore the additional revenue generated by the performance reward scheme will be €200 (ie 10 times €20). This is less than the incremental revenue earned from selling an additional 10 units of product supplied by Supplier B. In this case, the additional sales take the customer over the target threshold of Supplier B, yielding additional revenues of €1,200. The customer, if he has a choice, will therefore in this scenario choose to sell additional units supplied by Supplier B.

In scenario #3 where it has met both the threshold targets, the customer will be indifferent as to which supplier's products he sells.

This simple example illustrates two general points regarding the alleged loyalty inducing effects of loyalty rebate schemes. First, whether the target thresholds have the desired impact on customer efforts depends on a number of factors including whether the customers are themselves able to engage in directional selling and at what point in time is the retailer making the purchase decision. As

the above example demonstrated, this can dramatically affect the incentive properties of a given target threshold. Second, the level at which the target is set is also important. If suppliers set too high a target then its customers' purchasing decisions will simply not be affected; why should customers bother to direct sales to the dominant entity if they have no prospect of reaching the target? Conversely, if the supplier sets the target threshold too low then the customer may be able to reach the target without engaging in any directional selling or other efforts on behalf of the dominant supplier. In this case too the target threshold has no affect on customer incentives. It is by no means obvious that the customer will always seek to favour the larger supplier even when the strong assumption is made that the customer can choose without detriment which products to sell.

Hence, with respect to the second assumption, underlying the Commission's presumption that loyalty rebate schemes necessarily bind customers to the dominant firm a much more careful analysis than is suggested by the approach adopted by both the Commission and the Courts is required. In assessing the competitive effects of loyalty rebate schemes, the assessment must go beyond merely stating that the scheme gives customers incentives to purchases greater volumes from the dominant firm; that should be self-evident. As the above simple example demonstrates, this is true even for retrospective rebate schemes that set customers certain targets and grant those customers that meet such targets a discount that applies to all units, not just the additional ones purchased above the target.

The following provides a more general framework for assessing the competitive effects of loyalty rebates.

3.3.3.1 A general framework for assessing the competitive effects of loyalty rebate schemes

Consider the following example. A dominant firm has variable unit cost of production of €1 and annual fixed costs of €1m (which for the

purposes of this discussion we can assume to be sunk). This dominant firm is assumed to set a list price of €2 per unit sold but also offers a 10% discount if the customer reaches a certain target threshold its effective price per unit purchased then falls to €1.90 per unit. (This example assumes that the threshold is based on a share of total purchases but the analysis would be similar if the target threshold was based on year-on-year growth or on achieving an absolute level of sales). But does such a rebate scheme result in market foreclosure? To address this critical question, consider the profile of this loyalty rebate scheme (see Figure 1).

Figure 1: Properties of loyalty rebate schemes

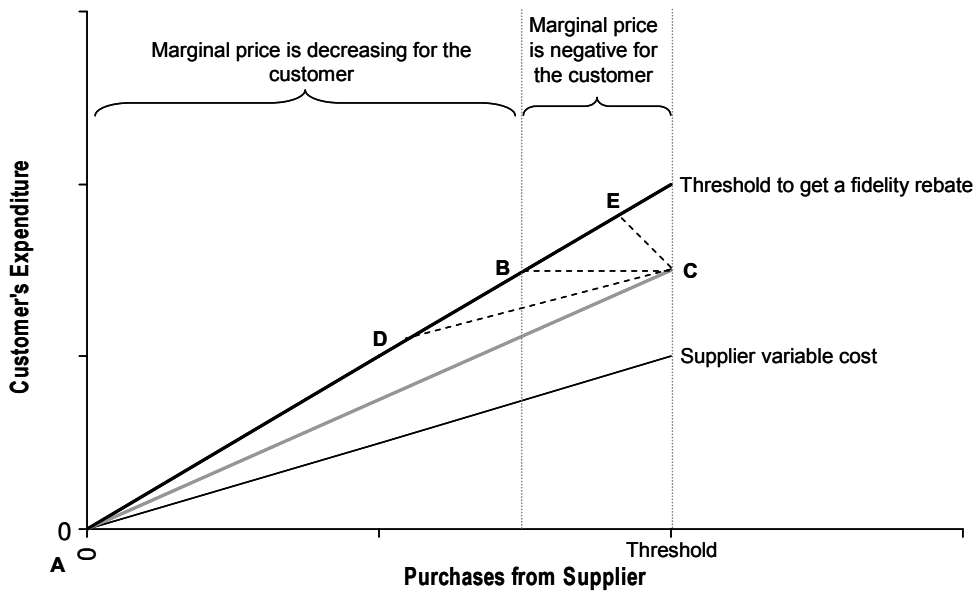


Figure 1 shows three diagonal lines sloping up from the origin (point A).[24]

- The steepest line (running from A through E) shows the customer's expenditure when buying at the list price of €2 per unit. Under the loyalty rebate scheme, this is the price the customer pays until it can show that it has reached the target threshold set by the dominant supplier. At that point, the customer qualifies for a rebate equivalent to the discount of 5% on all purchases, which is shown as the vertical distance from the top of the list price line to point C.
- The middle line (from A to C) shows the real (discounted) price of €1.90 that the customer actually pays if it agrees and adheres to the terms of the loyalty rebate.
- The lowest line shows the cumulative variable cost of the dominant firm in supplying any given volume to the customer. At any point, the area drawn between this variable cost line and the customer's actual expenditure line represents the contribution that the customer's purchases have made towards remunerating the dominant firm's fixed costs. That contribution will always be positive when (as drawn here) the variable cost line falls below the customer expenditure line. The gap between the variable cost and customer expenditure lines shows the extent of the commercial discretion available to the dominant firm for commercially attractive price cuts.

[24] Note: the lines in the above figure are not drawn to scale.

It is interesting to analyse the way in which this loyalty rebate scheme affects the customer's incentives throughout the period, and indeed those incentives depend critically on the point at which the customer is making its purchase decisions throughout the qualifying period.

At point A (representing the time prior to agreement of a supply contact or the beginning of the year to which the threshold applies), the price that is offered by the loyalty rebate scheme is essentially the discounted price of €1.90 if the customer stays "loyal" to the dominant firm and meets the target threshold. If the customer can easily meet this target by buying sufficient of its requirements either from the dominant firm or from a rival supplier, this is a very simple choice. The rival will win the business if it can offer a price for the year that beats the dominant firm's offer of €1.90, and the fact that the rebate is expressed as a loyalty deal does not imply that it is necessarily exclusionary.

But once the customer has reached a point such as D on the dominant firm's list price curve, the incentives change. At this point, it becomes expensive for the customer to contemplate shifting demand to a rival because to do so would result in the forfeit of the opportunity to earn the substantial loyalty rebate at the year end. Figure 1 illustrates this incentive effect by reference to the slope of the line drawn between (in this case) point D and the discounted end-period point C. Having bought the majority of its requirements from the dominant firm at list price, the full value of the prospective year-end loyalty discount should be spread across the remaining purchases, giving a lower marginal price. Point D in Figure 1 has been constructed so that this marginal price (the slope of the line from D to C) is the same as the dominant firm's variable costs.

Once the customer has reached point B, the marginal price of buying the rest of its requirements from the dominant firm is zero, so rival suppliers would need to work very hard to contest this slice of business. Beyond point B (say at point E), the effective marginal price to the customer of buying the rest of its requirements from the dominant firm is actually negative, since the value of the prospective

year-end rebate is greater than the price the customer needs to pay for the extra units.

It should be clear from this assessment of the options that the likely competitive effects on the incentives of a loyalty rebate scheme (even a retrospective rebate scheme) are dependent on the customer's available effective options. First, if customers are in a position to evaluate the offer from the origin (point A), and have the clear option to trade off the dominant firm's loyalty rebate offer against similar offers made by a rival suppliers, then the shape of the discount profile tells us nothing about its effect on competition. As long as the customer can credibly threaten to buy enough of its requirements from the dominant firm's rivals, it will also be able to assess the value for money offered by the dominant firm's loyalty rebate offer against the alternative of switching demand to the dominant firm's rivals. In terms of Figure 1, the customer will simply compare the dominant firm's discount offer (shown by point C in Figure 1) with the alternative offer made by rival suppliers. Having done so, the possible problems associated with lower marginal prices at points D to E in Figure 1 do not come into play.

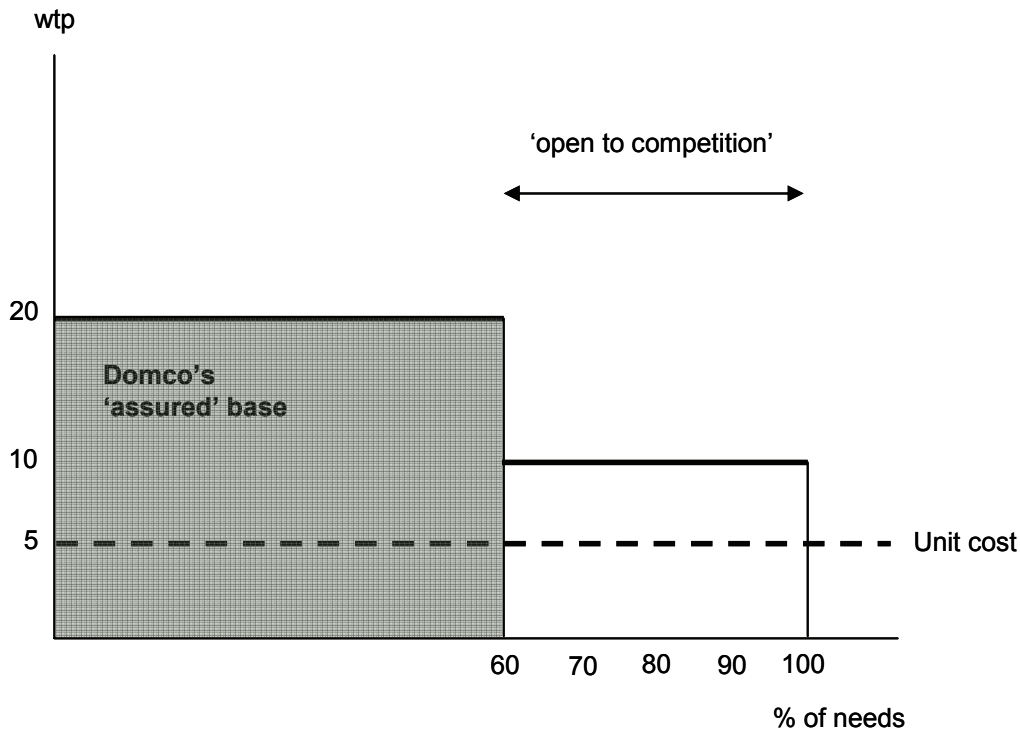
In summary, target thresholds do not inevitably result in customers favouring one supplier over rivals. Moreover, in assessing the competitive effects of loyalty rebate schemes it is important to assess whether rival firms have alternative methods to compete. Product differentiation may provide one way for rivals to grow their own sales, partly at the expense of the dominant firm. For example, rivals could undermine the incentive scheme offered by the dominant firm to customers by growing their own shares by offering consumers a better service or a better product. Indeed, as shown above, it cannot be assumed that intermediate customers are indifferent to the demands of their own customers.

But a different analysis might apply if the appeal of the dominant firm's brand is such that the customer has a strong pre-disposition to buy a substantial proportion of its requirements from the dominant firm, and therefore the best outcome that a rival supplier can realistically expect to achieve is to secure, say, one third of the

customer's requirements. Such sales might be termed as the dominant firm's *assured base*. In the presence of an assured base, a loyalty rebate scheme can a have significant effect on a customer's choices. Starting from a point part way along the supplier expenditure profile the marginal price for additional purchases from the firm can be much lower. If that marginal price falls below supplier's marginal cost of supply, the fears for exclusionary effects become greater, because the rebate scheme involves pricing those contestable units below the supplier's avoidable costs. This does not in itself establish that the rebate scheme is abusive, since a finding of some prices below variable costs does not in itself establish an exclusionary economic effect. It does, however, begin to build a picture of exclusionary effects concern.

To see the impact of such an assured base of sales for the competitive effects of a loyalty rebate scheme offered by a dominant firm ("Domco"), consider Figure 2.

Figure 2: The impact of an assured base of sales on the competitive effects of rebate schemes



The horizontal axis represents the share of a buyer's needs. Up to a point (here, 60 per cent of the buyer's needs), the buyer has a high willingness to pay for the dominant firm's good and a low willingness to pay for the rival good (assume the latter is zero). Thereafter, assume that the buyer's willingness to pay for both goods is equal at €10. Suppose both suppliers have a unit cost of €5 and their products are perceived by the customer to represent effective substitutes for sales over and above the assured base i.e. sales that are "open to competition.

Consider a dominant supplier which offers a rebate based on the share of a buyer's needs. Assume that the dominant supplier sets a

list price of €20 and then offers a rebate on all units purchased above 60 per cent of a buyer's needs. In effect, the dominant firm sets a price of €20 for the units over which it has market power and a lower, discounted price only on the range open to competition. If the dominant supplier chooses the discount at 50 per cent then it simply prices to consumer's maximum willingness to pay. Although the discount appears very large (50 per cent), the discounted price (€10) remains above the marginal cost of production (€5). The rival could profitably undercut and enter the market.

If the dominant supplier chooses the discount at 80 per cent then all those units open to competition are priced at €4, i.e. below an equally efficient rival's cost. If the dominant firm supplied all of the buyer's needs, it makes a profit. For example if the buyer purchases 100 units, total cost is €500 and total revenues €1,360. The rebate scheme considered as a whole shows that price exceeds avoidable cost. However, to focus on all sales would miss the point that below cost prices have been targeted on the range open to competition.[25]

Although an assured base of sales may be very difficult to identify in practice and may differ across customer types, this stylised framework nevertheless provides a useful starting point. First, it demonstrates that a loyalty rebate scheme can, in principle, be used to target a lower price on a range of sales open to competition in the same way that a dominant firm can selectively

[25] Rivals may have their own 'assured base' as well (this would not be part of the 'range open to competition'). Where a rival already deals with the buyer, we might present the rival's assured base of sales as a box on the diagram as well. For example, suppose that the rival is assured of selling 10% of the buyer's needs at, say, €20. We could insert this box on the x axis at 90 per cent to 100 per cent of the buyer's needs. This 'visual aid' would set out clearly that it is only the remaining 30 per cent of sales that are 'open to competition'.

lower prices in market B (where it faces entry) but leave prices high in market A (where it is a monopolist).[26]

Second, it provides a framework for assessing the likelihood of foreclosure by "allocating" the discount inherent in the loyalty rebate scheme to the range open to competition. This approach allows safe harbours to be devised on the assumption that: (a) an assured base of sales exists; (b) sales could be made at the list price for that assured base; and (c) the appropriate measure of cost is not sensitive to the choice of the assured base. These assumptions permit the whole of a discount to be attributed to the range of sales assumed to be open to competition. The larger the assumed assured base, the easier it will be to engage in exclusion. If we are confident that the discount has been over-allocated to that range and the implied price for sales in this range *exceeds* the appropriate measure of cost, this will typically indicate that the discount scheme does not give rise to foreclosure concerns.

In summary reference can be made to the same economic principles that have been used to analyse predatory pricing by considering whether the discounted price lies above the appropriate measure of cost. If so, the discount most likely represents a form of price competition and that an equally efficient rival could match the discounted price. This will be the case if both the following two tests are met.

- Does total expenditure under the retrospective rebate scheme cover total avoidable cost?

- Where total expenditure under the retrospective rebate scheme does cover total avoidable cost, is there evidence of *targeting below cost prices in a range open to competition*?

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[26] There is also a link to the tying and bundling literature. The discount on the range open to competition can be thought of as being conditional on the pre-purchase of the assured base.

In the above example, only the first of these tests was fulfilled.

In addition to these cost tests, we can also undertake the following analyses. First, whether rivals are harmed can be assessed at a casual empirical level by considering the behaviour of intermediate customers over the time, i.e. from year to year and the extent to which foreclosure takes place at an aggregate level rather than at the individual customer level. If it can be seen that customers switch from supplier to supplier over time this would indicate that customers are not "loyal" to suppliers. Moreover, considering what has happened to competing suppliers´ market shares over time is indicative of whether loyalty rebate schemes have had indeed a market foreclosing effect. It would appear that a growth in the market share of competitors is inconsistent with market foreclosure.[27]

This section has shown that it cannot be assumed that loyalty rebates have adverse effects for competition even when practised by dominant firms. To distinguish between those instances when loyalty rebates are anticompetitive from those that are pro-competitive, we propose a three step approach, which is consistent with the analysis of predatory pricing and which can also be extended to the analysis of selective price cuts.

3.4 Summary and policy recommendations

A good form-based rule is one that generally prevents anticompetitive behaviour and only rarely mistakenly prohibits pro-competitive behaviour. However, when a form based rule mistakenly prohibits pro-competitive behaviour on numerous occasions such rules will have detrimental effects for competition and therefore for consumers.[28] A *per se* approach towards loyalty

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[27] However, one might argue for a new entrant that the competitor is prevented from growing to reach a viable scale of operations.

[28] It is a fallacy to equate "over intervention" with "strong" competition law. Over intervention is not without its own costs on consumer welfare.

rebates effectively assumes that such schemes result in foreclosure as it is interpreted to induce exclusive or near exclusive purchases by some customers. But as this paper has demonstrated, even loyalty rebate schemes employed by dominant firms can have pro-competitive effects and indeed this will be the case in a large number of instance. A form-based *per se* approach effectively prohibits dominant firms from employing loyalty schemes with consequent adverse effects for competition and consumer welfare. On that basis, we propose in common with many other commentators that the Commission should adopt an effects-based approach when it assesses the competitive impact of loyalty rebate schemes even when practised by dominant firms. This paper has suggested how that analysis would be conducted in practice by focusing on four key steps.

However, it is instructive to consider the counterarguments of proponents of the *per se* approach. These proponents argue that a *per se* approach provides clarity for the businesses and competition policy practitioners and, after all, since the prohibition of loyalty rebates applies only to dominant firms it does not have large cost to economic efficiency. This is a flawed argument. First, there would be many circumstances in which a loyalty rebate structure would pass any sensible economic test so the uncertainty for the business may be smaller than claimed. Second, the *per se* approach does not remove the uncertainty but rather shifts the discussion and uncertainty to whether a firm is likely to be held to be dominant. It is well-known that market definition is often not a straightforward exercise and that empirical evidence can and should play a central role in the definition of the relevant market. However, market definition in such cases raises additional problems; namely the famous cellophane fallacy. The implication of the cellophane fallacy is that market definition and hence a finding of dominance cannot in many instances be resolved with reference to available empirical facts. For this reason, the analysis should focus on the actual economic effects of the loyalty rebate scheme. Under such an economic approach, if a firm is declared to be dominant by error it is

possible that an effects-based analysis of the actual competitive effects of the loyalty rebate scheme will rectify this error. However, a form-based approach provides no scope for correcting such errors.

Proponents for the *status quo* also raise other criticisms which fall into two broad categories. First, the judgments of the Community Court suggest that an analysis of the actual competitive effects of loyalty rebate schemes is not required (see for example, the judgments in *BA/Virgin* and *Michelin II*). Rather these judgments appear to suggest that one can presume that loyalty rebates have adverse consequences for competition. But as we have discussed at length, the statements contained in the decisions are flawed: they do not permit one to distinguish between conduct that makes life harder for competitors from conduct that goes further and harms not only competitors but also competition. Moreover, the statements of the Community Courts can be reconciled with an economic assessment by providing a proper definition of certain key terms. These include definitions of "foreclosure", "normal competition" and "meeting competition". It is to be hoped that the proposed Article 82 guidelines will provide such guidance. Without defining these terms, Article 82 guidelines will be severely deficient.

Second, it has been claimed that a move away from the current formalistic *per se* approach towards a case-by-case analysis is not necessary. In a speech given at the UK Competition Commission, the President of the German Federal Cartel Office asserted, unconvincingly and without supporting arguments that *per se* rules established in Article 82 are "essentially important abstracts from economic facts and prognoses which have been investigated empirically and found to be correct for the most part".[29] As this paper has demonstrated that is simply not the case; moreover there is no support for this statement in the standard economic literature.[30]

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[29] Böge, *Modernisation of Article 82 EC,* Speech given to UK Competition Commission seminar, 19th April 2005.

[30] A comprehensive review of the relevant literature is provided in RBB Economics (2005).

Indeed, a review of the relevant literature leads one to the opposite conclusion; namely, that in many if not most instances loyalty rebates are pro-competitive.

