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COMPETITION REMEDIES IN CONSUMER MARKETS¹

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I. INTRODUCTION

When competition occurs in a market, firms strive to attract business by meeting the needs of consumers more effectively than their competitors. This is mutually beneficial to consumers and firms. Competition provides consumers with low prices, high quality, wide variety, and innovative products. Firms are rewarded with more business and higher profits, presuming they provide better goods and services than their rivals.

To make markets work well, enough consumers have to play an active role in finding the best deal. Even in a market with many firms, if consumers stay loyal to just one firm, no firm will feel external pressure from rivals to perform better. Thus, even though the structure of a market may demonstrate that there are many potential competitors, if consumers are not proactive, they will not receive the full benefits from competition.

Interventions in final consumer markets by policymakers,

¹ This paper is based on a report prepared for the Office of Fair Trading by the ESRC Centre for Competition Policy (CCP), Report number OFT 994 "Assessing the Effectiveness of Potential Remedies in Consumer Markets". Comments from colleagues at CCP and well as staff at the Office of Fair Trading and the Competition Commission are gratefully acknowledged. We thank Ashby Page for his editorial assistance. We gratefully acknowledge funding from the UK Economic and Social Research Council and from the Office of Fair Trading. We accept responsibility for any remaining errors.

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commonly termed 'remedies', attempt to assist consumers in playing an active role in the market and protect consumers from being exploited by firms. However, without adequate *ex ante* assessment of remedies, which draws upon theoretical analysis and lessons from *ex post* evaluation of similar interventions, remedies can fail to have the maximum desired effect. Therefore, the objective of this research is to summarize the existing economic theory and empirical evidence underlying a number of remedies in final consumer markets. Its aim is to identify the benefits and costs of the remedies and the conditions under which a remedy is likely to have maximum positive impact on a market; to highlight the gaps in our knowledge; and to propose ways of filling those gaps.

Given the wide range of possible remedies, we restrict our attention to those that are of immediate relevance to the work of the UK consumer and competition agencies, namely the Office of Fair Trading (OFT) and the Competition Commission (CC), who both design remedies in situations where markets fail to work well for consumers.² Such remedies are normally considered as part of a market study (with respect to the OFT) or market investigation reference (with respect to the CC) and may involve measures to make consumers more active.³ Where appropriate, we have referred to remedies implemented by the OFT and CC, but we have not attempted to undertake a comprehensive summary, discussion, or assessment of remedies applied by these or other agencies.

The paper is structured as follows: Section II discusses why consumers may initially be inactive in a market. Specifically, we briefly review the impact of search costs, switching costs, and bounded rationality and non-standard preferences on consumer behavior and competition.⁴ Sections III-V consider the effectiveness of a number of remedies. Specifically, the sections consider remedies that aim to help consumers obtain information and make comparisons (Section III); those that attempt to assist consumers to make informed choices at the point of sale (Section IV); and remedies to help consumers switch suppliers (Section V). At the start of each of these Sections we discuss the implications of the problems that the remedies are attempting to solve. Section VI considers the impact of interventions in potentially collusive consumer markets and discusses when collusion is likely to occur and what the likely effects may be. Conclusions are drawn in

² In market references, Section 131(2)(c) of the Enterprise Act identifies customer conduct as a potential market feature that has the ability to prevent, restrict, or distort competition.

³ Four of the CC's first five market investigations (Extended Warranties on Domestic Electrical Goods; Store Card Credit Services; Domestic Bulk Liquefied Petroleum Gas; Home Credit.) were conducted predominantly in final consumer markets and in each case the CC found an Adverse Effect on Competition (AEC). Many of the remedies imposed were focused on enabling consumers to be more active.

⁴ For a similar review, see C. Wilson, *Some Essays on the Links Between Consumers and Market Power*, (2006) (unpublished Ph.D thesis, University of East Anglia) (on file with author).

Section VII. In particular, we highlight the gaps in our knowledge. These gaps become most noticeable in relation to empirical work on the effects of the remedies discussed. Accordingly, we further highlight ways to increase the extent of academic research into the impact of interventions.

II. THE ROLE OF CONSUMERS AND INTERVENTIONS

When considering the causes and effects of market power, industrial economists have commonly focused their attention on supply-side issues, such as product differentiation, capacity constraints, collusion, merger, and entry prevention. It has long been recognized, however, that consumer behavior can also have an enormous affect on market power.⁵ In recent times, academics and policymakers have increasingly focused on demand-side issues that can also lead to failures and inefficiencies in markets.⁶

To emphasize the part consumers play in activating competition, let us consider a situation in which two firms in the market supply homogeneous products with identical marginal costs and no fixed costs. All consumers are fully informed of the products and prices and the location of shops. They are free to shop at any firm without incurring any cost. Under these assumptions, consumers will be able to shop at the lowest-priced firm. As a result, economic theory predicts that firms will set prices equal to their marginal cost and therefore receive zero economic profit in any finite interaction.

The received wisdom is that, in a market with constant marginal cost, at any price higher than marginal cost each firm has a unilateral incentive to undercut its rival's price slightly and capture the whole market. In the presence of fixed costs, any price below marginal cost would lead to a firm incurring a loss. This phenomenon is known as the "Bertrand paradox" because it predicts that the presence of two competing firms is enough to eliminate the market power that a monopolist usually enjoys. The Bertrand paradox, therefore, is of particular interest to industrial economists and policymakers because of the corollary that consumers will receive the full benefits from competition even where the number of firms is small.⁷

⁵ George Stigler, *The Economics of Information*, 69 J. POL. ECON. 3, 213-25 (1961).

⁶ See, e.g., Timothy J. Muris, "The Interface of Competition and Consumer Protection," Remarks at the 29th Annual Conference on International Antitrust Law and Policy (2002), available at <http://www.ftc.gov/speeches/muris/021031fordham.pdf>; Michael Waterson, *The Role of Consumers in Competition and Competition Policy*, 21 INT'L J. OF INDUS. ORG. 129 (2003); John Vickers, "Economics for Consumer Policy," British Academy Keynes Lecture (Oct. 29, 2003), available at http://www.oft.gov.uk/shared_ofst/speeches/speo403.pdf; Louise Sylvan (2004) *Activating Competition: The Consumer - Competition Interface*, 12 COMPETITION & CONSUMER L. J. 191 (2004); and Mark Armstrong, *Interactions Between Competition and Consumer Policy*, University College London (Feb. 2008).

⁷ The same insights arise from the literature on contestable markets. See, e.g., WILLIAM J. BAUMOL, JOHN C. PANZAR, & ROBERT D. WILLIG, *CONTESTABLE MARKETS AND THE THEORY OF INDUSTRY STRUCTURE* (Rev. ed., Harcourt 1988).

In the absence of information and a willingness to act without it, consumers simply won't get the full benefits of competition. Consider the same situation which led to the Bertrand paradox, except, in this situation, consumers pick a seller at random and refrain from searching beyond the first firm they encounter. In this scenario, firms will set prices at the monopoly level. Here, the thinking is that each firm is not constrained by its rivals, because it will be certain that consumers who visit their store will buy goods there. Thus, no firm has a unilateral incentive to lower prices, as it has no hope of attracting consumers from rivals.

A. *Markets With Search Costs*⁸

Put simply, it can be costly (in terms of money, time and effort) for consumers to gather price and non-price information about goods and services. For example, in some markets, consumers may incur a cost to search each additional outlet, to return to a previously visited outlet, or to become informed about all the products available and the terms of trade. Such 'search costs' can lead to a situation in which some consumers are willing to buy a particular good at a certain price even though the same good may be available elsewhere at a lower price. Similarly, some consumers are willing to buy this good even though another good that suits their needs better is available at the same price in another store.

In an early attempt to model the effects of search costs on a market, Peter Diamond found that if all consumers have a positive search cost of any magnitude, there is a unique outcome where all firms will set prices at the monopoly level and consumers will only search one firm.⁹ This result was regarded as surprising enough to give rise to yet another paradox.

The "Diamond paradox," is best understood by way of example: consider a situation in which two firms in the market supply homogeneous products with identical marginal costs and no fixed costs; all consumers are uninformed of firms' prices, but they are also fully informed of the products and the various firms' locations; all consumers face a positive search cost for each additional firm searched, but if they search a firm, they become informed of that firm's price. Next, assume that consumers randomly visit the first store. Under these assumptions, firms set prices at the monopoly level, because if all firms set the same price below the monopoly level, each firm has an incentive to unilaterally increase its price by an amount marginally less than consumers' search costs. This enables firms to charge higher prices to

⁸ For a comprehensive review of the search cost literature, see M.R. Baye, J. Morgan & P. Scholten, *Information, Search, and Price Dispersion*, in HANDBOOK OF ECONOMICS AND INFORMATION SYSTEMS 323 (Terrence Hendershott ed., 2006).