The real concern of those who adhere to the *per se* approach appears to be a sense that a more effects based analysis will give rise to a "paralysis in competition law enforcement" resulting in a weakening of antitrust enforcement. However, as a counterargument, one can point to the successful use of economic analysis in the area of mergers and in Article 81. There is little merit in the argument that assessing the actual impact of loyalty rebates on competition with reference to the specific facts of the case would be more time-consuming in the case of Article 82 investigations as compared to Article 81 or merger investigations.[31]

Critics of an effects-based approach also claim that a market based analysis has a number of disadvantages which include the need to prove causality between the conduct under investigation and market effect. It is argued that this approach requires a comparison between the actual market situation and a hypothetical counterfactual and that this, apparently, results in uncertainty. But stating that this analysis requires careful consideration is certainly not the same thing as stating that it cannot be undertaken satisfactorily. Indeed, one can again point to the experience of such analysis being successfully employed in merger and in Article 81 investigations. There is no reason why this can not be extended to Article 82.

In short, any economically coherent policy towards loyalty rebates must include an analysis of the actual effects of such practices on competition. This is what a "more economic approach" means.

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[31] It should be noted that an effects-based analysis does not necessarily (and indeed will rarely do so) involve the use of simulation or other econometric modelling.

4. Oligopoly price discrimination by purchase history*

*Yongmin Chen***

Abstract

This article provides a review of the economics literature on oligopoly price discrimination by purchase history. Two basic models of repeated purchases with two firms and two periods are discussed in detail, one in which firms produce a homogenous good ex ante but where there is ex post product differentiation due to consumer switching costs, and another in which firms' products are differentiated because consumers have intrinsic differences in their brand preferences. Price discrimination based on purchase history arises as equilibrium pricing strategies by competing firms, and such a practice tends to lower industry profits but may or may not benefit consumers. From a welfare point-of-view, there is too much consumer switching between firms. These results extend to models with multiple firms and multiple periods. Further discussions are provided on the effects of long-term contracts and other loyalty-inducing arrangements, on marketing innovations and the legal protection of consumer privacy that affect firms' ability to gather consumer information, and on the antitrust implications of purchase-history based price discrimination.

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* I thank Marc Armstrong and Mats Bergman for helpful discussions and suggestions. Any remaining error is my own responsibility.

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4.1 Introduction

In markets with repeated purchases, firms can use consumers' past purchase information to offer different prices to different consumers. For example, a long-distance telephone firm offers a lower price to a customer who has been using a competitor's service; a credit card company offers a lower interest rate to a consumer who transfers balance from another credit card company; a cable company offers a lower monthly fee to a customer who previously uses the satellite TV. The type of price discrimination in these examples has two common features. First, the prices depend on consumers' past purchases, and thus incorporate explicit dynamic considerations. Furthermore, the information about a consumer's past purchase takes a particularly simple form, namely whether or not the consumer purchased from a rival in past. Second, firms tend to operate under competition, often in oligopoly markets. Such price discrimination by purchase history, sometimes also called behavior-based price discrimination or dynamic price discrimination, by competing firms, has received much attention in the recent economics literature. How does oligopoly price discrimination by purchase history arise in these markets? How does such pricing strategy affect competition and consumers? Should public policies facilitate or prevent the practice of such price discrimination? This article provides a review of the insights on these questions from the economics literature and discusses possible directions for future research.[1]

The economics literature on oligopoly price discrimination by purchase history has followed two main approaches. In one approach, consumers initially consider competing firms' products as

[1] Stole (2004) and Armstrong (2005) are two recent and more comprehensive surveys on the economics of price discrimination, from which the present article has greatly benefited.

homogeneous products, but past purchases create switching costs for the consumers, which provides a natural way for firms to segment and price-discriminate consumers. In an early contribution to the literature, Chen (1997) takes this approach of ex ante homogeneous product. In the other approach, which I shall call ex ante product differentiation, consumers have different preferences for competing firms' products, and past purchases allow firms to learn about consumers' brand preferences, which enables firms to engage in price discrimination. An early contribution in this approach is Fudenberg and Tirole (2000). Each of these two approaches may reflect certain realities in different industries.[2] In the telephone industry and the credit card industry, for instance, it would seem that the products are homogeneous ex ante, but they may become differentiated once a consumer has purchased from and attached to a particular firm. In the competition between cable and satellite TV, on the other hand, perhaps consumers have different preferences for the two technologies to start with. Although the modeling of competition differs in these two approaches, their analytical results have several common features. First, each firm's price discrimination favors the firm's competitor's customers. That is, it takes the form of "paying customers to switch" or "poaching rival's customers". Second, firms tend to be worse off being able to recognize consumers and price discriminate. This is because the price discrimination is based on consumers' preference differences across firms, which intensifies competition. Third, there is a deadweight loss to the society due to inefficient customer switching, while consumers can be better off in one period but worse off in another. However, there are also important differences between these two models' implications. For instance, in Chen's model, equilibrium prices

[2] Economic analysis on dynamic price discrimination under monopoly, which I do not discuss in this paper, originates from Stockey (1979); a survey of this literature can also be found in Fudenberg and Villa-Boss (2005), which focuses on models of ex ante product differentiation when discussing behavior-based price discrimination under oligopoly.

increase over time, while equilibrium prices decrease over time in Fudenberg and Tirole's model.

There are many interesting issues that are related to and go beyond the basic analyses in Chen (1997) and in Fudenberg and Tirole (2000). One issue concerns what happens if the restrictive assumption that there are only two firms and two periods is relaxed. Taylor (2003) extends Chen (1997) to many firms and many periods, and in doing so obtains several new and interesting insights. In a different direction, Villa-Boss (1999) considers an infinite horizon dynamic duopoly model with overlapping generations of consumers that is closely related to the analysis of Fudenberg and Tirole (2000).[3] Another issue deals with the possibility that firms may offer long-term contracts that fix their future prices. Such price commitment can create endogenous consumer switching costs, as in Banerjee and Summers (1987) and Caminal and Matutes (1990). Fudenberg and Tirole (2000) address this issue in the context of price discrimination. Still another interesting issue concerns firms' incentives and ineffectiveness in gathering consumer information for the purpose of price discrimination. Taylor (2004) compares the outcomes of two regimes in which either firms can trade customer information or such information trading is not possible. He finds that the welfare effects of protecting consumer privacy, when firms can practice dynamic price discrimination, depends importantly on whether or not consumers anticipate the possibility of information trading. Chen (2004) considers the incentives and effects of marketing innovations that increase firms' abilities in acquiring consumer information. He finds that firms tend to have (inefficiently) too much incentive to develop new marketing technologies and methods for the purpose of gathering consumer information. Armstrong (2005) also contains interesting discussions on this issue.

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[3] In Villa-Boss, firms can only discriminate between returning customers and non-returning customers, without being able to distinguish between newly arrived customers and existing customers of a rival.

Like other forms of price discrimination, price discrimination by purchase history can have antitrust implications. However, if the economic theory on such pricing practices is relatively new, the discussion of their antitrust ramifications, to our knowledge, is virtually non-existent in the economics literature. Nevertheless, several antitrust cases may suggest to us when price discrimination by purchase history is likely to raise significant antitrust concerns. In *Akzo*, the European Court of Justice upheld the principle established by an earlier decision of the European Commission that it is abusive for a dominant firm to offer selectively low prices to customers of a small competitor while maintaining substantially higher prices for its existing customers. The Court viewed such behavior as showing Akzo's adopting a strategy with the intention to damage its (smaller) competitor.[4] In *Irish Sugar*,[5] the Court agreed with the European Commission that a company would commit abuse of its dominant position by offering selectively lower prices to (potential) customers of its smaller rival(s) for the purpose of excluding or deterring competition. Unlike the theoretical models in the existing economics literature, these two cases both involve a market structure with asymmetric (dominant) firms.

The rest of the article is organized as follows. In section 4.2, we discuss and compare two basic models in oligopoly price discrimination by purchase history, based on Chen (1997) and Fudenberg and Tirole (2000). In section 4.3, we discuss extensions of these basic models and developments on related issues. We first discuss Taylor (2003) and Villa-Boss (1999), and highlight the additional insights one may obtain in considering multiple firms and periods. We then consider how firms may endogenously change their abilities to engage in dynamic price discrimination, through

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[4] Judgement of the Court of Justice of 3 July 1991 in case C-62/86, Akzo Chemie BV v Commission, European Court Reports 1991, I-3359.

[5] Case T-228/97, Irish Sugar PLC v. Commission, 1999 European Court Reports II-2969 (European Court of First Instance) and C-497/99 P, 2001 European Court Reports I-5333 (European Court of Justice).

long-term contracts or marketing innovations, and discuss issues related to the technology to gather consumer information and the protection of consumer privacy. We further discuss the antitrust implications of purchase-history based price discrimination. Section 4.4 concludes.

4.2 Two basic models

4.2.1 Price discrimination with switching costs

We first review a model, developed in Chen (1997), in which initially firms produce a homogenous product, but consumers have real costs to switch suppliers after the initial purchase.[6] It is assumed that two firms, A and B, produce a homogeneous product with constant and equal marginal cost $c \geq 0$. There is a unit mass of consumers, and each consumer demands one unit of the product per period with reservation price V. In the first period, both firms simultaneously set their prices, resulting in proportion α of consumers purchasing from A and portion $1 - \alpha$ of consumers purchasing from B; where $0 \leq \alpha \leq 1$. Thus α and $1 - \alpha$ are the market shares of firms A and B in the beginning of period 2. Whether a consumer has purchased from A or B in the first period is known to both firms. If a consumer switches to purchase from a different seller, she incurs a switching cost, s; which is the realization of a random variable uniformly distributed on $[0, \theta]$ and which she privately learns in the beginning of the second period. Firms again compete in prices in the second period, but now each firm can offer different prices to its own customers and customers who purchased from the rival earlier. Firms and consumers have the same discount factor $\delta \in (0,1]$.

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[6] For the literature on markets with consumer switching costs, see, for instance, Klemperer (1987), Farrell and Shapiro (1988), and Nilssen (1992); Farrell and Klemperer (2004) provides an excellent survey of the literature.

Since firms cannot commit to their future prices, the game needs to be solved by backward induction. In the second period, let ρ_2^i and r_2^i denote firm *i*'s prices to its own and the rival's customers, respectively. In the equilibrium of the second period, Chen (1997) shows

$$p_2^{i*} = p_2^* = c + \frac{2}{3}\theta,$$

$$r_2^{i*} = r_2^* = c + \frac{1}{3}\theta.$$

Thus, each firm charges a lower price to the rival's customers than to its own customers in the second period (the price difference is $\frac{1}{3}\theta$). The ratio of price mark-up for the two customer groups is

$\frac{c + \frac{2}{3}\theta - c}{c + \frac{1}{3}\theta - c} = 2$. Consumers with low switching costs ($s < \frac{1}{3}\theta$) change suppliers in the second period, while those with higher switching costs stay with its first-period supplier. In equilibrium, 1/3 of the consumers switch suppliers in the second period.

Remarkably, the second-period equilibrium prices are independent of the two firms' respective market shares. This independence result, which also holds for more general distributions of consumer switching costs, is an attractive feature of the model that allows relatively tractable extension to multiple periods, as in Taylor (2003). Because of this independence result and the fact that products are ex ante homogeneous, consumers in the first period will all purchase

from a firm if it has a lower price, and split evenly between the two sellers if they charge the same price.[7]

Returning to the first period, we can solve the equilibrium for the entire game. The game has a unique subgame perfect equilibrium, where each firm sets $p_1^* = c - \frac{\theta}{3}\delta$ in period 1; and sets (p_2^*, r_2^*) in period 2. Exactly half of the consumer population purchase from each firm, and hence market share α in the beginning of the second period is equal to $\frac{1}{2}$. At p_1^*, each firm's discounted sum of profit is $\frac{\theta}{9}\delta$, which is the same as each firm's discounted sum of profit if it had sold zero output in the first period. Since the two firms' products are ex ante perfect substitutes, competition in the first period drives the first-period prices just low enough to compete away all profits beyond what a firm can guarantee itself with zero sales in the first period.[8]

Intriguingly, firms earn positive discounted sum of profits, even though they produce ex ante homogeneous goods and are perfect competitors in the first period. But this is due to the fact that each firm is the only firm that can induce the rival's consumers to switch,

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[7] If firms cannot price discriminate in the second period, their prices in the second period will depend on their market shares, with a higher price under a higher market share. Then, consumers may choose to purchase from a firm with *higher* price in the first period, if the firm is expected to have a lower price in the second period.

[8] The equilibrium is unique, because if the lowest price is below p_1^*; the firm charging this lowest price will receive a profit that is lower than its profit when it simply sets a high price and sells zero in the first period; and the equilibrium price cannot be above p_1^* from the usual reasoning under Bertrand competition.

a point that is made clear by Taylor (2003). In other words, the presence of switching costs creates product differentiation in the second period, which gives each firm market power in the second period. Thus even if a firm makes no sale in the first period, it can earn a positive profit in the second period. And, consequently, competition in the first period will not drive profits to zero.

Chen (1997) also solves the equilibrium prices if firms cannot price discriminate, in which case firm *i's* second-period price is denoted as $\widetilde{p}_2^i$. In equilibrium,

$$\widetilde{p}_2^{A*} = c + \frac{1+\alpha}{3\alpha}\theta,$$

$$\widetilde{p}_2^{B*} = c + \frac{2-\alpha}{3\alpha}\theta,$$

and $\widetilde{p}_2^{A*} \geq \widetilde{p}_2^{B}$ if and only if $\alpha \geq \frac{1}{2}$. Notice that under uniform pricing, a firm's second-period price is increasing in its market share, in contrast to prices under price discrimination. If $\alpha = \frac{1}{2}$, $\widetilde{p}_2^{A*} = \widetilde{p}_2^{B*} = c + \theta$. Notice also that since a firm with a higher market share will charge a higher price in the second period, consumers become less price sensitive in the first period.

The calculation of equilibrium prices in period 1 under uniform pricing is complicated by the fact the second-period equilibrium profit as a function of α has a kink at $\alpha = \frac{1}{2}$. This gives rise to multiple subgame perfect equilibria of the game under uniform pricing. Chen (1997) shows that one equilibrium that is natural in this context is

$$\widetilde{P}_1^{i*} = \widetilde{P}_1^{*} = c + \frac{2}{3}\theta\delta,$$

with $\alpha=\frac{1}{2}$ and $\widetilde{p}_2^{A*}=\widetilde{p}_2^{B*}=c+\theta$. At this equilibrium, equilibrium prices are higher under uniform pricing than under discriminating pricing in both periods, and consumers are better offunder discriminating pricing. However, there can also be other equilibria under uniform pricing, one of which is $\widetilde{p}_1^{i*}=c-\frac{27}{36}\theta\delta$, with $\alpha=\frac{1}{2}$ and $\widetilde{p}_2^{A*}=\widetilde{p}_2^{B*}=c+\theta$. At this "more competitive" equilibrium, prices are lower in the first period under uniform pricing than under discriminating pricing, and price discrimination reduces each consumer's expected surplus. However, equilibrium profit is higher under uniform pricing than under discriminating pricing. As under price discrimination, under uniform pricing firms also charge lower prices in the first period than in the second period.

To summarize, in this model of ex ante homogeneous product, oligopoly price discrimination by purchase history lowers profits for all firms, without necessarily benefiting consumers. There are deadweight losses in social welfare due to the cost of switching.

4.2.2 Price discrimination with brand loyalty

Rather than assuming that consumers have brand preferences due to switching costs after an initial purchase, Fudenberg and Tirole (2000) postulates that consumers have inherently different preferences for the two firms' products. Below I present a simplified version of their model. Consumers are uniformly distributed on a Hotelling line of unit length. Firms A and B are located at the two ends of the line, with constant marginal cost *c*. A consumer's location or brand preference, $\theta\in[0,1]$, is fixed over two periods, and the consumer incurs transportation cost *t* per unit distance. Firms do not observe consumers' brand preferences, but they can use consumers' first-period purchases to draw inferences about these preferences and price accordingly. Anticipating this, consumers also adjust their purchase behavior in the first period.

The game is solved by first deriving the second-period equilibrium. Suppose firms *A* and *B* sell to consumers with $\theta \in [0, \alpha]$ and $\theta \in [\alpha, 1]$ in period 1, respectively. Let p_2^i denote *i's* period-2 price to consumers on its turf, and r_2^i denote *i's* period-2 price to consumers on its rival's turf. In equilibrium,

$$p_2^A = c + \frac{1}{3}t(1+2\alpha); \qquad r_2^A = c + \frac{1}{3}t(3-4\alpha);$$

$$p_2^B = c + \frac{1}{3}t[1+2(1-\alpha)]; \qquad r_2^B = c + \frac{1}{3}t[3-4(1-\alpha)]$$

Therefore, as in Chen (1997), a firm charges a lower price to the switching customers than to its loyal customers, or price discriminates against its loyal customers. However, an important difference here is that the second period price depends on market shares from the first period: a firm charges its own customers a higher price if it had a higher market share in period 1. If the firms have equal market share the first period, as they will at a symmetric equilibrium, the second period equilibrium prices are simply

$$p_2^* = c + \frac{2}{3}t \quad \text{and} \quad r_2^* = c + \frac{1}{3}t.$$

Interestingly, here the price mark-up for the two consumer groups is again

$$\frac{\frac{2}{3}t}{\frac{1}{3}t} = 2,$$ the same as in Chen (1997).

The first period equilibrium prices can be solved by noticing that the marginal consumer in the first period will switch in the second

period and is indifferent between purchasing from A and switching to B and purchasing from B and switching to A. Since the second period price is increasing in market shares, the first-period demand is less elastic than in a static one-shot game. The subgame perfect equilibrium prices are found to be

$$p_1^A = p_1^B = p_1^* = c + t\left(1 + \frac{\delta}{3}\right)$$

for the first period, with the second-period prices as given earlier. Hence equilibrium prices decrease over time. The first-period market shares are split equally at $\frac{1}{2}$; while in the second period consumers with $\theta \leq \frac{1}{3}$ continue to purchase from A; consumers with $\theta \geq \frac{2}{3}$ continue to purchase from B; and consumers with $\theta \in \left(\frac{1}{3}, \frac{2}{3}\right)$, or 1/3 of the consumer population, switch suppliers. There is a deadweight loss of social welfare due to this switching.

If price discrimination by purchase history is not possible, then each firm's price in each period is simply

$$p_1 = p_2 = c + t.$$

Therefore price discrimination raises the first period price but reduces the second period price. Since no consumer switches supplier under uniform pricing, price discrimination, which results in inefficient consumer switching, reduces welfare. It can be easily verified that under price discrimination, the consumers who do not switch suppliers in the second period obtain the same surplus as under uniform pricing, while consumers who switch are better off; thus aggregate consumer surplus is higher with price discrimination. Since social welfare is lower under price discrimination, it follows that firm profits must be lower as well.

4.2.3 Comments on the two models

The two basic models capture two different types of markets with repeated purchases. In the first model, dynamic price discrimination is made possible by the presence of consumer switching costs after the initial purchase; products are ex ante homogeneous but ex post differentiated. In the second model, dynamic price discrimination is made possible by consumer's different product preferences that are revealed after the initial purchase; products are ex ante differentiated. The ex ante homogeneous-goods model is more appropriate in markets where switching costs are more important relative to the consumers' initial differences in brand preference, and the opposite is true for the ex ante differentiated-goods model. As a modeling tool, under price discrimination the analysis is simpler in the ex ante homogenous-goods model than in the ex ante differentiated-goods model, largely because second-period prices are independent of market shares in the former but not in the latter; while under uniform prices the opposite is true, largely because second-period prices are independent of market shares in the ex ante differentiated-goods model but not in the ex ante homogeneous-goods model.

A key common feature of both models is that a consumer's purchase of a rival's product in the first period implies a weaker demand of the consumer towards the firm's product in the second period. This motivates each firm to offer lower prices to its rival's customers in the second period, or "paying customers to switch", if prices can be based on a consumer's past purchases.[9] Such price discrimination in both models results in lower equilibrium profits for

[9] Shaffer and Zhang (2000) consider a static model that is similar to the second period of Chen (1997) but allows asymmetric demands to the two firms. They show that it is then possible in equilibrium for a firm to charge lower prices to its loyal segment, or "paying customers to stay", as it could be the case if, for instance, one firm's loyal customers have lower switching costs on average than the other firm's.

the competing firms and inefficient consumer switching. With a qualification, social welfare is reduced by price discrimination.

There are also important differences in the models' implications under price discrimination. In particular, prices increase over time in the ex ante homogeneous-goods model, but decrease over time in the ex ante differentiated-goods model. Furthermore, price discrimination may or may not benefit consumers in the ex ante homogeneous-goods model, but it unambiguously increases consumer welfare in the ex ante differentiated-goods model.