⁹ Peter A. Diamond, *A Model of Price Adjustment*, 3 J. OF ECON. THEORY 156 (1971).

their consumers without causing them to search other firms. The unilateral incentive to increase price persists at any price below the monopoly level, and only ceases when the monopoly price is reached. As a result, with no price dispersion in this market, there is no incentive for consumers to search other stores; therefore, no incentive exists for firms to cut prices, as they remain unobserved by consumers. Therefore, the firms will not induce consumers to search.

Relaxing some of these assumptions can modify the extreme outcome of the Diamond paradox. For example, if some consumers do not find searching particularly costly, perhaps because they simply enjoy hunting for bargains, firms will have more of an incentive to attract them.

A model in this spirit is Carlton and Perloff's tourist-native interpretation¹⁰ of the Salop and Stiglitz model,¹¹ where 'natives' go to the lowest-priced firms, because they have more experience of the market and know where the low-priced firms are located. 'Tourists,' however, still shop at random. In the more general versions of the model, such as Varian¹² or Stahl,¹³ firms face conflicting incentives. Firms have an incentive to set a high price to extract the rents from tourists, and a low price to attract natives. Given firms' conflicting incentives, price dispersion can occur in equilibrium where firms select a price between an upper bound and a lower bound price. The upper bound price is the monopoly level if tourists shop at random¹⁴ or if tourists consider the expected marginal benefit and marginal cost of an additional search and search costs are sufficiently high.¹⁵ Otherwise, the upper bound is constrained below the monopoly price if tourists consider the expected marginal benefit and marginal cost of an additional search and search costs are sufficiently low.¹⁶ The lower bound is given by the price where firms are indifferent between supplying their tourists and attracting natives for certain and setting the upper bound price to simply supply tourists.¹⁷

A common feature in theoretical search models is that the average price in the market falls as the proportion of consumers that are willing to search the market increases—or, if the cost of searching decreases. As a result, remedies that aim to make markets with search

¹⁰ DENNIS W. CARLTON & JEFFREY M. PERLOFF, *MODERN INDUSTRIAL ORGANIZATION* (4th ed. Addison Wesley, 2004).

¹¹ Steven Salop & Joseph Stiglitz, *Bargains and Ripoffs: A Model of Monopolistically Competitive Price Dispersion*, 44 *REV. OF ECON. STUD.* 493 (1977).

¹² Hal R. Varian, *A Model of Sales*, 70 *AM. ECON. REV.* 651 (1980).

¹³ Dale O. Stahl, *Oligopolistic Pricing with Sequential Consumer Search*, 79 *AM. ECON. REV.* 700 (1989).

¹⁴ Varian, *supra* note 12.

¹⁵ Stahl, *supra* note 13.

¹⁶ *Id.*

¹⁷ The pricing equilibrium of this problem is solved by mixed strategies, which, roughly speaking, resolve the tension between setting high or low prices through the use of probabilities. While one may have concerns about the stability of mixed strategy equilibria, they have the desired effect of generating a distribution of prices based upon firms' *ex ante* best responses.

costs work well for consumers should focus on these two objectives.

B. Markets With Switching Costs

When consumers have previously purchased a good or service from a supplier, they may face some cost when changing to a new supplier, which is not incurred if the consumer remains loyal to his or her current supplier. While these 'switching costs' can take several different forms, they all provide firms with a degree of market power, as consumers have an incentive to continue purchasing the product from their supplying firm, even in the extreme case where a rival, who sells an identical product, is known to be slightly cheaper.¹⁸

The presence of switching costs has two *ex post* effects that dampen competition: (1) fewer sales are lost through a marginal unilateral price increase and (2) fewer sales are gained through a marginal unilateral price decrease. This provides firms with strong incentives to set prices above the competitive level. When all consumers are 'locked-in' (that is, switching costs are large enough to prevent consumers from switching between firms), firms set prices at the monopoly level.¹⁹ When consumers are not locked-in, the pricing equilibrium of this problem is solved by a mixed strategy, resulting in a price which balances the incentives to increase and decrease price.²⁰

These *ex post* effects of switching costs can affect *ex ante* competition, as firms' current market shares are important determinants of their future profits.²¹ For example, consider a two-period game where all consumers can initially purchase from any firm without cost in the first period but all consumers face a switching cost in the second period. In the second period, firms have some market power over consumers who they supply in the first period. As a result, in the first period, firms have an incentive to compete more fiercely for consumers to increase their market share. This can lead to what is known as 'bargain-then-rip-off' pricing, where prices are initially low (sometimes below cost) to attract consumers to the firm, but, in the future, firms will raise prices as they attempt to exploit their market power.