The result here that price discrimination leads to lower equilibrium profits for both firms is related to the findings in other studies on oligopoly price discrimination (e.g., Thisse and Vives, 1988; Holmes, 1989; Corts, 1998; and Chen, 1999). A general insight from this literature is that price discrimination can be related to two types of price sensitivities (elasticities). Different consumers may differ in their price sensitivities towards different firms, and/or they may differ in their valuations towards a product. The effects of price discrimination along these two dimensions depend on the underlying market conditions. For instance, In a model of competing retailers selling both to captured and switching customer segments, Chen (1999) suggests that price discrimination based on differences in consumers' valuations towards a product allows firms to extract consumer surplus and tends to increase firms' profits; but price discrimination based on consumers' differences in their across-firms price elasticises tends to cause primarily the business-stealing effect and to intensify competition, resulting in lower profits for all profits for all firms in equilibrium.[10] However, Armstrong (2005) shows in a Hotelling setting that discrimination based on valuations has not impact on outcomes at all; while discrimination based on "choosiness" (i.e., transportation cost) *increases* profits.

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[10] For convenience, each consumer is often assumed to have unit demand per period in the literature on price discrimination by purchase history. When a consumer demands multiple units, firms may also use nonlinear pricing or second-degree price discrimination (e.g., Stole, 1995).

An important assumption in both models is that firms are ex ante symmetric. In reality, firms are often asymmetric: they may differ in sizes, costs, etc. Asymmetric firms raise interesting additional issues. For instance, if a dominant firm adopts a pricing strategy that offers the customers of its rival(s) a price that is lower than what it charges its own customers, it can damage the rival's ability to compete, resulting in the exclusion of the rival(s) from competition. We shall return to this issue later in our discussion of antitrust implications.

4.3 Further developments and discussions

4.3.1 Allowing multiple periods and/or multiple firms

A significant extension of the basic models is to allow more than two periods and/or more than 2 firms. The importance of such extensions is not necessarily because multiple periods and/or multiple firms are more realistic, but because such extensions may yield new economic insights.

Consider first Taylor (2003), which extends Chen (1997) to multiple periods and multiple firms. Among other things, Taylor's analysis reveals the following two interesting points: First, with three or more firms, there are at least two outside firms competing for each firm's loyal customers to switch, which leads to zero profits from switching customers, and in turn to zero expected discounted sum of profits for all firms. It is an interesting point that a change from two firms to three firms leads to qualitative differences in economic outcomes. Because of the intensified competition for switching customers under three or more firms, prices are lower for both switching and non-switching consumers, and the price difference between these two types of consumers is larger. Second, with multiple periods, consumers can potentially switch suppliers more than once. This raises the interesting issue that a consumer may want to switch early on to signal her low switching costs, and a seller faces subtle strategic considerations in observing the past switching

behavior of the customer: targeting a consumer with high switching costs may not be worthwhile, but attracting a consumer with low switching costs has the difficulty of retention.[11]

Next consider Villas-Boas (1999), which provides an analysis similar to Fudenberg and Tirole (2000) but in an infinite-period, overlapping-generations duopoly model. A firm in this model cannot distinguish between its rival's customers and customers who are new to the market, and can thus only discriminate between customers who are its previous customers and who are not. Unlike in Fudenberg and Tirole, where price discrimination raises price early on but lowers price later, Villas-Boas shows that dynamic price discrimination in his model lowers all prices, because of the intensified competition when firms attempt to attract the rivals' previous customers. As in the other models we have discussed, there is equilibrium customer switching here as well.

4.3.2 Long-term contracts and other loyalty inducing arrangements

In our discussion so far, consumers have loyalty to their supplier for exogenous reasons, either because they need to incur costs to switch supplier or because they prefer the supplier's brand. But firms can also use contracts to create endogenous switching costs/loyalty for consumers in repeated purchases. Banerjee and Summers (1987) and Caminal and Matutes (1990) are early contributions on this issue. Caminal and Matutes (1990) consider a two-period Hotelling model where a consumer's location is an independent realization at each period. Thus a consumer's first period location contains no information about her second period location. Fudenberg and Tirole

[11] This is reminiscent of the academic job market for (senior) economists in the U.S., where typically there is a significant salary premium attached to a faculty member resulting from switching universities.

(2000) consider both this preference-changing case and the case where any consumer's location (preference) is the same in both periods. The basic timing assumption is that firms first simultaneously choose their first period prices, and pre-commit (it they choose) to offer a second-period price to customers who purchase at the first period.[12] In the second period, each firm simultaneously offers a pair of prices to its own previous customers and its rival's previous customers, subject to any price commitment that it may have made in the first period.

If preferences are independent across periods, the analyses of Caminal and Matutes (1990) and of Fudenberg and Tirole (2000) lead to the following results: First, in equilibrium firms choose to commit to second period prices for its returning customers. The price commitment creates endogenous switching costs and inefficiently too little switching in the second period. Second, each firm commits to an equilibrium price path that is decreasing. In fact, in the second period, each firm prices its good to its first period customers at an effective price below marginal cost, while each firm's price for the switching customers is higher. Third, firms receive lower equilibrium profits if they are able to offer long-term contracts and to offer prices in the second period based on consumers' past purchases.[13]

If preferences remain the same across the two periods, Fudenberg and Tirole (2000) show that firms will choose to offer

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[12] Fudenberg and Tirole (2000) allows firms to offer both long-term (two periods) contracts and spot contracts in period 1.

[13] These analyses assume that consumers do not know their future preferences when making purchase decisions. The analysis in Matutes and Regibeau (1992) can be applied to situations where consumers know their future preferences when making first-period purchases. There is also inefficiently too little consumer switching in their model. The effects of long-term contracts for the model in Chen (1997) have not been studied; and I conjecture that long-term contracts would reduce the inefficient consumer switching (and hence increase social surplus) there.

both long-term and short-term contracts in the first period. Consumers will self-select: those with strong brand preferences will choose a long-term contract; and those with weak brand preferences will choose a short-term contract, some of whom will switch suppliers in the second period. By locking in some of its most captive customers, a firm, say firm A; can commit itself to more aggressive second-period pricing. This commitment helps A because it induces the other firm to lower its second-period poaching price, which makes it more attractive for consumers to purchase from A in the first period, and this in turn allows A to charge a higher first-period price. There is less equilibrium switching when long-term contracting is possible. Since switching is not efficient here, long-term contracting improves social welfare. Compared to a duopoly with only short-term contracts, long-term contracting also reduces firms' profits and raises consumer surplus.[14]

The fact that long-term contracts have opposite welfare effects in models where brand preferences are independent across periods and in models where brand preferences are perfectly correlated across periods suggest that the proper public policy towards the use of long-term contracts by businesses depends importantly on the industries involved. In industries such as the airlines, a consumer is likely to have different travel needs for different trips. This means that a model with changing brand preferences is likely to be a better description about the economic environment in such industries. Alternatively, in industries such as that for long-distance telephone services or for credit card services, it seems that consumers are likely

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[14] Armstrong (2005) considers the situations where firms can commit fully to future prices, and points out an equilibrium where firms sell a pure bundle of products for two periods, resulting in no second-period switching and higher profits. This provides an interesting contrast to Fuderberg and Tirole´s result on the effects of long-term contracts on profits. The lack of ability by firma to commit not to offer "poaching" contracts in the second period in Fudenberg and Tirole seems to be responsible for the difference.

to have the same brand preferences each month. These industries may be better modeled as industries with an ex ante homogenous product, where brand loyalty is more likely created by switching costs. (What is the difference between a long distance call connected through one company versus another, or between using a Visa card issued by one bank versus another bank?)

In addition to long-term contracts, firms may also use other means to create or increase consumer switching costs. For instance, by making each other's product less compatible, firms can increase consumers' switching costs (see Farrell and Klemperer, 2004 for further discussions). Conversely, as is analyzed in Gans and King (2001), technology exists that allows a consumer to have the same phone number when changing phone companies, which would reduce the consumer's transaction costs (switching costs) to purchase from her current service provider's competitor. Firms, on the other hand, may not introduce this technology since it can intensify competition, and then government regulation would be needed to make it happen.

4.3.3 Technology, privacy and price discrimination

Firms' abilities to engage in price discrimination are constrained by technologies and the legal environment. On the technology side, to be able to price according to consumers' purchase history, a firm needs to have the information technology to track consumer purchase histories. The technology may be relatively simple if all one needs to know is from which firm a consumer has purchased before, but more detailed and effective consumer targeting may require rather sophisticated information technologies and/or marketing methods. In recent years, new ways of gathering consumer information through innovative marketing programs and technologies have enabled firms to reach consumers more effectively and to use pricing strategies that were previously not feasible. Chen (2004) uses the term "marketing innovation" to describe such new

marketing tools and methods. For example, in recent years, retailers have introduced preferred-customer cards or loyalty cards. When the card is swiped at the point of sale, the retailer's information system records the name of the shopper, the time of the transaction, and the content of the purchase. These cards, in combination with the new information systems developed, enable retailers to target consumers with individualized promotions and, effectively, individualized prices. As another example, the recent development of Internet stores enables sellers to use consumer-tracking technologies such as clickstream tracking, online registration, and cookies. Selling on the internet with such technologies enables a firm to better understand each individual customer's tastes and to offer individualized prices. What are the incentives and effects of marketing innovation? How are these incentives affected by the possible imitation from the rivals? How does competition affect these incentives? And, how do the private and social incentives differ? Chen (2004), which in addition also considers marketing innovations that reduce consumer transaction costs, offers insights on these issues.

In a dynamic duopoly model where one firm can introduce a marketing innovation while the other firm can imitate with some delay but at a lower cost, Chen (2004) shows that the marketing innovation that gathers consumer information benefits the innovating firm but hurts some consumers.[15] However, unlike the usual product or process innovations, the adoption of a marketing innovation to obtain more accurate consumer information can actually reduce industry profit. Also, an increase in competition intensity reduces the marketing innovation incentive; and compared to the social optimum, the private incentive is too high for the marketing innovation to gather consumer information but too low for the marketing innovation to reduce consumer transaction costs.

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[15] This result depend on the specific assumptions of the model. Armstrong (2005) shows in a different setting that a firm is worse off being able to gather consumer information.

There are several legal issues related to price discrimination through new marketing tools and methods. One concerns the legal treatment of intellectual property embedded in a marketing innovation. In recent years, there has been significant interest in whether business method innovations should receive patent protections (e.g., Gallini, 2002; and Hall, 2003). We may consider marketing innovation as part of the business method innovations. Patent protection will effectively delay imitation, which can increase the incentive for marketing innovation. But since the private incentive for marketing innovations to gather consumer information is already too high relative to the socially optimal level, there is a lack of economic justification for such legal protection. (On the other hand, patent protection for marketing innovations that reduce consumer transaction costs may be desirable since the private incentive for such innovation is inefficiently low.)

Another issue is consumer privacy, which has received much attention in recent years. Of particular interest is the question of whether firms should be allowed to purchase (and sell) consumer information, such as consumers' purchase history, for the purpose of price discrimination. Taylor (2004) provides an interesting analysis on this question.[16] He considers a two-period model where at each period a monopolist sells a distinct product. A consumer's valuations for the two products are positively correlated and are the consumer's private information. A consumer's purchase decision at the first period from firm 1 can thus convey information about the consumer's valuation for the product of firm 2 at the second period, and this information can then be used by firm 2 to offer different prices to a consumer based on the consumer's first period purchase history. Taylor analyzes two settings, a confidential regime where the sale of customer information is not allowed, and a disclosure

[16] See Liu and Serfes (2005) for another recent analysis of the incentives and effects of customer information sharing by oligopoly firms. There is an earlier literature on information sharing among oligopoly firms (e.g., Gal-Or, 1985) which addresses quite different economic issues.

regime where one firm may compile and sell customers information to another firm. He finds that when consumers are naive, in the sense of not anticipating the sale of customer information by firm 1, firms prefer the disclosure regime to the confidential regime. Social surplus may be either higher or lower under the disclosure regime depending on whether dynamic price discrimination lowers or raises average prices. On the other hand, when consumers anticipate sale of their information, some consumers who have high valuations for both products misrepresent their preferences by strategically refusing to buy from firm 1 if it sets a high price. This strategic demand-reduction undermines the market for customer information since it results in a worthless customer list. It also causes the effective demand facing firm 1 to be more elastic, which can lead to lower prices and higher welfare. Firms prefer the confidential regime to the disclosure regime when consumers behave strategically. Government policies prohibiting the sale of customer information can reduce welfare.[17]

In a broader sense, there is also the issue of fairness when firms engage in price discrimination, which has been largely ignored in the economics literature. But fairness considerations can have important implications for consumer and business behaviors. In September 2000, Amazon.com conducted pricing experiments in which DVD movies were sold to different consumers at different prices based on their purchase histories. Amazon's pricing strategies were severely criticized by consumer privacy groups, and the company publicly apologized and made refunds to 6,896 customers (Taylor, 2004). If a consumer feels being treated unfairly or being taken advantage of by a firm, the consumer may decide to boycott the firm's product. This can reduce a firm's incentive to engage in price discrimination.

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[17] Obviously, antitrust regulation and competition policies can also affect firms′ incentive and ability to practice dynamic price discrimination.

4.3.4 Implications for antitrust

In the U.S., section 2 of the Clayton Act, originally signed into law in 1914 and amended by the Robinson-Patman Act (enacted in 1936), makes it unlawful to price discriminate if the effect of discrimination "may be substantially to lessen competition or tend to create a monopoly in any line of commerce." In the European Union, a parallel legal doctrine exists, where price discrimination for the purpose of restricting competition by a dominant firm, or more generally, "applying dissimilar conditions to equivalent transactions with other trading parties, thereby placing them at a competitive disadvantage" by a dominant firm, would be considered as illegal abuse, by Article 82 of the EC Treaty. However, price discrimination by purchase history, as we have discussed so far, is by and large unlikely to raise significant antitrust concerns. In fact, as the economics literature suggests, such pricing practices in oligopoly markets often intensify competition and potentially benefit consumers.[18] But this economics literature is relatively new and has so far focused on markets where firms are symmetric, in which the issues of market dominance by a single firm and the exclusion of competition are not considered. These issues can, nevertheless, be relevant for dynamic price discrimination.

One relevant case in this context is *Akzo Chemie BV v Commission*. Akzo Chemie BV (hereafter Akzo) was a company with a dominant market position of the flour additives market in UK and Ireland (with 55% of market share in 1984). Beginning in 1979, it pursued a discriminating pricing strategy that offered prices to the customers of its smaller competitor, ECS (Engineering and Chemical Supplies Limited, with 30% of market share in 1984), that were substantially

[18] Unlike group price discrimination under monopoly, where it typically benefits some consumers but hurts others, price discrimination under oligopoly can benefit all consumers by making the market more competitive.

lower than prices it offered to its own customers. In fact, the prices charged by Akzo to ECS's customers were below its average total costs while those offered to its own customers were above its average total cost. This pricing strategy seems to be a form of "poaching rival's customers", in the terminology of the economics literature, but it was exercised by a firm in a dominant position. The European Court of Justice concluded that Akzo's intention was not to pursue a general policy of favorable prices, but to adopt a strategy that could damage ECS; and as such, Akzo's pricing behavior was abusive.

Another relevant case is *Irish Sugar*. In 1997, the European Commission fined Irish Sugar, a dominant firm in the sugar market of Ireland, for abuse of its dominant position on the Irish sugar market. The Commission's decision was based on, among other things, the finding that Irish Sugar sought to restrict competition from imports of sugar from France and Northern Ireland through discriminating pricing. In particular, Irish Sugar targeted selectively lower prices to customers of an importer of French sugar, and to customers located close to the Northern Irish border who were (potential) customers of sugar imports from Northern Ireland. The Commission also found that through its anti-competitive behavior, Irish Sugar was able to maintain a significantly higher price level for packaged retail sugar in Ireland compared with that in other Member States. The Commission's decision was upheld by rulings of the European Court of First Instance and of the European Court of Justice, in *Irish Sugar PLC v. Commission*, even though the Court found that there was insufficient evidence that Irish Sugar offered selectively lower prices to customers of the French sugar importer. Importantly, the Court affirmed the Commission's finding that the selective price cut to border customers had the purpose and effect of restricting competition; and the Court's ruling implied that the selective price cut by Irish Sugar to its competitor's customers, had it

been proven, would have been considered illegal restriction of competition as well.[19]

Thus, with asymmetric firms, especially in the presence of a dominant firm, dynamic price discrimination, in the form of poaching rivals' customers through selectively lower prices, may have the purpose and effect of excluding or deterring competition. Such price discrimination can be in violation of antitrust laws. This suggests that extending the models reviewed earlier so as to allow for asymmetric firms would be worthwhile. Developing an economic theory that reflects more realities of competition would put us in a better position to inform public policies.

4.4 Conclusion

Oligopoly price discrimination by purchase history has occurred in many markets, and it is becoming increasingly prevalent as information technology advances. The economics literature offers important insights on the incentives for and effects of such pricing practices. Price discrimination by purchase history is an equilibrium pricing strategy of oligopoly firms in several important market environments with repeated purchases, including one where firms produce a homogenous good ex ante but there is ex post product differentiation due to consumer switching costs, and another where firms' products are differentiated because consumers have intrinsic differences in their brand preferences. In both of these two economic environments, oligopoly price discrimination based on purchase history tends to lower industry profits, but may or may not increase consumer welfare. There is inefficiently too much consumer switching between firms. These results hold in models with two

[19] Notice that there is potentially a big difference between offering low prices to existing customers of rivals, and offering low prices to markets which are "more competitive" than others (i.e., the border customers here). The latter situation has been considered in Armstrong and Vickers (1993).

firms and two periods, as well as in models with multiple firms and multiple periods. Long-term contracts or other loyalty-inducing arrangements reduce consumer switching and can increase welfare, so long as consumers' brand preferences are unchanged over time. Firms also attempt to increase their ability to gather consumer information through developing new marketing tools and methods. Such marketing innovations differ substantially from the usual product and process innovations in their effects on firms and consumers. The incentives and abilities for competing firms to engage in dynamic price discrimination are affected by laws concerning the protection of intellectual property rights and of consumer privacy.

The economics literature on oligopoly price discrimination by purchase history is relatively new and has focused mostly on markets with symmetric firms, where the issues of market exclusion and dominance are not considered. In these situations, dynamic price discrimination by competing firms often results in intensified competition; and such pricing practices typically would not raise antitrust concerns. However, when a dominant firm targets the (potential) customers of its competitor(s) with prices lower than what it charges its own customers, such price discrimination, also in the form of "customer poaching" or "paying customers to switch", can have the purpose and effect of restricting competition, in violation of antitrust laws. This article has taken a first step in identifying this possibility, through the discussion of two legal cases. In future research, it would be highly desirable to develop formal economic models that analyze dynamic price discrimination in markets with asymmetric firms.

There are other directions for future research. For instance, the theoretical models have offered interesting opportunities for future empirical work. In particular, the two basic models in section 4.2 have opposite predictions on price changes over time. It would be interesting to test empirically whether and when prices decrease or increase over time under dynamic price discrimination. Case studies would also be valuable in this regard.

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5. Price discrimination, competition and antitrust*

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Abstract

We argue that the practice of price discrimination cannot be uniquely evaluated based on criteria of fairness or psychology. The potential consumer gains from price discrimination depend crucially on the effectiveness of antitrust enforcement. In the presence of competition a ban on price discrimination will generally enhance industry profits at the expense of consumer welfare. We argue strongly against a form-based approach in dealing with price discrimination.

5.1 Introduction

Price discrimination is typically defined as the business practice of charging different prices for different units and/or to different customers. It can take various forms. Price discrimination can be explicit, as when different customers are offered different prices on the basis of customer-specific characteristics such as, for example, age, sex or place of residence. Price discrimination can also be implicit, as when all customers are formally offered the same menu

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of options, but different customers de facto pick different options and thus end up paying different prices (for example, volume discounts offering better deals to large customers). A particularly interesting variant of this practice is the so-called behaviour-based price discrimination, which occurs when firms exploit information about consumers' purchase histories. A typical example of behaviour-based price discrimination is a pricing scheme, which is contingent on the history of internet clicks.

Discriminatory pricing schemes and individualized prices constitute increasingly important business strategies in the foreseeable future for two reasons. Firstly, as a result of the shift towards a digital economy an increasingly significant fraction of the commodities are supplied based on technologies with huge fixed development costs as the dominant cost component, which is combined with very low marginal costs. Secondly, modern information technology has dramatically reduced the costs of acquiring, storing and processing individualized customer information and thereby drastically improved the conditions for sustaining discriminatory pricing schemes. Since it is not likely that the pace of technological progress is slowing down, discriminatory pricing seems to become an increasingly significant instrument for individualized marketing.

From an antitrust perspective, the increased ability of firms to sustain business strategies with individualized prices raises important challenges for competition lawyers and economists. Do discriminatory pricing schemes increase the incentives, and thereby the likelihood, for dominant firms to engage in abuse of dominant market positions? Or can we expect competition to be more intense when firms compete with discriminatory price schemes rather than uniform prices? And does collusion pose a more severe threat to competition when firms compete with individualized price schemes rather than uniform prices?

Antitrust policy and jurisdiction have traditionally been very strict about price discrimination, sometimes even treating it as a *per se* offense against the law. In this antitrust tradition price

discrimination has typically been seen as a tool by which a dominant firm exploits its power to shift surplus from consumers and thereby earn more profits. European competition law, and more precisely Article 82 of the EC Treaty, considers as an abuse the fact for one or several firms holding a dominant position of "applying dissimilar conditions to equivalent transactions with other trading parties, thereby placing them at a competitive disadvantage". In this tradition price discrimination is typically considered to be unfair, because some buyers have to pay a higher price for an equivalent good or service than others, unless the price differential can be convincingly justified by reference to cost differences. However, it is often far from self-evident how to define fairness in relation to systems with individualized prices. Should, for example, "no discrimination" mean that the same price is applied to all customers despite the presence of cost differentials or should the cost differentials be borne by the customers? These issues are particularly difficult when universal service obligations are implemented, for example in cases related to public health care. In any case, it is unclear whether fairness arguments support uniform prices or discriminatory price schemes with individualized prices.

For a long time, the literature on price discrimination largely focused on monopolies.[1] This approach emphasized the exploitative effects of price discrimination, allowing the dominant firm to boost profits at the expense of consumers. It also stressed that the distribution of output across consumers tends to be inefficient if different consumers pay different prices and presumably put different valuations on the last units they purchase. As Varian (1989) concludes, any price discrimination which reduces (or barely increases) total output is necessarily detrimental for total welfare and even more so for consumer welfare. But this does not, of course, imply that (less than perfect) price discrimination by monopolists would always harm consumers.

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[1] An extensive survey focusing on the welfare implications with discriminating monopolies is Varian (1989).

More recently economic analysis has extensively characterized circumstances under which price discrimination can increase total welfare and even consumer welfare. This might happen if, for example, a discriminatory price scheme makes it possible to substantially expand output based on lower prices targeted to such customer segments, which would be excluded from the market with a uniform price. Moreover, price discrimination might stimulate profits so as to enable investment projects, which could not otherwise be undertaken. These returns from discrimination may also encourage the firm to invest more, providing additional pro-competitive effects in the future. Under such circumstances price discrimination is likely to benefit consumers, sometimes even those who pay the higher prices. Such considerations have led economists to be sceptical about using simple notions of "unfairness" or implied distributional asymmetries to assess price discrimination. In the examples given, prohibiting price discrimination on the grounds of unfairness to those consumers who have to pay a higher price may end up making these very consumers worse off.

For antitrust purposes it is particularly important to extend the evaluation of price discrimination from an exploitative point of view relevant when assessing a monopoly to the role of price discrimination under conditions of competition. In fact, a recent literature in industrial economics, surveyed by Stole (2005), Armstrong (2005) and Fudenberg and Villas-Boas (2005), has opened this perspective by demonstrating that price discrimination does significantly impact on the way firms compete. In fact, many realistic forms of price discrimination tend to intensify competition among oligopolists, thereby benefiting consumers at the expense of industry profits. Let us present the intuitive argument for why price discrimination induces intensified competition by considering the case of customer poaching, where customers face switching costs and firms offer lower prices to the customers belonging to their rivals'

customer segments.[2] Under these circumstances discrimination intensifies competition, because it makes it possible for a firm to attack its rivals' customer bases, as well as new customer segments, while maintaining higher margins on its own installed base. But since all the firms have similar strategic incentives to exploit price discrimination, the industry faces a prisoner's dilemma situation, and competition is more intense than with uniform prices. Basically, price discrimination encourages the firm to target more customers, by allowing the firm to offer specific deals to these customers without compromising the profits achieved on more captive customers.

Our discussion proceeds as follows. In section 5.2 we collect common arguments for and against price discrimination. In sections 5.3-5.5 we analyse the validity of those arguments in more detail. In particular, section 5.5 presents the arguments for why price discrimination, no matter whether we talk about perfect discrimination or behaviour-based discrimination, tends to intensify competition in oligopoly markets. Section 5.6 discusses the complementarity between price discrimination and the effectiveness of antitrust enforcement. Section 5.7 concludes with a normative evaluation.

5.2 Common arguments for and against price discrimination

Even in market economies the practice of price discrimination attracts considerable suspicion, if not opposition, among lawyers, politicians, sociologists, moralists, and even economists. This may seem surprising for several reasons.

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[2] For detailed analytical models, see, for example, Fudenberg, D., and J. Tirole, (2000) or Chen, Y. (1997). Again, for a borad perspective, see Stole (2005), Armstrong (2005) or Fudenberg and Villas-Boas (2005).

First, and crucially, price discrimination is a way of increasing the flexibility of pricing. By extending the informational basis for pricing, in principle, competitive outcomes should improve the matching between products and consumer needs. The larger need of bulk consumers can be more flexibly addressed by quantity discounts. The importance and urgency of business travels are taken care of by sparing costly capacity for business travel. The intense use of scarce capacity in peak periods is honoured by extra charges. Hence, non-linear prices – such as discriminatory prices - provide a richer set of instruments with which to balance product availability and consumer needs.

Second, a fair split of surplus between a buyer and a seller will typically involve personalized or relationship-specific prices (e.g. Gehrig (1993)). Such prices are necessarily discriminatory when consumers have different tastes. To see this, consider a stylized world with a single seller of widgets with constant marginal costs c of production. Consider also a set of buyers with valuations of $v>c$. Typically, preferences are consumer-specific, and, thus, the buyers differ in their valuations for widgets. In a world of fair pricing, one might expect that a seller and a buyer split equally the surplus of $v-c>0$. Hence, with such an equal split of surplus between a buyer and a seller each buyer would pay a price of $c+\frac{1}{2}(v-c)$. Of course, this trading mechanism implies that buyers with larger valuations need to pay higher prices. In other words, if $v_1 > v_2$, buyer 1 pays $c+\frac{1}{2}(v_1-c)$, which is higher than the price buyer 2 pays, i.e. $c+\frac{1}{2}(v_1-c)>c+\frac{1}{2}(v_2-c)$. Hence, fair trading in this sense stipulates personalized prices, and thus price discrimination. According to this fairness notion each buyer contributes half of his valuation in excess of the production costs.

An alternative fairness criterion could be a uniform price for everybody. Clearly, such a uniform price would generally leave more surplus to high-valuation buyers than low-valuation buyers. Furthermore, in slightly more general settings a uniform price might also exclude buyers with very low valuations from an otherwise potentially profitable trade. This might happen especially when there are no competing sellers, or when competition is imperfect.

Third, in environments with competition price discrimination leads to intensified competition and reduces market power. Consequently, price discrimination has a disciplining and efficiency-enhancing role. This is particularly useful for consumers. Of course, in case of monopoly the competition-promoting benefits cannot materialize. In this case, the monopoly firm will be able to extract higher rents if it is allowed to price discriminate. Nevertheless, even in this case, a limited degree of price discrimination can enhance consumer welfare.

So, in economic terms, and for good reasons, price discrimination may be seen as a pre-condition for fair pricing. Moreover, in many economic situations it induces efficiency improvements. Given these beneficial aspects of price discrimination, why is there so much public concern about it? And why could it be seen as an abuse of a dominant market position?

A slightly cynical view would say that this view stems from a human desire for simple rules. Uniform and unconditional pricing rules allow direct price comparisons and simple arbitrage. Complex rules, such as discriminatory pricing schemes, are more difficult to understand, to arbitrage so as to eliminate price differentials and to legislate, if necessary. So, for example, with discriminatory pricing schemes collusion may be much harder to detect for antitrust authorities, since the firms can apply more sophisticated coordination schemes. But more generally, the unease about the possible long-term consequences of price discrimination may generate a psychological barrier against such a practice.

Alternatively, one might posit that like any other form of discrimination also price discrimination is inherently unfair.

Obviously, such a claim would use a different fairness notion than a simple split of surplus in trades. But undoubtedly, the concept of fairness is relevant and even directly written into the law (see the reference to fair pricing in Article 82 of the EC Treaty). Our discussion so far already highlights that different fairness notions can be applied and that the law is completely silent about the specific norm to be applied in that respect.

From a political-economical perspective one could be tempted to argue that a ban on price discrimination actually benefits the industry by reducing competitive pressure. So, if such a view is correct, the law could essentially be seen to reflect successful lobbying activities of special interest groups defending industry profits.

Finally, if the competition authorities face more severe challenges associated with the enforcement of competition when firms apply discriminatory price schemes, perfect price discrimination would be a more effective instrument for the exploitation of consumers than uniform pricing. The alleged fairness or efficiency benefits of price discrimination require active competition and the absence of collusion among sellers.

While this list of potential arguments against price discrimination is far from exhaustive, we will concentrate the following discussion on three main themes. In section 5.4 we will discuss fairness-related reasons for banning price discrimination. In section 5.5 we discuss political-economical arguments for such a ban and in section 5.6 we will discuss the issue of detecting collusion and the effectiveness of antitrust policies.

5.3 Preferences for simple rules

Pricing rules that condition on (observable) consumer characteristics are clearly more complex than uniform pricing rules. For that reason the economic consequences of complex pricing schemes may be more difficult to assess for consumers. If there are substantial

psychological costs associated with complex pricing schemes, those costs may dominate relative to the potential short term cost savings.

For example, the liberalization of the telecommunication market in Germany was heralded with bitter comments from politicians and the media that the entry of competitors would introduce more complex pricing schemes and, thus, induce a high degree of "intransparency" into the German telecommunication market. While a lack of transparency clearly puts buyers at the risk of not shopping at the best price, clearly liberalization meant that average and even maximum prices were significantly reduced. But apparently, according to some opponents of liberalization, the psychological costs of not shopping at the best price should be traded-off against the clear cost savings due to more intense competition. This argument might have some support from prospect theory (Kahnemann and Tversky, 1979) and psychological evidence according to which people attach higher weight on potential losses than on comparable potential gains.

Of course, the uneasiness about price discrimination can also be rationalized. The feasibility of price discrimination requires the collection of sensitive private information by numerous companies. On a societal level, it may be difficult to ensure the privacy of this information. Due to management errors, fraudulent behaviour or simply the process of mergers and takeovers this private information may fall into hands that should not have access to it (such as insurance companies or lending institutions, for example). A ban on price discrimination could support privacy and reduce or even eliminate the incentive to collect information about individual consumer characteristics.[3]

Moreover, in a more complex environment fairness criteria easily get blurred. While, for example, equal access to medical services is a generally accepted notion of fairness, it becomes blurred when different risk categories are considered. Is it fair that smokers should

[3] For an extensive and topical discussion of the relationship between price discrimination and privacy in the internet age we refer to Odlyzko (2003).

pay the same insurance fees as non-smokers?[4] Also, should motor-racing be included in standard car insurance? These examples show that abstract fairness criteria become questionable when the reality of a more complex environment enters the picture.[5] A ban on complex pricing also ensures consensus on elementary fairness concepts.

5.4 Fair pricing

A standard argument for banning price discrimination posits that every consumer should pay the same price for comparable transactions. In particular, this fairness notion implies that the price should not depend on the valuation of the buyer, or any other characteristic. In principle, this notion does not necessarily seem to be consistent with discounts, trade-ins or other forms of side payments from sellers to buyers.

Under the "equal-price" doctrine, however, high-valuation buyers are protected against haggling, while low-valuation buyers pay a relatively high price. Buyers with valuations barely exceeding marginal costs of production may actually be excluded from a market with a uniform price. In this sense the "equal-price" doctrine does not imply equal market access. It favours high-valuation buyers, which in many applications tend to be the wealthy buyers.

In contrast, one might define fairness in terms of equal market access. According to this fairness notion, buyers with valuations exceeding marginal production costs should be allowed to engage in

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[4] One might argue that the health hazards introduced by smoking are the consequences of improper (or even unfair) behaviour, and thus should be covered privately by the smoker in question. According to this fairness notion every insured person should take care and try to minimize the cost inflicted on the community of insured persons.

[5] Also simple economic experiments demonstrate that fairness concepts become blurred among contestants when the environment becomes more complex (e.g. Gehrig, Güth and Levinsky (2003)).

trade and participate in sharing the surplus. One might even argue that especially buyers with low valuations should be able to participate in sharing the potential surpluses from trade. In markets with market power equal access, however, necessarily means that low-valuation buyers will have to pay lower prices than high valuation buyers. In other words, the equal access doctrine directly implies price discrimination in markets with imperfect competition.

As these simple examples demonstrate, fairness per se may not be a sufficient reason for banning price discrimination. Even among the simple fairness notions of "equal price", "equal access" and "equal split of surplus" only the first concept seems to be consistent with uniform pricing, while the remaining two notions seem to require discriminatory pricing.

Finally, it may even be questionable whether bans on price discrimination need to be imposed externally by regulators. Rotemberg (2005) argues that buyers may endogenously discipline sellers for pricing behaviour that is considered unfair by them – not by regulators. Rotemberg argues that concerns for buyer reactions may lead sellers to price discriminate. Thus price rigidity and occasional sales, both forms of intertemporal price discrimination, can be jointly explained as a pricing policy to avoid offending buyers in periods of shortage. Buyers might consider it rather unfair or even as outright exploitation of a state of emergency, when prices are increased in periods of severe shortages. So they explicitly demand favourable pricing in periods of distress as part of their fairness concept. In competitive markets firms have strong incentives to comply with such notions and will select the proper pricing rule accordingly.

5.5 Mechanisms to relax price competition

In this section we relate the competitiveness of a market to the possibility of price discrimination. We start with a short comparison of perfect price discrimination and uniform pricing, both in the case

of duopoly competition and in monopoly (cartel). We then extend the analysis and demonstrate how behaviour-based discrimination can generate very similar results as perfectly price discrimination. We show that in competitive environments a ban on price discrimination always enhances industry profits. Accordingly, industry lobbies might attempt to affect legislation, regulatory practices or "business norms" in such a way that market pressures are reduced and industry profitability is raised. Finally, even when it is not desirable to ban price discrimination, as for example in the case of lending histories, alternative institutions can be developed, such as information sharing, that reduce the competitiveness of markets.

5.5.1 Discriminatory versus uniform pricing

Price discrimination is a mechanism whereby a monopolist can shift surplus from the consumer sector. With perfect price discrimination the monopolist would be able to extract all the consumer surplus, and in this way price discrimination would stimulate the profits of the monopolist. This mechanism does not carry over to market structures with competing firms. We will demonstrate this within the framework of a standard Hotelling duopoly model.

Assume that consumers with common valuation v are uniformly distributed on a characteristics space, which we take to be the unit interval [0,1]. The firms are located on both ends of the characteristics space. More precisely, let firm A be located at 0 and firm B at 1. Each consumer pays a constant inconvenience cost t proportional to the distance of the chosen supplier from the consumer-specific ideal location, which corresponds to the consumer's ideal variety. Production takes place at constant marginal cost normalized to zero. Furthermore, the consumers are assumed to hold such a high valuation for the products offered that each consumers buys from one or the other of the suppliers.

Now assume that the firms can observe a consumer's location x ($x \in [0,1]$), and set the consumer-specific price contingent on this address. Clearly, firm A will be able to capture a consumer located at x if $p_A(x) + t\,x \leq p_B(x) + t(1-x)$, where $p_i(x)$ denotes the price firm i (i=A,B) charges to consumer x. It can be shown (see, for example, Thisse and Vives, 1988) that the equilibrium with perfectly discriminatory prices are given by $p_A^D(x) = \max(t(1-2x),0)$ and $p_B^D(x) = \max(t(-1+2x),0)$. We illustrate this price equilibrium in Figure 1 (see p. 160). The associated equilibrium profits would be $\pi_i^D = \frac{t}{4}$ (i=A,B) for each of the two duopolists.

We now compare the equilibrium with perfectly individualized prices to the associated configuration with uniform prices. Within the framework of this Hotelling model, it is well known that the equilibrium with uniform prices is $p_i^U = t$ and that the associated equilibrium profits are $\pi_i^U = \frac{t}{2}$ (i=A,B) for each of the competitors (see Figure 2, p 160) Consumers, for example, at location $x = \frac{1}{2}$ enjoy a net benefit of $B^U = p^U - \frac{t}{2} = v - \frac{3t}{2}$ with uniform pricing. This benefit is clearly higher, $B^D = v - p^D\left(\frac{1}{2}\right) - \frac{t}{2} = v - \frac{t}{2}$, in the discriminatory price equilibrium. In fact, any consumer with characteristics $0 < x < 1$ pays a strictly lower price under price discrimination, and hence favours the practice of price discrimination. A ban on price discrimination would force the consumers to pay the higher equilibrium prices that will occur in a uniform pricing regime and thereby shift surplus from consumers to producers.

Discriminatory pricing essentially enlarges the set of strategic pricing options available to competing firms. With individualized prices firms are able to fine-tune prices with respect to buyer

characteristics. When competitors stick to uniform prices, deviating to discriminatory pricing rules typically generates a strategic advantage to a given seller. However, when all sellers realize the strategic potential of price discrimination and apply discriminatory pricing, the overall intensity of competition is increased in the whole market. In consequence, all competitors in the industry are hurt by lower margins, whereas the consumers benefit. Thus, with oligopolistic competition the availability of schemes for individualized prices catch firms in a classical "prisoner dilemma" trap. A commitment not to price discriminate would benefit all the firms collectively, but each individual firm will have a strategic incentive to deviate and introduce a discriminatory pricing scheme. For that reason, discriminatory pricing schemes will represent the non-cooperative industry equilibrium.

The competing firms would have a strong joint incentive to create mechanisms so as to coordinate the pricing rules applied by the firms. Essentially, any mechanism able to coordinate the pricing rules to uniform prices would be equivalent to a collusive device, increasing industry profits from $\frac{t}{2}$ to t. In this sense, any legal interpretation of fairness as a support for a ban of price discrimination would solve the industry's coordination problem and implement uniform pricing schemes. This would indeed be a convenient world for firms looking for ways to extract a larger fraction of the consumer surplus. If price discrimination were for form-based legal reasons explicitly banned by competition law, deviations from uniform pricing schemes would even be monitored and punished by antitrust authorities. But wouldn't the antitrust authorities under such circumstances take the role of enforcing collusive outcomes rather than the role of promoting competition? While fairness may be a valid concern of policymakers in its own right, fairness concepts can easily be misused as a pretext by lobbyists in order to influence the legislative process. Likewise, as

illustrated by the arguments above, form-based implementation[6] of antitrust legislation can generate an industry-friendly environment, which effectively undermines, or at least significantly weakens, the possibilities of the antitrust authorities to promote competition.[7]

Of course, the benefits of competition cannot materialize under a market structure with monopoly. Without competition, or threat thereof, the monopolist can use the richer strategy space represented by individualized prices in order to fine-tune the transfer of surplus from consumers to the producer to the detriment of buyers. In the extreme, a perfectly discriminating monopolist captures all the gains from trade. Clearly, the concern for consumer surplus may be a valid reason to ban price discrimination. This is also the case, when fairness considerations mandate a ban on discrimination. Note, however, that this rationale only applies to monopolies or to cartels in economies with ineffective antitrust enforcement. Only when antitrust authorities cannot be trusted to detect and discipline cartels, will a ban on price discrimination be a useful safeguard against expropriation of consumer surplus by cartels. For similar reasons a ban on price discrimination might also be justified in the presence of national champions with a foundation associated with industrial policy. As we have argued in this section, in truly competitive markets, however, consumers typically benefit from price discrimination. In competitive environments, a ban on price discrimination would create a coordination mechanism to implement uniform pricing rules, which would prevent consumers from benefiting from the intensified competition induced by discriminatory pricing schemes.

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[6] For a more extensive set of general arguments in favour of an effects-based rather than a form-based approach to antitrust issues we refer to Gual, Hellwig, Perrot, Polo, Rey, Schmidt and Stenbacka (2005).

[7] On the various disguises lobbyists might use in order to promote their interests see Eucken (1940, especially p. 257). Eucken argues that lobbyists will opportunistically seek scientific support whenever convenient, be it theological, philosophical, historical or legal.

5.5.2 Behaviour-based discrimination

While the analysis above has concentrated on the comparison of uniform pricing with perfect price discrimination, one might argue that the informational requirements for perfect discrimination are unrealistically demanding and therefore not relevant for real-world applications. The purpose of this section is to demonstrate that such reasoning may not necessarily be convincing. By tracking purchase histories and conditioning offers on those histories, sellers can effectively approximate perfect price discrimination.[8] The more information is processed, i.e. the longer histories are recorded, the closer will equilibrium pricing based on purchase histories resemble perfect price discrimination.

In order to see this, consider an intertemporal version of the standard Hotelling framework, introduced in the previous section, with repeated price competition. Without specific information about consumer characteristics ("locations") duopolists necessarily compete in uniform prices in the absence of purchase histories, in period 1. However, in period 2 already, they can condition prices on observed purchase histories. They can differentiate between the prices they charge to customers with whom they have established a customer relationship and the prices by which they try to attract new consumers. In particular, they will attempt to poach the rival's consumers and new business, and at the same time defend captive clients against the poaching activities of rivals.

Assume that the duopolists compete with uniform prices in period 1. As we have demonstrated in the previous section the uniform equilibrium prices are $p_i^U = t$ (i=A,B), and this leads to market segments denoted by A and B as illustrated in Figure 2 (see p. 160).

With behaviour-based discrimination the firm can offer different prices to former customers and new customers. So even when the

[8] Also Chen (2005) focuses on behaviour-based price discrimination.

firm cannot observe the precise location of its customers, the first-period choice is informative about the location. In equilibrium, firm A may infer from loyal consumers that their location has to be $x \le 0.5$. Accordingly, consumer that did not buy must be characterized by locations $x \ge 0.5$. Hence, in period 2 firm A is tempted to poach consumers with locations $x \ge 0.5$ from rival B by offering a particularly attractive offer, while fending off the rival's poaching activities for its own loyal consumers with locations $x \le 0.5$. It turns out that in period 2 the equilibrium incumbency price exceeds (constant) marginal costs by $\frac{2}{3}t$, while the more aggressive poaching price exceeds marginal cost by $\frac{1}{3}t$. In period 2 consumers in $\left[0, \frac{1}{3}\right]$ will remain loyal with A, while B succeeds in poaching consumers in $\left[\frac{1}{3}, \frac{1}{2}\right]$. This is illustrated in Figure 3 (see p. 161). In a symmetric way, A poaches in region $\left[\frac{1}{2}, \frac{2}{3}\right]$, while B successfully defends established relationships for customers belonging to the segment $\left[\frac{2}{3}, 1\right]$.

Thus, history-dependant prices generate sizeable price reductions in period 2 for each consumer. Accordingly, consumer surplus increases at the expense of lower industry profits, which decline from $\frac{t}{2}$ to $\frac{2}{9}t + \frac{1}{18}t = \frac{5}{18}t$. For the loyal consumers in regions $\left[0, \frac{1}{3}\right]$ and $\left[\frac{2}{3}, 1\right]$ the average consumer surplus is the same as under perfect competitive price discrimination.

When history-based pricing can be made contingent on even longer purchase histories, it can be shown that in our example, ultimately equilibrium prices will converge to the limiting case of

perfect price discrimination, because in each repetition new information is generated. In the limit, the specific shopping history reveals the precise consumer location to both duopolists.[9] Even if convergence to perfect price discrimination might not occur in slightly more complex environments, we would still expect that various forms of behaviour-based pricing would generate similar improvements of consumer surplus.

As before, also a cartel can learn from observed consumer behaviour and adjust prices over time accordingly. Clearly, this form of learning is detrimental to consumers, since their surplus is increasingly transferred into industry profits. With strategic consumers, however, the question remains as to the limits of the learning process.

5.5.3 Information sharing

Particular business practices may serve as competition-relaxing devices under circumstances where firms compete with behaviour-based discriminatory pricing schemes. In this section we will demonstrate how information exchange between competitors may serve such a competition-relaxing function in credit markets. In the literature, a number of similar mechanisms, such as most-favoured nations clauses or meet-competition clauses, can be found. Especially, meet-competition clauses represent a mechanism for firms to learn from consumers' past shopping behaviour.

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[9] Strictly speaking, our argument requires that consumers behave non-strategically. Of course, since the convergence to perfect price discrimination implies redistribution of consumer surplus, consumers may want to behave strategically in order to avoid expected losses. Technical details of the argument can be requested from the authors.

In most countries information sharing in credit markets is either mandated or strongly encouraged by regulatory agencies[10]. Information sharing enhances the ability of banks to target discriminatory lending rates more accurately to the credit history of borrowers or applicants for funding. Thus, information sharing actually improves the accuracy of behaviour-based discrimination and, therefore, intensifies ex-post competition. However, by enhancing price competition in later periods through price discrimination, ex-ante competition for the formation of customer relationships may be relaxed. Likewise the ex-ante incentive to collect and produce information can be impaired by more intense ex-post competition. Gehrig and Stenbacka (2005) demonstrate that the adverse consequences of reduced ex-ante competition may dominate the benefits of increased competition at later stages.

Following Gehrig and Stenbacka (2005), consider a credit market where two lenders compete with a horizon of two periods. In period 1 the ex-ante identical banks compete for borrowers with the lending rates as instruments. At this stage competition is symmetric because banks have identical information about the characteristics of an adversely selected borrower pool consisting of two types of loan applicants: applicants who are creditworthy and those who are not. In period 2 banks can effectively benefit from the lending relationship established in period 1, because they learn their customer characteristics in period 1. Hence, in period 2 competition is asymmetric because now each bank enjoys an informational advantage with respect to its own customers and an informational disadvantage with respect to the customers of the rival bank. Banking relationships are of mutual advantage, since banks can acquire information about customer types and customers benefit from access to associated financial services and the fact that they are already "known", the so-called relationship benefits. For this reason the customers face switching costs if they change their bank and we

[10] For an international survey of the use and forms of information sharing in banking we refer to Japelli and Pagano (2002).

assume that these switching costs vary across customers. Borrowers with high switching costs prefer to remain loyal to their incumbent bank, while more "footloose" customers are more easily lured away by sufficiently attractive poaching offers from the competing bank. Consequently, in period 2 banks can exploit switching costs by price discriminating according to the borrower histories.

Ex-ante competition between banks, at the stage when the lending relationships are formed, effectively eliminates all the discounted rents, which can be generated inside a customer relationship. Hence, in equilibrium banks discount the expected returns protected by the relationship benefits by pricing below marginal costs in period 1. Nevertheless, banks can always secure the poaching profit that they could earn if they only entered at stage 2 and would poach the full market as long as they are unable to credibly commit themselves to future prices in period 1. The history-contingent price discrimination, which separates the incumbency profit from the poaching profit, is crucial for the survival of this poaching profit.

We now follow Gehrig and Stenbacka (2005) and introduce an institution for information exchange between the banks. With an institution of information sharing banks are assumed to commit themselves to share project-specific information completely. In this framework information sharing eliminates the adverse selection problem in period 2 and essentially makes it possible for poachers to target their offers exclusively to creditworthy borrowers. Hence, the effect of information sharing is to make poaching more profitable. But, by promoting poaching profitability information sharing at the same time reduces the value of lending relationships, which, in turn, relaxes price competition in period 1. In consequence, information sharing allows banks to secure higher poaching revenues and higher aggregate profits, while creditworthy borrowers will face higher average loan rates. Moreover, the intertemporal profile of loan rates is flatter under information sharing.

The argument presented above implies that information sharing magnifies any potentially existing rents to the banking industry.[11] Essentially information sharing between banks redistributes surplus from creditworthy borrowers without an established credit record to the banking industry. New creditworthy customers face worse offers under information sharing relative to competition without information sharing and may even be excluded from the lending market.

These results have interesting implications for competition policy. In perfectly competitive loan markets the institution of information sharing is a matter of irrelevance, and, therefore, of little concern. However, when banks have market power information sharing in lending markets magnifies any existing industry rents and it represents a redistribution from creditworthy borrowers to banks. Whether there are social gains from information sharing depends on the relative weight society places on the revenues of talented entrepreneurs and banking profits. If for some reason the funding of good projects were sufficiently much more important for the economy than the ability to avoid credit risks the implicit transfers from talented entrepreneurs to banks would reduce welfare.

Conversely, as the earlier evaluations of information sharing have strongly argued,[12] information sharing tends to promote the stability of the banking system and for that reason prudential supervisory concerns may well override the potential anti-competitive concerns raised above. Ultimately, the relative

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[11] This insight extends the analysis of information sharing in the theoretical oligopoly literature (see, for example, Shapiro (1985) or Gal-Or (1985), (1986)). By focusing exclusively on uniform pricing this literature generally finds that the direction of the ex ante incentives for oligopolists to commit themselves to information sharing depends on the nature of market competition (Bertrand or Cournot) and on the type of uncertainty (uncertainty concerning common demand conditions or firm-specific costs).

[12] See, for example, Pagano and Japelli (1993) as well as Padilla and Pagano (1997), (2000).

importance of potential anti-competitive concerns depend on the degree of market power in the specific loan market, and, thus, on the characteristics of the lending market. Nevertheless, the higher the degree of banks' market power in the loan markets, the more urgent are potentially anti-competitive concerns associated with information sharing.

5.6 Collusion and the effectiveness of antitrust enforcement

As we have seen, price discrimination tends to render oligopolistic product markets more competitive. In the short run this benefits consumers. However, if oligopolistic firms are engaged in repeated competition the picture might change. Under conditions of repeated competition the firms may be able to sustain tacit collusion in a non-cooperative way. As the supergame literature demonstrates, the ability to sustain tacit collusion is improved if firms have access to more severe punishments in response to potential deviations from the collusive outcome. As price discrimination leads to more intense competition than uniform prices, the industry can sustain implicit collusion under circumstances with lower discount factors. Alternatively, for a given discount factor, the industry can sustain a higher degree of collusion when it applies discriminatory pricing schemes. In these respects, discriminatory pricing schemes promote the stability of collusion and enhance the likelihood of collusion to occur.[13]

From the above, it follows that collusion tends to be more costly to consumers under (perfect) price discrimination than under uniform pricing. This is true irrespectively of whether we evaluate it from a fairness perspective or from the perspective of consumer

[13] Here we have assumed that firms, which are engaged in tacit collusion, are able to detect deviations from a coordinated outcome no matter whether firms compete with discriminatory prices or uniform prices.

welfare. The justifications for a form-based ban on price discrimination are therefore stronger on both accounts the weaker is the enforcement power of the antitrust authorities and the lower is the ability of antitrust authorities to detect collusion. In this respect we cannot separate normative positions on price discrimination from assessments about the ability of antitrust authorities to detect collusion and enforce competition.

This observation is all the more relevant since with price discrimination the vastly larger strategy space of sellers will typically allow for rather sublime collusive schemes. Especially, when sellers engage in partial collusion, it will be very difficult for any enforcement authority to discover tacit coordination in pricing schemes.[14] For example, sellers could collude on high prices in profitable niches and much more moderate prices in niches with little demand, such that average prices may appear to exhibit moderate mark-ups. Even under the favourable circumstances when the competition authorities are able to observe marginal costs, they might not be able to discover the collusive scheme, when other characteristics, such as location and inconvenience costs, are not observed.

It should also be emphasized that the notion of a market price, an average price or a mean price have no particular meaning in a world where firms engage in price discrimination. Ideally enforcement authorities should be able to observe the full distribution of trading prices in order to detect (partial) collusion in certain consumer segments. However, this requires substantially larger resources for

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[14] In the examples presented above, the implied price distributions differ in their mass points and in their support. Nevertheless, it will be difficult for an antitrust authority to measure those differences with any degree of precision. Moreover, when colluding firms strategically take into account the detection activities of antitrust authorities, it will become very hard for the enforcement authorities to provide clear and convincing evidence of collusive industry conduct.

detection, and, thus, makes it even harder to detect implicit collusion.

Overall, we argue that a proper assessment of the practice of price discrimination decisively depends on the ability of antitrust authorities to enforce competition. Of course, under all circumstances it is very difficult to detect tacit collusion based on time-series patterns of prices with such a degree of accuracy that it would serve as "evidence beyond doubt" in practical court cases.[15] But, as we have argued above, this holds true to a much higher extent when firms apply discriminatory price schemes rather than uniform prices. Furthermore, the improved ability to sustain collusion with price discrimination might be highly significant for purposes of merger control, in particular when the competition authorities assess coordinated-effects in association with evaluations of the structural consequences for competition of mergers.

5.7 Concluding comments

In the digital economy price discrimination will be an increasingly widespread business practice. Price discrimination is intimately related to the collection and analysis of potentially sensitive personal characteristics of consumers, which means that the debate about banning price discrimination cannot be separated from concerns about privacy.

In this contribution we argue that it is difficult to ban price discrimination by reference to fairness considerations. In fact, we argue that most fairness concepts, such as equal market access or equal split of surplus, tend to imply some degree of price discrimination. Essentially, alleged fairness criteria in favour of banning price discrimination seem to be reduced to a simple-minded "equal-price doctrine". The issue of banning price discrimination seems to be orthogonal to fairness considerations.

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[15] For strong arguments along these lines we refer to Kühn (2001).

Typically, price discrimination leads to more intense competition in oligopolistic industries than uniform price schemes. However, price discrimination also enhances the possibilities of coordinated cartels to extract rents from consumers. Hence, on the grounds of consumer welfare we identify a strong complementarity between price discrimination and the effectiveness of antitrust enforcement, which might be particularly relevant for merger control in cases with coordinated-effects mergers. Consumers can be sure to benefit from price discrimination only in countries where they can rely on protection from strong antitrust enforcement with a sufficiently good ability to detect collusion, not only with respect to uniform prices but also with respect to discriminatory schemes. In corrupt or otherwise ineffective antitrust environments a ban on discriminatory pricing serves to limit the transfer of rents from consumers to cartels.

To the extent that consumers fear data misuse of information or simply the complexity of non-linear pricing, uniform pricing limits the diffuse uneasiness about potential risks and, may, thus, seem desirable. However, legislators should also take into account that such arguments can easily play into the hands of industry lobbies interested in uniform pricing rules with the goal of reducing the degree of competition and maintaining industry profitability at the expense of consumers. Even with strong antitrust enforcement and a good ability to detect collusive schemes, a legal form-based ban on price discrimination runs the risk of enhancing industry profits at the expense of consumers.

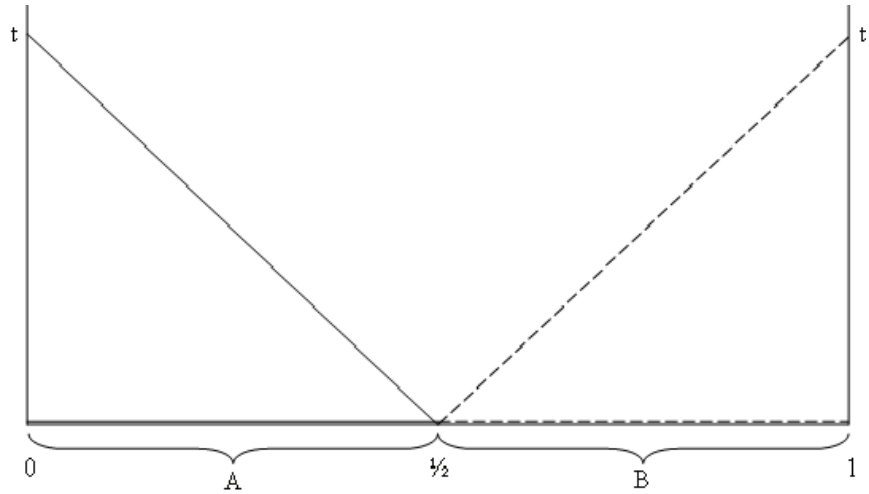

Figure 1: Equilibrium Prices with Perfect Price Discrimination

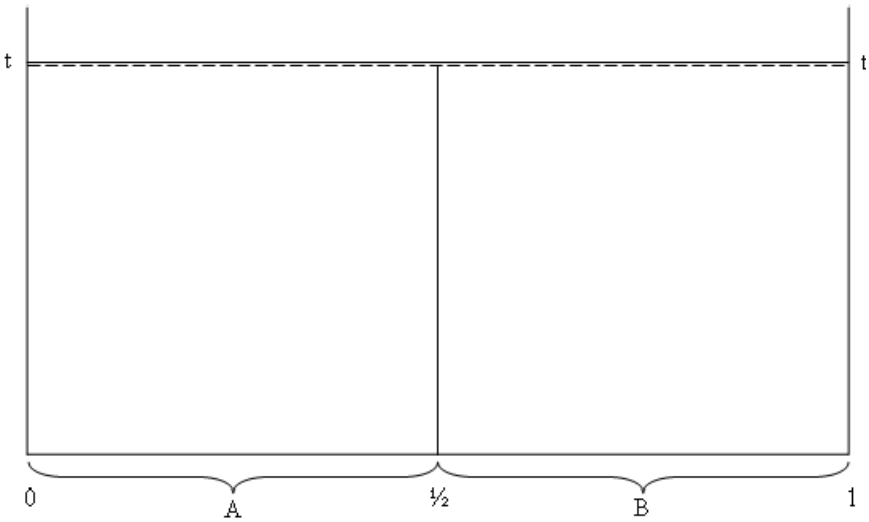

Figure 2: Equilibrium Prices with Uniform Pricing

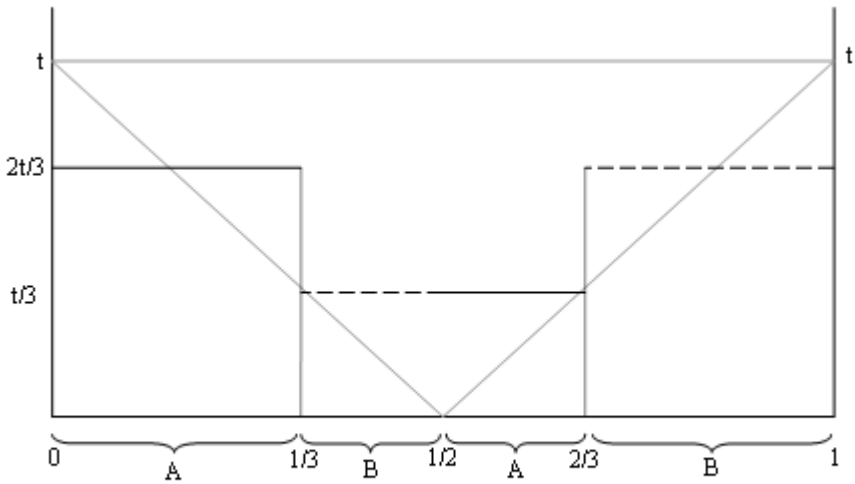

Figure 3: Equilibrium Prices with Behaviour-Based Pricing in period 2

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6. Towards an effects-based approach of price discrimination

Anne Perrot

6.1 Introduction

"Price discrimination" sounds very different to economists' and to lawyers' ears. Whereas for the former, price discrimination refers to the "individualization" of the prices paid by different buyers, it often means "unfairness" to the latter. This is reflected by the text law that prevails in the field of competition policy, and indeed competition policy has often fined discriminatory behaviours by (dominant) firms.

As it is well known, price discrimination has in general ambiguous effects on the global welfare: on the one hand, it allows the firm that price discriminates to better exploit the heterogeneity between consumers regarding their willingness to pay (which often amounts to differences between their revenues). It is therefore in most cases beneficial for the firm, and it is this "exploitative" effect of the practice that makes lawyers suspicious with regard to discrimination. On the other hand, some consumers may indeed benefit from price discrimination (in particular those for whom price discrimination implies lower prices) whereas others (those for whom price discrimination rises the price they pay) suffer from it. The overall result on consumers' surplus and on the total welfare may thus be positive or negative, depending on the dominant effect. In the case where discrimination applies to an intermediate market (like in the case of retailers discriminated by an upstream firm) some additional effects are at work.

This line of arguments, which holds the market structure as fixed, is not sufficient to draw unambiguous conclusions even in specific cases: price discrimination or the ban on it has also an impact on entry and exit. For instance, forcing uniform pricing may induce the firm to abandon the market segment of consumers who have a low willingness to pay in order to serve (with higher prices and margins) only those consumers that are willing to pay a high price. In this case, discrimination banning may induce exit of firms on some market segments.

Very often, discrimination takes the form of another – potentially anticompetitive - practice: for instance, it may result from targeted rebates, designed towards some specific customers who could switch to other (rival) suppliers; another example is "mixed bundling", where consumers face different prices for a good according to the way they buy it: if the good belongs to a bundle, the resulting price is usually lower. When price discrimination results from quantity discounts, the price paid for a given good or service then differs according to the intensity of preferences of consumers for the good.

What makes the analysis of price discrimination even more complex is that in some cases, it takes the form of explicit discrimination (the price paid by a buyer depends on some observable characteristics, that have thus to be monitored by the firm: age, location of the customer, etc…) whereas in others it takes the form of self selection by buyers themselves: the firm then offers a menu of prices among which consumers choose the most convenient for them. Consider the case of non-linear tariffs: according to the knowledge of its own demand, each consumer chooses the unit price that fits best to its consumption structure. Note that effective price discrimination is only possible when arbitrage is impossible, or at least limited: would arbitrage be possible, then a buyer facing a high price could profitably buy to another one facing lower prices. Therefore, price discrimination is often accompanied by measures that restrict the ability to make arbitrage, and these practices may be viewed as per se anti-competitive.

In the European context, the objective of building a single market also interferes with the analysis of price discrimination and leads to a different situation for European Competition Authority (the Commission and the courts) and for national authorities. A dominant firm that offers different prices to consumers belonging to different member states may be found guilty even if this form of discrimination does not have any anti-competitive purpose or effect: the practice may nevertheless be viewed as an obstacle to build a single common market and may be fined as such. The interaction between these different goals of the European competition policy leads to a situation where it is often difficult to find economic foundations to a decision, because various arguments are mixed together.

Article 82 of the Treaty, that deals with abuses of dominant positions, distinguishes between practices "limiting production, markets, or technical developments to the prejudice of consumers" (82(b)) and those through which firms "apply dissimilar conditions to equivalent transactions with other trading parties, thereby placing them at a competitive disadvantage" (82(c)). Therefore, Article 82 makes a difference between practices applied to final consumers even these practices involve a form of price discrimination, (which may involve quantity discount, targeted rebates, bundling…) and discrimination towards agents that are themselves competitors on another market, typically, towards downstream firms in a vertical relationship. In this paper, we argue that such a distinction is not relevant, and that an approach of price discrimination that would rely on sound economic foundations would rather analyze practices according to their effects on markets, and in particular to their exclusionary effect either on the home market of the firm or on an adjacent market. According to this view[1], what matters is not the type of downstream agents to whom discrimination applies (final consumers or firms that compete themselves on a downstream

[1] Which is more completely developed in the EAGCP report "An economic approach to Article 82".

market) but the potentially exclusionary effects it conveys. Other abuses of dominant position, as rebates, bundling or predation, often imply short term losses for the firm that puts the practice at work. On the opposite, discrimination usually increases the firm's profit in the short run, and may thus be viewed more likely as anti-competitive. But discrimination can increase simultaneously the firm's and consumers surplus. Therefore the assessment of the effects of the practice should be carefully carried on and should rely on a consistent microeconomic story.

This effects-based approach allows competition authorities to adopt a uniform treatment of different practices that involve all price discrimination, like rebates or tying. These issues will be now discussed. First, we present a brief overview of the current approaches to price discrimination by the European Competition Authorities (the Commission, the court of first instance and the court of justice). Then we turn to some microeconomic analysis of price discrimination. Finally, we show how a competition authority should proceed in order to analyze a discrimination case and we suggest that price discrimination should not be treated differently from other practices which serve the same purpose.

6.1.1 Overview of the current approaches to price discrimination

As pointed out earlier, Article 82 makes a difference between practices that are designed to hurt competitors of the (dominant) firm, for instance through the capture of consumers, and those who are detrimental to firms that are not rivals of the firm initiating the practice, typically downstream firms between which an upstream firm discriminates. Geradin and Petit (2005) call practices that hurt competitors of the dominant firm "first line" price discrimination, and those which place customers at a disadvantage *vis-à-vis* other customers with whom they are competing "second line" price discrimination. According to these authors, the Commission and the

community courts (ECJ and CFI) have applied Article 82(c), which is designed to fight exclusively second line price discrimination, in cases for which Article 82(b) would have been more convenient, and vice versa.

A strict application of Article 82(c) requires first that price discrimination applies to trading partners of the dominant firm, second that these trading partners compete with each other, and finally that a competitive disadvantage between them is created. Therefore, following this distinction, the downstream market(s) on which these firms compete should be carefully identified, and the disadvantage resulting from price discrimination also.

In a number of cases, these steps are lacking and many cases have been sanctioned under Article 82(c) without a clear statement of the nature of the disadvantage created. This leads a number of scholars to think that the level of evidences required in order to find an abuse under 82(c) is quite low. According to a rigorous distinction between first line and second line effects, two kinds of mistakes may result from this confusion: a practice may be sanctioned under 82(c) despite the fact that discrimination has exclusionary effects on the competitors of the firm that discriminates and not on "trading partners"; or it may be sanctioned under 82(b) despite the fact that some downstream firms have incurred a competitive disadvantage with respect to others due to discrimination.

Geradin and Petit[2] mention give a number of examples of both categories. In many cases, the practice at work takes the form of rebates. Rebates are generally considered by the Commission and the Courts as non discriminatory provided that they reflect cost economies. In opposite cases, like for instance in Michelin II, the rebates have been found anti-competitive and discriminatory in the sense that they distorted competition between downstream competitors. Following the authors, this should have been fined under art. 82(c), which was not the case. By contrast, in the Hoffman Laroche case, fidelity rebates have been condemned under 82(c)

[2] See also Waelbroek M. (1995).

without any analysis of whether the rebates had an impact on downstream competition or not. Rather, the ECJ had in mind restrictions to competition on the dominant's firm market (a case that strictly speaking should have been fined under 82(b)), due to the fact that the customers of Hoffman had an incentive to continue to buy the products of the latter rather than to switch to rivals' ones, which was precisely the aim of the fidelity rebates system. The competitive damage took place on the direct rivals of Hoffman, however, the court sanctioned discrimination along 82(c) without looking for any competitive disadvantage between customers resulting from price discrimination by Hoffman. Many other cases, involving other forms of practice, have been fined under 82(c), without any assessment of the corresponding above mentioned conditions.

Further cases involving discrimination, with the consequence of creating a disadvantage in competition between downstream firms, have nevertheless been sanctioned under 82(b). In the Eurofix-Bauco v. Hilti case, selective price cuts were applied by Hilti to some of his customers, creating thus a disadvantage for the others. But the Commission focused on the exclusionary side of the practice, seeing this practice mainly as a mean to exclude its competitors.

Other situations, involving bundling and tying, reflect the same hesitation of the Commission or of the courts between the application of Articles 82(b) and 82(c). This contributes to increase the legal uncertainty that parties face.

What these example show is that different approaches to 82(b) and 82(c) lead to a confusing situation. On the one hand, the text law makes a clear-cut separation between practices that should be fined under Article 82(b) (because they constitute an abuse that hurts the rivals of the dominant firm) and those that should be the concern of Article 82(c) (because discrimination creates a disadvantage for some of the trading partners of the dominant firm).

This leads some authors, like Geradin and Petit, to argue in favour of a more rigorous application of the required criterion in order to apply 82(c), together with a case-by-case analysis. We share some of these views, in that the identification of the competitive

damage created by the practice should be carefully described. For instance, stating the market (downstream markets or home market of the discriminating firm) on which discrimination produces a competitive harm is obviously essential. However we depart from this approach on some points: more than requiring a stricter application of parts b or c of Article 82 to discrimination practices, we argue in favour of a similar treatment of practices that have the same impact on competition. Relying on economic analysis (2), we attempt to show (3) that the present confusing situation is due to the adoption of a form-based approach of Article 82. An economic approach would favour an analysis of the (exclusionary) effects of any practice, and would thus induce a more consistent analysis of different practices that have the same effect. Such an approach avoids the problem of getting deep into the research of what discrimination is and what it is not. In this spirit, discrimination involves all the practices in which consumers pay different prices according to the circumstances of their purchase. Discrimination is thus present in other practices like bundling, fidelity rebates, quantitative discounts etc. We now present some of the non strategic and of the strategic aspects of price discrimination.

6.1.2 Is price discrimination good or bad? Elements of microeconomic analysis

Some simple microeconomics allows to understand easily the welfare problems of price discrimination.[3] Some preliminary remarks are in order.

First, as mentioned earlier price discrimination refers for economists to the ability to charge individualized prices to different buyers. However, this individualization can take several forms. First degree discrimination is the case where the producer takes the whole

[3] For more details, see Tirole (1988) for price discrimination by a monopolist, Motta (2004), Varian (1989) or Stole (2005).

surplus of the consumer, that it, he charges to every consumer his reservation price. This situation relies on the assumption of perfect observability of consumers' preferences, a condition seldom met in practice. Second degree price discrimination applies precisely to these asymmetric information cases: the firm then offers a menu of tariffs to consumers among which, through a self selection mechanism, the latter pick the most advantageous contract. Second degree price discrimination can be found either in the case of a vertical relationship where a producer offers a menu of contracts to its retailers, or to discrimination with regard to final consumers, as in the case a mobile tariffs. A multi-product version of this self selection mechanism is present in bundling, where according to its preferences for the goods, consumers may choose to buy separate items or a bundle including two goods[4]. Third degree price discrimination, which also appears in asymmetric information contexts, refers to a situation where the price charged to a particular consumer depends on a signal related to the preferences of this consumer. Of course according to the informational and strategic context, these various forms of price discrimination may have very different impacts on consumers' surplus, as well as on firms' surplus. As we will see further, price discrimination may intensify or reduce competition when it is used as a strategic tool in an oligopoly.

Second, price discrimination has indeed different implications according to whether it applies to final consumers or to downstream firms. The reason why it is so is that whereas final consumers have usually independent demands, intermediate buyers compete on a final market and have thus interdependent (strategic) behaviours. Therefore, the demand addressed to the upstream firm by any of the downstream firms depends not only on the price this particular firm faces, but also on the prices faced by the others (see Katz (1987).

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[4] Single commodity bundling is also possible, as for instance when airline companies offer both one way and round trip tickets. See Adams W. and Yellen J. (1976).

Discrimination has thus different implications, from a competitive point of view, according to the customers to which it applies.

Third, some of the basic consequences of price discrimination simply result from a monopolist charging different prices to different consumers and only need to be developed in a non-strategic context. But in most cases, price discrimination takes place in oligopolistic market structures (at least, this is more often the relevant context for competition authorities). Therefore, strategic considerations add further to the basic welfare effects. These strategic effects may speak in favour or against discrimination as shown in what follows.

Let's turn first to the non strategic effects of discrimination.

Consider a firm facing a demand from two different groups of consumers. Heterogeneity between consumers comes from their willingness to pay: group 1 has a higher willingness to pay (or income) than group 2. Suppose that the firm is allowed to discriminate, that is, to offer two different prices to consumers characterised by high and low willingness to pay respectively. On the opposite, when the firm is not allowed to discriminate (that is, under a uniform price regime), it offers a single price to both classes of consumers. Each consumer chooses to buy the good according to the comparison between its willingness to pay and the price.

Two situations may appear when a single price is offered to both groups of consumers: at this given price, either both groups of consumers may find it advantageous to buy the good (this happens if the price lies under the willingness to pay of both groups) or group 2 may find it not profitable to buy the good, which happens if the price is too high compared to its willingness to pay[5] (that is, the price lies between the levels of the willingness to pay of the two groups). In turn, when discrimination is not allowed, the firm faces a trade off[6]: it may find it profitable to set a high price such that only the group 1 is served, in order to make a high unitary profit. Or it may

[5] Of course we do not consider the case where neither group would buy.

[6] We exclude here the case of universal service obligations, that could impose to serve both groups at the same price.

find it profitable to offer a price at which both groups of consumers buy he good: in this case, the price will be lower, but quantities are higher. The result of a price discrimination banning thus depends on the comparison of profits that the firm obtains when it serves one or two groups of consumers.

From the firm's point of view, discrimination, that opens a new pricing opportunity, is in general beneficial[7] (at least, the firm can always duplicate the optimal uniform price if discrimination is allowed). From the consumers point of view, the comparison between both regimes (uniform pricing or price discrimination) depends on whether both groups would buy under the uniform price regime or not (that is, whether the firm finds it profitable to set a price at which both groups buy the good). If it is the case, then consumers as a whole suffer from moving from uniform pricing to price discrimination, since a larger part of their surplus is then transferred to the firm. They would thus benefit from discrimination banning. On the opposite, when discrimination allows low valuation consumers to consume because they now benefit from a lower price, whereas they wouldn't under a uniform pricing, then it is beneficial for them; discrimination thus increases the surplus of these consumers. It enhances the consumers' surplus if the benefits of low valuation consumers is larger than the losses of high valuation consumers. The increase of the quantity sold is thus a necessary (but not a sufficient) condition for discrimination to have a positive impact on consumers.

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[7] It may be the case, however, that price discrimination banning plays the role of a commitment device not to lower some prices available to some consumers. The impossibility to price discriminate may then allow the firm to reach more profitable outcomes. Situations where these commitment problems arise are very close to those where a monopolist sells a durable good: it would benefit from a commitment not to lower its price after high valuation consumers have bought the good. Discrimination banning has the same effect than a "most favoured customer clause" through which a firm aims at committing itself to maintain high prices.

Note that the interests of consumers and that of the firm are not necessarily conflicting, the low income consumers (and possibly consumers as a whole) and the firm may have converging interests and may both prefer the case of discrimination. The previous results can of course be extended to many classes of consumers and levels of prices.

Apart from this basic mechanism, efficiency considerations may also prevail in a non strategic context: the most well know is the case where a firm incurs a large fixed cost. In this case, charging prices equal to marginal costs does not allow to cover the fixed cost. Prices thus need to lye above marginal costs. Discrimination allows the implementation of different margins to consumers endowed with different elasticities of demand, in the Ramsey spirit. Consumers with a lower elasticity contribute more than others to the recovery of fixed costs. Discrimination then facilitates the funding of costly investments.

The first lesson is that discrimination is certainly bad for consumers when it does not increase the quantities bought, since it then transfers their surplus to the firm without increasing consumption. The second lesson is that if discrimination banning leads the firm to leave the segment of consumers with low valuation in order to serve only high value consumers at a higher price, then discrimination banning is a bad thing: it leads in this case to a reduction in total quantity which is certainly disadvantageous for consumers.

This may give a first criterion which could be used in order to evaluate the anti-competitive effects of price discrimination: in order to favour consumers, price discrimination should at least increase total quantity.[8] Therefore, if discrimination decreases total quantities it is certainly bad from a welfare point of view.

The previous arguments are valid whatever the type of price discrimination that prevails, that is, whether discrimination is achieved through explicit price discrimination or by offering a menu of prices among which consumers self select. However they don't take into account the strategic interactions at work on an oligopolistic market. We now illustrate with examples some of the possible effects of price discrimination in a strategic context.

Take the case of a vertical relationship. This is precisely the market structure where Article 82(c) of the Treaty aims at preventing discriminations that would create disadvantages to some competitors. Again, economic theory provides a number of cases where discriminatory prices result from efficiency considerations. For example, in a context of asymmetric information between the upstream sellers and downstream buyers, incentive contracts result in non-linear prices: according to his type (for instance his ability to provide effort), each buyer picks a quantity. Different quantities are associated with different unit prices. Moreover, buyers differ here with respect to an unobservable characteristic, and discrimination

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[8] Some EC cases are relevant with regard to the question of whether discrimination should be considered as welfare improving or not. In the Volkswagen (I, II, III) cases, for instance, the Commission, in a decision of January 1998, prohibited vertical agreements between VW and its retailers in Germany and Italy. In this case, which has not been analyzed as a price discrimination issue, Volkswagen was denied the right to offer different prices to consumers of both countries. An important factual question would have been to check whether this prohibition had led to an increase or a decrease of the number of cars bought by Italian citizen. See section 5.1.3 below.

thus relies on unobservable heterogeneity. Price discrimination banning would lead to a less efficient vertical organisation.

But of course the use of discrimination may also involve exclusionary effects in a strategic context. It is the case if it takes the form of quantity rebates offered to some retailers in order to prevent them from selling competitors' products[9]: the rivals of the firm on the upstream market are then unable to have access to a retail network. Fidelity rebates are likely to have this consequence more often than simple quantity discounts, even if they also have positive incentive properties. This mechanism, where discrimination is used to prevent competitors of the discriminating firm on the upstream market to sell their products, may be associated with any case of discrimination in a vertical structure where one of the stages plays the role of an essential facility. Its consequences should then be analyzed in the same way than other forms of vertical exclusion, like exclusive dealing for instance.

In some cases, the explicit prohibition of price discrimination applies by the law to consumers involving different costs for the firm that serves them. For example, universal service obligations (USOs) often impose to firms to charge a uniform price to all consumers, these consumers being however located in different areas in which the firm incurs different costs of building network infrastructures. This is the "non-discrimination constraint", that is often imposed in addition to the "ubiquity constraint" in the field of universal service. In this case, the focus is put on the "unfairness" problem associated with the fact that consumers would pay different prices, would these prices reflect the costs[10]. But when the activity submitted to universal service obligations is open to new competitors, then the non-discrimination obligation may have various effects[11].

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[9] For an analysis of quantity rebates, see Snyder (1998) or Tyagi (2001).

[10] This is the type of problems lawyers often have in mind when they look at discrimination from an exploitative point of view.

[11] See Choné, Flochel, Perrot (2000).

On the one hand, the above mentioned effect appears: if the firm is only submitted to the ubiquity constraint, then it only faces the constraint to offer (possibly) different prices, at which all consumers are willing to buy the good. Therefore, when there is in addition a non-discrimination constraint, it doesn't change consumption (all consumers still buy the good) but the firm can only extract a smaller rent from consumers, who thus benefit from the non discrimination constraint in this monopolistic market structure.

On the other hand, this argument may be reversed when the effects on market structure are taken into account. Assume now that the market is open to new competitors. If the firm in charge with universal service faces the double constraint of (i) serving all consumers (ubiquity constraint) (ii) at the same price (non discrimination constraint), then it makes competition less intense on some market segments than what would prevail, would the ubiquity constraint apply alone. Therefore, the existence the non-discrimination constraint allows the entry of less efficient competitors and reduces the intensity of price competition. Price discrimination banning may thus be detrimental to welfare and may hurt consumers.

This example suggests that in a more general context, an assessment of the effects of price discrimination may be very different according to whether the market structure is held constant, or the possibility of entry and exit is taken into account.

Another consequence of price discrimination in a strategic context is that it allows firms to compete specifically on each market segment (or even on each consumer) rather than on the market as a whole. More generally, all the strategies that allow to individualize the purchasing conditions of the various buyers have this property. This in turn can intensify competition or induce more easily anti-competitive behaviour. This is particularly true if price discrimination takes the form of rebates targeted to specific customers, namely those who are more likely to switch to rivals. In this case, the consequence of price discrimination depends on the ability of the entrant to match the advantageous price offered to a

specific customer: if the rival can enter and match the price offered by the dominant firm, discrimination leads to a decrease of the price faced by this customer, and may benefit later to further ones. Therefore, price discrimination intensifies competition at least on specific customers. On the opposite, price discrimination amounts to "targeted predatory pricing", with the dominant firm incurring temporary losses on one customer in order to prevent him from switching to rivals, than it has the same exclusionary and anti-competitive effects than predation. Indeed, allowing a firm to discriminate can in this case have negative effects because it makes predation less costly: instead of lowering its price on the whole market, the firm needs only to concentrate its price cuts and its losses on market segments where switching is most plausible.

This example shows, however, that it is indeed the exclusionary effect of the practice that is at work that matters, and not the fact that the pricing strategy may be described as "predatory pricing" rather than as "discrimination". What matters is whether entry (or exit) is affected, and if the subsequent effects on intensity of competition are at work.

More generally, this suggests that the analysis of the effects of price discrimination on strategic behaviours of competitors on a market may be different according to the fact that entry and exit are taken as endogenous or exogenous. This aspect is of course very important for competition authorities which are more concerned by the effects of a practice on barriers to entry or on exclusion from a market, than by the specific level of price faced by a group of consumers.

When price discrimination is embedded in another practice, like bundling for instance, the same kind of analysis is required to determine the effects on consumers. Mixed bundling of goods (A and B) belonging to two adjacent markets consists in offering several possibility to consumers: they can either buy the good(s) separately, or they can buy a bundle including A and B sold at a price that lies under the sum of the stand-alone prices. Depending on the particular goods concerned, the proportion of both goods may be fixed or

variable. Consumers are thus discriminated, that is, the unit prices at which they buy goods A and B depend on the way they buy it. An example where bundling has a pure discriminatory effect is when it is used as a metering device: if one of the good is a fixed equipment and the other one a complementary product that may be used in variable proportions, the consumption of the latter may reveal the intensity of preferences of consumers on the fixed equipment. Therefore, offering the two goods as a bundle allows to price discriminate between consumers who value more or less the equipment good. The competitive effect is ambiguous, since the global effect combines the already mentioned welfare impact of the individualization of prices and that of strategic consequences of bundling, namely, the fact that the firm that offers bundles hopes to make the entry on its home market more difficult.

To sum up, the effects of discrimination should be analyzed through successive steps: an analysis of the non strategic effects of the practice (some of the efficiencies are part of this category) allows first to have a preliminary idea of who gains and who looses due to discrimination. The second step consists in analysing the strategic effects of discrimination, which is of course more complex. The next section develops some examples for the implementation of such an approach by competition authorities.

6.1.3 How should competition authorities deal with price discrimination?

When price discrimination leads to an expansion of the output, it is profitable with regard to a global surplus criterion, and it may also be the case with regard to a consumers' surplus criterion; but some consumers may still suffer, and the firm can also earn a greater part of the surplus. Competition authorities should thus be cautious in evaluating the effects of such a practice.

A preliminary remark is that competition authorities aim at protecting the interests of consumers, an objective that can be

achieved either by a more intense price competition, or by other dimensions of competitions between firms, like an increase in product's quality or variety. However, an increase in consumers' welfare is not necessarily in conflict with an increase in firms' profits. In the case of price discrimination, we have stressed that, holding the market structure constant, price discrimination can only be profitable for consumers when it increases the quantities consumed. In this case, the increase in total surplus may be shared between the firm and the consumers: the firms always benefit from having a larger set of pricing tools, and consumers under the assumption of an increase in quantities, have a higher surplus. The fact that firms earn more is thus not a signal of anti-competitive behaviour.

How should a competition authority should proceed in order to distinguish between price discrimination that serves anti-competitive purposes and discrimination that has positive effects on consumers' surplus?

From that point of view, some remarks are in order.

1. Some of the efficiency properties of price discrimination are at work whatever the market structure and the strategic context. For instance, no matter whether the firm is involved in a vertical relationship or may want to deter entry, increasing output may be motivated by the necessity of expanding production in order to recover large fixed costs. Price discrimination banning, if it reduces the scale of production, may in some cases discourage investment that require a large fixed cost. An assessment of the non strategic effects of price discrimination is a useful first step.

2. The issue of price discrimination is often encountered in the context of vertical relationships. In this context, price discrimination, associated with bilateral bargaining, may allow some retailers to obtain better conditions from their suppliers. If competition between retailers is sufficiently intense, these lower intermediate prices will turn into lower

retail prices and will thus the benefit of lower prices will be passed on to consumers. Therefore, these retailers and the consumers may suffer from the prohibition of price discrimination: the producer, constrained to offer these advantageous conditions to all his retailers, would be more reluctant to accept lower prices. If price discrimination is possible, on the opposite, the producer cannot use such an argument to reject the request for lower price from large retailers, who have a heavy weight in the bargaining process, and may prefer to lower the price designed for these important clients rather than losing them. In this case, it may appear that the upstream firm would benefit from the prohibition of discrimination[12] whereas downstream firms and consumers would suffer.

3. Efficiency considerations may be in order when the upstream firm does not perfectly observe some relevant characteristics of its retailers, or if it needs an incentive device to extract effort from retailers. In this case, incentives are provided by non linear tariffs that amount to price discrimination. Moreover, the ex post differences in unit prices depend on characteristics that could not be written in objective clauses, like the quantities sold. Price discrimination banning may then again have a negative impact on the efficiency of the retail sector.

4. Price discrimination potentially changes the nature of competition: for example, firm can switch from a competition "on the market as a whole" to a competition "for each consumer". This is because price discrimination allows to set a specific price for each customer, either through self selection processes or through explicit price discrimination, whereas under a uniform price regime, a firm who wants to attract a specific consumer must set a lower price on the

[12] This is one of the commitment cases of footnote 5.

whole market. This can discourage price cuts. Competition on a consumer basis can be either more or less intense, according to the context. Assume for instance that consumers are reluctant to switch brands[13]: that is, firms must set very low prices that compensate for switching costs in order to attract consumers of the rival firm. Firms then have an incentive to offer selectively lower prices to the consumers of their rivals, and can offer higher prices to new consumers[14]. If price discrimination is prohibited, competing on consumers who are locked-in by switching costs can be too costly, because this would then force the firm to lower its price on all units sold. If price discrimination is possible, selective price rebates may be advantageous for the firm, and competition for the locked-in consumers is more intense. Following the same line of arguments, it may be good from a competitive point of view to allow price responses by an incumbent to a limited entry on some of his customers ("meeting competition defence"). This argument is in favour of some form of price discrimination in some precise market configurations.

5. An assessment of the effects of price discrimination on output and on welfare is not sufficient to evaluate its potential anti-competitive effects: it may also affect the market structure and the identity of competitors, as suggested by the above discussion on the effects of non-discrimination constraints in universal service problems. The competition authorities should thus analyze the potential effect of discrimination on entry and exit. This is at the core of the analysis of the exclusionary effects of price discrimination. In some cases, price discrimination can facilitate entry, in others, it can discourage it. So far, we have insisted on some of the possible pro-competitive effects of price discrimination. But

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[13] See Chen (1997).

[14] See Fudenberg and Tirole (2000).

of course, it can also serve anti-competitive purposes by excluding competitors from the home market of the firm or from an adjacent market. For example, whereas predation is by definition a costly strategy for the firm that puts it at work, selective predatory pricing is much less costly, since it allows the firm to react selectively to the threat of entrants. In this case, allowing price discrimination makes predatory behaviour and exclusionary practices easier and thus more likely.

6. Price discrimination that follows from another practice (fidelity rebates or mixed bundling) can entail the same pro- and anti-competitive effects than these practices and should again be examined in the same way. Bundling, for instance, may be used by a firm that has a monopoly position on one market (its home market) to extend its position on an adjacent market: this is the anti-competitive effect that may be feared by competition authorities[15]. Mixed bundling is a form of price discrimination since consumers don't pay the same price according to the good being sold alone or in a bundle. Such a practice may allow to attract more consumers since its offers them several combinations of prices and quantities. Price discrimination has thus the same potentially pro-competitive effect than bundling. The same remark apply to discrimination that results from fidelity rebates: in some cases, these rebates, granted to customers who buy a minimum quantity, enhance efficiency. But bundling may also be used by a dominant firm in order to exclude rivals from an adjacent market. In the same way, fidelity rebates may have an exclusionary effect, if an efficient competitor, in order to enter the market, would then be forced to price very low, possibly below costs. The possibility of price

[15] For an example of these anti competitive strategies, see for instance Carlton and Waldman (2002).

discrimination then plays the role of a barrier to entry and is detrimental to welfare.

7. In all the above mentioned cases, the competitive harm follows from the exclusion process and not from discrimination as such; it should thus be analysed according to a rule of reason rather than to a per se rule. In order to distinguish pro-competitive and anti-competitive effects of price discrimination, competition authorities should analyze price discrimination through answers to a series of questions: does the practice rise or lower the quantities sold? Does it intensify price competition, even at a "local" (consumer) level? Does it prevent a new competitor from entering a market? Can it be explained by other reasons than by an anti-competitive strategy (efficiency considerations)? Does it exclude rivals from any market? What are the actual or potential anti-competitive effects at work?

8. Apart from exclusionary effects, discrimination may have other negative effects on some consumers or users of the good. But in general these effects result from another feature of competition, like barriers to entry, or the essential facility aspects of the good to which discrimination applies. The appropriate solution may consist in regulation in some cases, or removing barriers to entry in others. For instance, discrimination in the access to an upstream facility may induce foreclosure, either complete (the most extreme form is refusal to deal) or partial, like when there is discrimination in the access to a bottleneck[16]. Or the bottleneck owner may face a commitment problem and aim at recovering its monopoly profit through discriminatory pricing. Paradoxically, banning discrimination can in these cases help the upstream firm to resist demands for selective price cuts and thus maintain high prices.

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[16] On vertical foreclosure, see Rey and Tirole (2003).

9. Discrimination is at the core of a series of cases (Volkswagen, decisions of the Commission and of the CFI, 1998, 2001, 2003) where the Commission has analyzed the practice at the light of the objective of achieving the common market, rather than in terms of price discrimination. In this cases, Volkswagen and Audi had concluded agreements with their retailers in Italy, in order to prevent them from selling to German and Austrian consumers. In order to prevent parallel imports, the car producers had also restricted the number of cars available to Italian retailers. The Commission has fined Volkswagen for vertical collusion with the retailers, artificial segmentation of the market, resulting in large and persistent price differentials between countries in favour of Italian consumers. (However in the Volkswagen II case in 2001, examined by the CFI in 2003, the CFI has rejected that these practices were collusive and cancelled the fines). In its analysis of the cases, the Commission doesn't even mention the fact that price discrimination is at work, and only sees the practice as a barrier to market integration. Its decision amounts to discrimination banning. The consequences of such a decision is the risk that Volkswagen and Audi, facing a constraint of non-discrimination between countries, can find it more profitable to exit the Italian market (that involves more low income consumers) in order to be able to impose higher prices to German and Austrian consumers, rather than to lower the price in every country in order to serve all the markets. More generally, if producers are not allowed to price discriminate inside the European market, prices will probably tend to converge towards a unique (intermediate) uniform price that may exclude low income consumers from the market. Therefore, in such cases where consumers can be heterogeneous with respect to their revenues or their willingness to pay, price discrimination banning may lead to a reduction in (European) consumers' surplus (especially for the poorer ones). Again an analysis the variation of prices and

> quantities across countries may be very helpful to determine whether price discrimination leads to an increase or to a decrease in consumption.

This suggests that in any case, price discrimination should be analyzed under an "effects-based" approach rather than under a form-based approach. Such an approach, that focuses on the existence of a damage to competition, consists in analyzing the potential exclusionary effects of the practice: from which market are potential competitors excluded? Through which mechanism? Does price discrimination appear as a mechanism through which competition is lowered or intensified? What are the effect of price discrimination on market structure and incentives to entry or exit? Is there another economic rationale of such a discriminatory behaviour, such as efficiency gains? In any case, the identification of the precise exclusionary scenario at work is a crucial task for competition authorities. This approach results in less emphasis put on the exploitative effects of discrimination: this is due to the fact that either the exploitation comes from a (legal) monopoly position, a situation that calls for regulation rather than competition policy, or it is due to barriers to entry or exclusionary practices, for which the approach described here is relevant.

Such an approach should rely on solid economic ground, that is, the authority should be able to provide a rational explanation for the observed behaviour, since in most cases the practice implies (temporary) losses for the firm that puts it at work; this story should be consistent with facts, and explain why price discrimination has exclusionary effects. On the other hand, a firm that argues that price discrimination is motivated by efficiencies should provide convincing evidence. The burden of proof should thus rely on the competition authority if it argues that the practice is anti-competitive, and on the firm if arguments of efficiency defence prevail. Together with a more uniform approach of price discrimination, this should give more legal security to firms.

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7. The strategic uses of price discrimination

David Spector

7.1 Introduction

In its recent report to the Chief Economist of the European Commission's Competition Directorate-General[1], the Economic Advisory Group for Competition Policy (EAGCP) claims that the enforcement of Article 82 – the article which provides for the repression of "abuses of a dominant position", and contains, in its paragraph (c), the legal foundation for the prohibition of price discrimination by a dominant firm – should focus on the risk that some practices could be used for exclusionary purposes, rather than on "exploitative abuses". In line with this general principle, the present contribution focuses on the "strategic" uses of price discrimination, i.e. with those uses aiming at affecting market structure.

It should be acknowledged at the outset that framing the analysis of price discrimination in these terms necessarily misses part of the question. Price discrimination by monopolists or oligopolists is prevalent even absent any "strategic" attempt to affect market structure, because price discrimination allows firms to extract consumer surplus more efficiently than uniform pricing. The welfare analysis of such "non-strategic" discriminatory practices is complex and has received a lot of theoretical attention,[2] but it will mostly be left aside of the present discussion.

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[1] Gual et al. (2005).

[2] For surveys, see Varian (1989) and Armstrong (2005).

However, even if one is interested only in strategic price discrimination, a policy discussion cannot ignore non-strategic discrimination altogether, as if the two types of practices were pertaining to entirely different analyses. The reason is that, at least since Judge Easterbrook's famous article[3], discussants of competition policy have become aware of the need to take into account the possibility that enforcement be fraught with errors. In the case of price discrimination, this means that even if competition authorities are supposed to repress only some type of strategic discrimination, they may occasionally err and fail to distinguish between an exclusionary strategy and a non-strategic practice by which a dominant firm is simply trying to exploit customer heterogeneity in order to increase its profit, without attempting to affect market structure. If this possibility of confusion is factored in, a normative discussion should take into account the possible welfare effect of "non-strategic" price discrimination, in order to assess the cost of false positives, i.e. non-exclusionary practices wrongly held to be exclusionary.

Another caveat is that although discussions of price discrimination often stress the existence of different types of discrimination (first-, second- and third-degree price discrimination, discrimination according to the purchase of another good, discrimination according to past purchases), the assessment of the various strategies permitted by price discrimination turns out to depend little on the specific form taken by discrimination.

We thus consider the various types of strategic uses of discrimination, rather than the various forms it may take. Our main conclusions are as follows. First, whenever price discrimination takes place in the context of exclusionary strategies, it conflates with other exclusionary practices such as predatory pricing, or exclusionary exclusive dealing. Second, while discrimination may facilitate the implementation of exclusionary strategies, observing discrimination alone does not in general allow outside observers to ascertain

[3] Easterbrook (1984).

whether it is part of an exclusionary scheme or whether is has other, "innocent" and possibly pro-competitive motives. This implies that, in order to minimise the occurrence of false positives, competition authorities should not in general treat discrimination as a separate offence. They should rather adopt a unified perspective and assess whether the disputed pricing practice, in its entirety, is anticompetitive.

In order to assess the desirable scope of a ban on discrimination, it is also of utmost importance to assess the possible strategic uses of non-discrimination. Banning discrimination may in some settings facilitate the exercise of monopoly power by allowing a durable good monopolist to commit not to cut price, or by allowing a monopolistic wholesaler to commit not to engage into separate price negotiations with a retailer.

The general conclusion is that, except in some specific cases (like those involving vertically integrated firms), there is little justification for a broad ban on discrimination. In particular, such a ban would be particularly harmful in markets where customers are firms competing against each other – which casts an ironic light on the wording of the current community law.

7.2 Price discrimination and predatory pricing

7.2.1 Price discrimination may facilitate predatory pricing

The reason why price discrimination may facilitate predatory pricing strategies is theoretically obvious. If an entrant enters only a given segment (say, segment A) of a market, while the incumbent serves both segments A and B, then the success of a predatory pricing strategy (assuming that market structure makes eviction and subsequent recoupment possible) only depends on the incumbent's ability to harm the entrant in segment A. If price discrimination is

legal, the incumbent can reach this goal by offering very low prices to customers belonging to segment A, while maintaining high prices in segment B, where it faces no competitive threat. In contrast, if discrimination is banned, then the incumbent must lower prices in both segments in order to achieve this goal. In other words, price discrimination decreases the cost of inflicting a given level of harm to an entrant. If predatory pricing is viewed as an investment in short-term losses, the return to which can be measured by the probability that the entrant will be evicted, then price discrimination increases the efficiency of the "predatory pricing technology".

This has two consequences. First, when price discrimination is allowed, the short-run gain to consumers from predatory pricing strategies is reduced: in the above example, only consumers in segment A gain, while consumers in both segments would gain in the short-run if discrimination were banned and the incumbent still decided to follow a predatory pricing strategy. Second, and more importantly, there may be situations in which predatory pricing strategies are profitable only if discrimination is legal: the profitability of these strategies depends indeed on the balance between the long-run benefit from evicting the entrant and the short-run cost of cutting prices. Since discrimination reduces the latter, it may in some cases tilt the balance in favour of predatory pricing.

It is worth noting that this reasoning may apply to all kinds of price discrimination. In its simplest expression, the mechanism takes the form of explicit discrimination, with consumers in the segment where entry took place being offered lower prices than those in the other segments. However, a formally uniform nonlinear pricing scheme (i.e., quantity discounts), with the effect of inducing large customers to pay a lower average per-unit price than smaller ones, could also fulfil the same function if, for example, the entrant had an offering particularly suited for large customers (in that case, the different segments would correspond to different average sales volumes).

Far from being a theoretical oddity, the link between discrimination and predatory pricing matters in practices: several

major predation cases, both in Europe and in the United States, involved price discrimination – including the seminal Akzo case.[4]

7.2.2 The link between discrimination and predatory pricing does not warrant a specific rule

What are the consequences for antitrust enforcement? In Europe, the element of discrimination contained in predatory pricing strategies has sometimes been challenged as such, i.e. as a separate offence.[5] We believe that this handling of price discrimination in predatory pricing cases is not warranted.

First, a general rule precluding an incumbent from specifically targeting the entrant's most likely customers through discriminatory price cuts would in many cases reduce competition and raise price. It is indeed well-known that if two firms produce differentiated products, the overall price level is in general lower if each firm has the right to price discriminate and lower price for consumers who tend to prefer their rival's product. Consider for example the case of price competition à la Hotelling. If the incumbent is located at one extremity of the interval, and a rival enters at the other extremity, then allowing each firm to price discriminate in order to better target the other firm's likely customers will cause prices to fall for all consumers.[6] This means that, if the risk of eviction is left aside,

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[4] See the discussion in Geradin and Petit (2005).

[5] Geradin and Petit (2005), in particular the discussion of the Compagnie Maritime Belge case.

[6] See Armstrong (2005) as well as the contributions by Chen and Gehrig and Stenbacka, in the present volume, and the references therein. The result that price discrimination in oligopolistic markets is often likely to cause prices to fall has also been found in the case of network competition (see Laffont et al., 1998). See also Corts (1998). The result that discrimination causes prices to fall for all consumers is true for the simple spatial differentiation model à la Hotelling, but is not general.

prohibiting discrimination is likely to soften competition between the incumbent and the entrant – at the expense, possibly, of *all* customers. In fact, even if the risk of exclusion is taken into account, banning price discrimination may still lower welfare. For example, Armstrong and Vickers (1993) showed that "discriminatory limit pricing", i.e. setting a lower price in the segment where the threat of entry is greater, may raise welfare even though it makes entry less likely.[7]

Since selective post-entry price cuts may be pro-competitive (when the eviction risk is low) or anti-competitive (when they facilitate predatory pricing), it does not seem wise to give them the status of a specific offence. In particular, unless the plausibility of a predatory strategy has been examined, there is an observational equivalence between pro-competitive and anti-competitive price discrimination. This implies that price discrimination practices examined in the context of alleged predatory pricing schemes cannot be assessed separately from the analysis of the predatory pricing allegation: a unified framework is warranted. This does not mean that price discrimination should not be addressed and seen, in some instances, as an aggravating factor. In fact, we argue that the standard tools used to address predatory pricing claims contain a satisfactory, "built-in" treatment of price discrimination. This is true of the traditional approach comparing prices and costs. The so-called Areeda-Turner criterion (which was dominant in the United States in the 1980's, and is still dominant in the European Union since the Akzo and Tetra-Pak rulings), according to which any pricing strategy involving prices below some measure of cost is deemed to be predatory, can automatically be applied to cases of predation involving discriminatory price cuts: the rule simply becomes one comparing prices and costs user by user; and this is indeed how it

[7] This result is driven by the fact that entry in oligopolistic markets is often excessive, so that the entry deterrence properties of limit pricing do not necessarily harm welfare. However, it should be stressed that this result is about aggregate, rather than consumer welfare.

has been applied in the Akzo and Tetra Pak cases. Whatever the merits or drawbacks of these price-cost tests, they are perfectly suited to handle discrimination.[8] The same holds true of the more economics-based approaches recently advocated. Since the *Brooke* ruling[9], U.S. courts addressing predatory pricing claims do not only compare prices and costs, they also assess whether the market structure is compatible with a predatory strategy, i.e. whether the losses initially suffered can be recouped in the post-eviction period. While the recent handling of predatory pricing claims has been criticised by scholars who considered that it failed to account for the variety and subtlety of possible predatory pricing strategies,[10] there nevertheless exists an ever broader support for an economics-based assessment, taking into account both the possible innocent motives for below-cost pricing and the plausibility of a profitable predatory strategy.[11] If such an approach is to prevail, there is no need for a separate treatment of price discrimination in the context of predatory pricing. The reason is that a major ingredient of any economic

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[8] A caveat is in order, however: the definition of the cost benchmark when there is discrimination is less obvious than when there is none, because it might be desirable to distinguish between customer-specific fixed costs, and common fixed costs. For example, one would expect a firm following the logic of Ramsey pricing to price for each customer above the average total costs of serving that incremental customer, but possibly below the average total costs which would take all fixed costs into account.

[9] Brooke Group v. Brown & Williamson Tobacco, 509 U.S. 209 (1993).

[10] Bolton et al. (2000).

[11] This approach is also gaining ground in Europe. It is increasingly advocated by economists (see Gual et al., 2005) and is even embraced by some national competition authorities. For example, a recent decision by the Conseil de la concurrence (the French competition authority) departed from the Akzo and Tetra Pak case law by stating that proof of predation requires, among other elements, proof that initial losses can be recouped later thanks to the existence of barriers to entry ("Décision" No. 04-D-17, §66, available at http://www.conseil-concurrence.fr/pdf/avis/04d17.pdf)

assessment would be a comparison of the short-term losses induced by temporary low prices and the long-term gains derived from enhanced market power after the rival's eviction. The smaller the short-term losses, the likelier it is (everything else, including the exclusionary effect, being held constant) that a disputed pricing scheme is part of a rational, profitable predatory strategy. Therefore, a competition authority assessing a given pricing scheme will be more likely to label it as predatory if it happens to be discriminatory, because selective price cuts are more likely than uniform ones to allow an incumbent to recoup initial losses. Of course, the discriminatory nature of a pricing scheme is but one of many elements to be considered, alongside market structure, barriers to re-entry, informational asymmetries, credit market imperfections, etc. If competition authorities move toward a case-by-case economic analysis, trying to ascertain whether a "predatory scenario" fits the facts better than an alternative, non-predatory one, then there is no need for a specific rule regarding one specific aspect – discrimination – of a disputed pricing scheme: a global appraisal is more efficient.

7.3 Discrimination, bundling, exclusive dealing and entry deterrence

7.3.1 Discrimination is at the heart of many "post-Chicago" theories of exclusionary strategies…

While discrimination is not a necessary ingredient of predatory pricing, it is in some sense inherent to exclusionary strategies involving entry deterrence by incumbent firms which use bundling or exclusive dealing contracts in order to foreclose demand. This is best understood with reference to the "Chicago critique" of exclusionary scenarios. In the case of bundling, the Chicago critique relies on the single-monopoly argument: there is no need to monopolise market B by bundling A and B together, because a

monopolist in market A is already capturing the entire monopoly rent that is there to be captured. In the case of exclusive dealing, the argument says that in order to convince a consumer to give up the benefits of competition by signing up an exclusive contract, the incumbent must offer it a compensation which is greater than the monopoly profit it will earn after competition is suppressed thanks to the exclusive contract.

The "Post-Chicago" theories, which cast light on the limits of these simple arguments, almost all rely on some form of implicit or explicit discrimination. Both in the case of bundling and of exclusive dealing, these theories take the following form: bundling or exclusive dealing contracts induce some consumers (those who purchase the bundle or sign an exclusive contract) not to buy from a hypothetical entrant, thus denying it the minimum viable scale. Since entry is deterred, the incumbent can unleash its market power at the expense of all customers – not only the ones who signed an exclusive contract or who purchased the bundle. For example, if an entrant needs to sell to at least 60 consumers (out of a total of 100), then an incumbent can deter entry by inducing 41 consumers to sign an exclusive contract, because this will allow it to charge high prices to all 100 consumers. The presence of an externality across consumers, resulting from the importance of the entrant's fixed costs, causes the logic of the Chicago critique to break down. Even if it is true that the compensation to be paid to a consumer in order to bribe it into signing an exclusive contract exceeds the per-customer monopoly profit, this compensation has to be paid to 41 consumers only, while the monopoly price is charged to all 100 consumers – thus making exclusion profitable.[12] In the case of bundling, some recent theories, developed in the context of the recent Microsoft cases, focused on the

[12] See Rasmusen et al. (1991), Segal and Whinston (2000), Neeman (1999), Spector (2005). Notice however that in Rasmusen et al. (1991), anti-competitive exclusion through the use of exclusive dealing contracts may also occur without discrimination if there is a coordination failure among the incumbent's customers.

heterogeneity between present consumers (who get a good deal when purchasing bundles) and future ones (who are harmed by the stifling of competition).[13]

These "post-Chicago" theories do not require formal discrimination: this is obvious in the case of bundling (consumers self-select according to their taste for the tying good), and this is also true of the existing models of exclusive contracts if consumers differ in size. However they all rely on some favoured set of customers being "bribed" to accept contractual terms with the effect that the firm offering them succeeds in enhancing its market power and exerting it at the expense of some other set of consumers.

7.3.2 …but a specific rule appears to be unwarranted

Just like for the analysis of the interplay between discrimination and predatory pricing, the main drawback of a rule prohibiting some kind of discrimination independently of an overall assessment of the disputed pricing scheme is that, unless a thorough analysis of the entire practice is conducted, taking into account the specifics of the affected market, there is an observational equivalence between pro- and anti-competitive practices. For instance, a well-known justification for exclusive dealing is that it may solve a commitment problem in that it induces a wholesaler to provide training to a retailer without fearing that the retailer will use the resulting skills to the benefit of competing suppliers. But this type of incentive problem may very well be more acute for some retailers than for other, in which case having only some retailers sign an exclusive contract is a logical outcome, absent any exclusionary strategy. Similarly, it is well-known that nonlinear pricing schemes allow a wholesaler to provide strong incentives to retailers by increasing their profits on marginal sales – which is usually pro-competitive. And different nonlinear schedules may be proposed to different

[13] Carlton and Waldman (2002). See also Whinston (1990).

retailers because which unit is marginal depends on the retailer's size. Second-degree price discrimination may also greatly enhance efficiency in markets where demand comes from final consumers. The cost of false positives can be illuminated by a recent study of the mobile telephony market in the United States, which showed that if cellular operators had been restricted to using linear pricing as opposed to nonlinear pricing, consumer welfare would have been divided by three, while industry profits would have been halved: linear pricing would have resulted into a much greater per-minute rate which would have driven out low valuation customers.[14]

This implies that discrimination should be addressed in conjunction with a general assessment of the disputed practice. If competition authorities assess exclusive dealing contracts by examining whether a particular theory of foreclosure fits the facts of a particular case, they will end up asking, among other questions, whether the Chicago critique applies – which will "naturally" drive them to take the possible discriminatory nature of the disputed scheme into account. One lesson of the broad post-Chicago literature is indeed that competition authorities should probably be more wary of exclusive contracts or nonlinear pricing in situations where these price schemes result in highly heterogeneous prices (if the market is one where an exclusionary strategy makes sense and there are externalities across buyers because of the allegedly targeted firm's sizeable fixed costs). But the assessment should result from a general analysis of the market and of the disputed practice: dividing it into elementary particles – one called "discrimination", the other "exclusive dealing" – would preclude a rational, economic analysis. In particular, since it is in general very difficult to understand all the possible motives for a given pricing practice (since this would require one to know each potential customer's demand function, the nature and magnitude of incentive problems, and so on) it is probably more efficient to rely on "structured rules of reason" which investigate market structure as a first filter, before assessing the

[14] Miravete and Röller (2003).

various possible pro- and anticompetitive motives for the observed practice.

7.4 Raising rivals' costs in the case of an integrated vertical firm

Price discrimination can also be used as an anticompetitive tool by vertically integrated firms.[15] This can be best explained by resorting to a model developed by Ordover et al. (1990). Consider a downstream duopoly (firms D1 and D2) potentially served by two upstream firms (U1 and U2) producing a homogeneous product. Firm D1 could increase its profit by raising the price of D2's inputs. This can be achieved by integrating vertically with U1, assuming that integration allows U1 to commit not to sell any more to D2: this would leave D2 falling prey to U2's market power, which would increase the price of D2´s inputs, and thus that of its output, shifting some demand to U1 and increasing the latter's profits. However, the integrated U1-D1 firm could further increase its profit by selling the input to D2 at some admittedly high, but not infinite price. If the integration between U1 and D1 is total, these sales to D2 could take place even under a legal regime prohibiting discrimination: the input would be sold at a high price to *both* downstream firms. But the selling price paid to U1 by D1 would only be an internal transfer price, i.e. little more than an accounting fiction, so that anti-discrimination laws would have no bite. This would however not be true if integration were less than total. For example, if U1 controls D1 but owns less than 100% of it, D1's minority shareholders may object to paying a high price to U1. Or if D1 controls U1 but owns less than 100% of it, it may be reluctant to pay an excessive price. If discrimination were legal, the (partly) integrated firm could get around this problem by charging a high price to D2, and a lower one

[15] On price discrimination by vertically integrated firms in European competition law, see Geradin and Petit (2005).

to D1. This strategy would be unfeasible under a ban on discrimination.

According to this theory, price discrimination by an upstream firm selling both to its downstream subsidiary and to an independent downstream competitor raises downstream prices and reduces welfare. One cannot conclude from this theory that such discrimination is always anticompetitive: for example, it induces low prices to the integrated downstream firm, which may alleviate the double marginalisation problem.[16] This discussion leaves us somewhat agnostic. On the one hand, discrimination by a vertically integrated firm, just like in the other settings mentioned above, may have pro- or anti-competitive effects. On the other hand, the anticompetitive strategy described by Ordover et al. (1990) relies primarily, one could almost say exclusively, on price discrimination, unlike the ones described above. This difference may justify some form of intervention specifically targeting price discrimination by a vertically integrated firm. One might favour a rule allowing for some flexibility, for example by making the prohibition of discrimination depend on the availability of substitutes – in the spirit of the essential facilities doctrine.

7.5 A caveat: the strategic uses of non-discrimination

7.5.1 A ban on discrimination would solve the durable monopolist's woes

Any discussion of price discrimination should balance the possible drawbacks of discrimination against those of non-discrimination. It

[16] Notice that Ordover et al's (1990) model is explicitly constructed so as to remove the double marginalisation problem from the analysis.

turns out that in many settings, a ban on discrimination would facilitate the exercise of monopoly power, or facilitate collusion.

The first illustration of this is the case of durable good monopolists.[17] It is well-known that a monopolist who cannot commit to lower the price of its good after some date ends up with a lower profit than the one it would earn if it could commit. More interestingly, the impossibility to commit causes the durable monopolist's prices to be lower in all periods than what they would be if a commitment not to cut price were possible. For example, in the two-period case, if consumers' per-period utility levels are distributed uniformly on the (0;1) interval, the price is 1 if commitment if possible, while it is 0.9 (in the first period) and 0.3 (in the second period) if it cannot commit.[18]

In such a situation, banning discrimination between current and future buyers would be tantamount to providing the durable monopolist with a commitment technology and helping it to maintain high prices. This example obviously goes against a ban on discrimination. One may even wonder whether this should lead legislators to prevent firms from making non-discrimination promises of the form "if we cut price later, we refund you the difference". If the durable monopolist's "paradox" were the only element to think about, the answer would undoubtedly be yes. This conclusion favourable to a "ban on non-discrimination" would also be supported by the recent theoretical finding that such refund promises in the case of future price cuts tend to facilitate collusion by making deviation more costly.[19] However, other considerations may

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[17] The discussion of intertemporal price discrimination is meant to illustrate a broader theoretical point about the pro-competitive properties of discrimination. It may lack practical relevance since, to our knowledge, European competition law does not challenge intertemporal price discrimination.

[18] See Butz (1990).

[19] Cooper (1986), Schnitzer (1994).

justify a more hands-off approach: for example, such refund promises may facilitate the takeoff of new products.

7.5.2 A ban on discrimination would enhance upstream monopolists' market power

There is another setting in which a ban on discrimination would facilitate the exercise of market power – that of an upstream monopolist selling to downstream firms competing against each other. The mechanism at play has been the focus of a broad, and sometimes technically complex theoretical literature[20], but its essence is very simple and can be summarised as follows in the case of linear pricing. If price discrimination is prohibited, then a given retailer has little incentive to ask for a lower price: even if its request is granted, this success will be a pyrrhic victory, because by virtue of the ban on discrimination, rival retailers will also benefit from the price cut, so that no competitive edge will be gained. On the contrary, if price discrimination is legal, then a retailer has a strong incentive to ask for a price cut, because lower input prices will provide it with a competitive edge. Hence, retailers will lobby more strongly for wholesale price cuts, and retail prices will, as a consequence, be lower as well. This example means that the main effect of lifting a ban on discrimination is not so much to increase price dispersion (if retailers are identical, then in equilibrium prices will be uniform) as to lower the aggregate price level, at the upstream and downstream level.[21]

While the above reasoning, for simplicity, considers a situation in which retailers enjoy a significant amount of bargaining power and price schemes are linear, the argument in fact applies irrespectively of the distribution of bargaining power between upstream and

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[20] See Hart and Tirole (1990), McAfee and Schwartz (1994), Marx and Shaffer (2001), DeGraba (1994), Rey and Tirole (2003).

[21] This idea is formalized in the Appendix.

downstream firms as long as nonlinear pricing is possible (as is assumed in most of the theoretical literature). The idea is simply that if discrimination is prohibited, then irrespective of whether prices are set by the wholesaler, or through a bargaining process (which would have to be such that downstream retailers act as a single bargaining entity, since they are bound to obtain the same terms), the wholesale price is going to be the one maximising the combined profits of the upstream and downstream firms (nonlinear pricing implies that the combined profit of the bargaining parties is maximised, and fixed fees can then be used to allocate these total profits according to the bargaining power of each party). On the contrary, if discrimination is allowed and the wholesaler cannot commit not to secretly engage into bargaining with each retailer, then the outcome of each bilateral negotiation will be such that the combined profits of the wholesaler and each given retailer is maximised – taking the outcome of other bilateral negotiations as given. This necessarily results into each contract having a variable price equal to the wholesaler's marginal price c, alongside with a fixed part. As a result, the wholesale price to all retailers is equal to c, and upstream profits are zero. The monopolist's inability to commit not to secretly bargain with each retailer separately is enough to dissipate the entire monopoly profit.[22]

7.5.3 A ban on discrimination may facilitate collusion

As mentioned above, a ban on intertemporal discrimination may facilitate collusion by making price cuts retroactive, and thus costlier. More generally, price discrimination increases complexity and can thus hinder collusion for two reasons. The first is that it makes it

[22] The result relies on the assumption that a retailer does not observe its rival's input prices when setting its own downstream prices. Otherwise, retailer A would have an incentive to pay more for its own input, in order to signal higher downstream prices and induce retailer B to raise its price.

more difficult to define a focal point: instead of being defined as a single number (a price), it would have to be defined as a nonlinear pricing scheme or as a collection of prices – one per customer, or per customer category.[23] The second reason is that it makes the market less transparent and thus makes it more difficult to detect deviations.

7.6 Conclusion

To summarise, there appears to be little support for specific rules against discrimination, except possibly in the case of vertically integrated firms. While price discrimination may facilitate the implementation of exclusionary strategies, this should be dealt with within the overall appraisal of each disputed pricing scheme, taking into account all the relevant facts, including market structure. The reason for this scepticism towards a more specific ban on discrimination is twofold. First, there often is an observational equivalence between pro- and anticompetitive price discrimination, so that only a global assessment allows competition authorities to perform an efficient screening. Second, a ban on discrimination would often enhance dominant firms' market power by helping them to solve a commitment problem. It would allow durable-good monopolists to commit not to cut prices, not only preventing the price from declining with time, but also causing the *initial* price to rise. Similarly, a ban on discrimination would allow an upstream monopolist to commit not to engage into secret price negotiations with individual retailers, with the effect of helping it to sustain monopoly prices.

Beyond this general result, it is worth noting that the arguments against a ban on price discrimination apply most strongly to wholesale markets in which the customers are retailers competing

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[23] This argument breaks down in markets in which the focal point is a market share allocation or a division of customers, for example by geographic zone.

against each other. Indeed, the perverse effects of a ban on price discrimination described above[24] result directly from the existence of competition between customers. In addition, the anticompetitive use of discriminatory exclusive-dealing contracts, described above[25], is less compelling when customers are retailers competing against each other. The reason is the following: if retailers compete against each other, then it is more difficult for an incumbent wholesaler to foreclose the wholesale market by signing an exclusive contract with a subset of retailers. Indeed, an entrant on the wholesale market may reach the minimum viable scale even if it is precluded from selling to some retailers, because by granting low prices to the non-foreclosed retailers (those who did not sign an exclusive contract) it can ensure that these retailers will enjoy a competitive edge, gain market share, and absorb large volumes.[26]

To summarise, in wholesale markets where retailers compete against each other, there is less reason to fear discrimination, and more reason to fear the adverse effects of a ban on discrimination. This conclusion is ironic, because it is completely at odds with the wording of Article 82(c) of the treaty of Amsterdam, which forms the legal basis of the prohibition of discrimination by dominant firms. Article 82(c) prohibits price discrimination which may "place some parties at a competitive disadvantage", thereby concerning itself only with these situations where the customers are firms competing against each other.[27] Some observers, noting that the European Commission sometimes over-interprets Article 82(c) and construes it as implying a more general ban, even in markets where customers do not compete against each other, have called for a more literal

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[24] Section 7.5.2, supra.

[25] Section 7.3.1, supra.

[26] This point has been made by Motta and Fumagalli (2005). See, however, Simpson and Wickelgreen's (2001) dissenting view.

[27] In the United States, this « secondary line injury » was also the focus of the anti-discrimination provisions of the Robinson-Patman Act.

enforcement and a narrower focus on secondary line injury.[28] While the legally minded can only applaud calls for a strict application of the law, economics tell another story: it is precisely in the situations singled out by Article 82(c) that a ban on discrimination is least justified.[29]

[28] Geradin and Petit (2005).

[29] As explained above, the case of vertically integrated firms is probably an exception. Also, this discussion fails to consider the case of discrimination by public firms: in that case, discrimination may be a discrete tool for aid to specific firms – for example if a public firm enjoying a near-monopoly in an input market sells at a lower price to domestic than to foreign producers needing this input. The need for specific anti-discrimination rules to address these cases is disputable, since the law on state aids might be sufficient. In practice, Article 82(c) has sometimes been applied to such cases (see the discussion in Geradin and Petit, 2005).

Appendix

The simple model presented below illustrates the argument made in Section 5.2. We consider a wholesale monopolist selling to two competing retailers, under the assumptions that pricing schemes must be linear. The monopolist's marginal cost is zero, and the two retailers are located at the extremities of the unit interval. A unit mass of consumers is uniformly distributed on this interval. Each consumer has unit demand and a valuation V for the good (V is identical across consumers) and faces a transportation cost equal to td^2, where d is the distance between its location and the retailer it buys from, and t is small relative to V. In addition, we assume that there is a competitive fringe of wholesales offering to sell the good to retailers at price P, with $P+t<V$. This price P is therefore the maximum price that the monopolistic wholesaler can set.

It is well-known that if the monopolistic wholesaler sells to retailers 1 and 2 at prices c_1 and c_2 respectively (assumed to be below P), then retail prices p_1 and p_2, retailer profits π_{r1} and π_{r2}, and the wholesaler's profit π_W, are given by

$$p_i = t + \frac{2c_i + c_j}{3};$$

$$\pi_{ri} = \frac{t}{2}\left(1 + \frac{c_j - c_i}{3t}\right)^2;$$

$$\pi_W = \frac{c_1 + c_2}{2} - \left(\frac{c_1 - c_2}{6t}\right)^2.$$

We consider first the case in which price discrimination is legal, and we assume that the wholesaler bargains separately (and secretly) with each retailer. We consider the Nash bargaining solution and assume that the wholesaler's bargaining power is α while the retailer's is 1-α. This implies that when the wholesaler bargains with retailer *i*, the resulting wholesale price c_i maximises $\alpha Log(\pi_W) + (1-\alpha) Log(\pi_{ri})$, taking the price granted to the other retailer, c_j, as given. The resulting prices c_1^*, c_2^* thus satisfy:

$$c_i^* = Arg \max_{c_i} \alpha Log(\pi_W(c_i, c_j^*)) + (1-\alpha) Log(\pi_{ri}(c_i, c_j^*)).$$

The solution is given by

$$c_1^* = c_2^* = Min\left(P, \frac{3\alpha t}{4(1-\alpha)}\right).$$

In particular, wholesale prices tend to zero as the retailers tend to have all the bargaining power – and retail prices then tend towards *t*.

If price discrimination is banned, then bargaining can only take place between the wholesaler and the coalition of retailers – since both retailers necessarily pay the same wholesale price. Bargaining is then over *c*, the necessarily uniform wholesale price. The wholesaler's and each retailer's profit is given respectively by

$\pi_W = c$ if $c \leq P$, $\pi_W = 0$ otherwise, and

$$\pi_{r1} = \pi_{r2} = \frac{t}{2}.$$

Clearly, the wholesaler's interest is to push the wholesale price up to P, while retailers are indifferent as to the wholesale price. The outcome of the bargaining game is thus that the wholesale price is equal to P.

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