Bargain-then-rip-off pricing is less likely to occur when we

¹⁸ The switching cost literature has been reviewed in Paul Klemperer, *Competition When Consumers Have Switching Costs: An Overview with Applications to Industrial Organisation, Macroeconomics and International Trade*, 62 REV. OF ECON. STUD. 515 (1995); Office of Fair Trading, "Switching Costs," Economic Discussion Paper 5, prepared for the Office of Fair Trading and Dept. of Trade & Indus. by Nat. Econ. Research Assoc., April 2003 [hereinafter *Switching Costs*]; Joseph Farrell & Paul Klemperer, *Coordination and Lock-In: Competition with Switching Costs and Network Effects*, in 3 HANDBOOK OF INDUSTRIAL ORGANIZATION (Mark Armstrong & Robert H. Porter eds., North Holland, 2007).

¹⁹ Paul Klemperer, *Market with Consumer Switching Costs*, 102 Q. J. OF ECON. 375 (1987).

²⁰ Yuval Shilony, *Mixed Pricing in Oligopoly*, 14 J. OF ECON. THEORY 373 (1977).

²¹ Paul Klemperer, *The Competitiveness of Markets with Switching Costs*, 18 RAND J. OF ECON. 138 (1987).

relax some of the assumptions of the example above. For instance, consider a situation that lasts longer than two periods. In each period, a firm can supply consumers they have supplied in the previous period, who incur switching costs, and consumers who have not been supplied by any firm, who incur no switching costs. Assume that firms cannot price discriminate between the two types of consumers and those that have been supplied in the previous period are locked-in; so a firm cannot attract another rival's locked-in consumers. Under these assumptions, in each period, firms face a trade-off between setting high prices to extract rents from their existing consumers and setting low prices to attract unattached consumers from whom they may hope to extract rents in the future. As a result, the level of prices will depend on the relative weights of these two incentives.

Switching costs can also have an effect on market entry.²² For example, entry can be deterred when switching costs are high and an incumbent has the majority of the consumers locked-in. In this case entry is deterred because an entrant will have to lower its price significantly in order to attract at least some consumers away from the incumbent.²³ Alternatively, when switching costs are low, entry may be deterred because an incumbent would be fiercely competitive in the event of entry to try to prevent its consumers from switching to the entrant. It is also possible that entry can be facilitated. If an incumbent has a large number of locked-in consumers, but cannot price discriminate between them and new consumers, who do not have switching costs, entry can be facilitated. This occurs because the incumbent may react less aggressively to an entrant as it may be more profitable to extract the rents from its locked-in customers rather than competing for unattached consumers.

Given that switching costs can provide firms with market power, policymakers may wish to intervene in a market in which firms have managed to impose artificial switching costs upon consumers. In such situations, interventions that reduce artificial barriers and allow consumers to switch more easily between firms can make markets work better for consumers.

C. Markets And Models Of Behavior

The models summarized in previous subsections concerning search and switching costs, have tended to assume that consumption decisions result from optimizing behavior by consumers, who have both the desire and ability to gather information, process it appropriately and act upon it in their own self-interest. The problems discussed in

²² Paul Klemperer, *Entry Deterrence in Markets with Switching Costs*, 97 *ECON. J.* 99 (1987).

²³ Moreover, consumers that switch will tend to be the ones with lower switching costs. These consumers are less profitable for the company, as they are likely to switch back to the incumbent if the entrant attempts to increase its price in the future.

those models primarily arose from external constraints or costs that inhibited optimizing behavior and the general principles behind remedies tend to focus on removing such constraints.

When consumers depart from optimizing behavior they may behave in ways that make them economically vulnerable, providing firms with the ability to exploit that behavior.²⁴ The departures from unconstrained optimizing behavior may be summarized under two different headings: bounded rationality²⁵ and non-standard preferences.²⁶

The notion of bounded rationality, attributable to Herbert Simon,²⁷ can be summarized as the time and attention a person can apply to a task is a scarce resource. As a result, people are bounded in their ability to process, i.e., receive, store, retrieve, and transmit, the relevant information required to make consistently optimal choices. Related to this literature is the impact of heuristics on behavior. For instance, to limit the time, effort, and cognitive resources a person expends to solve complex decisions, some people may attempt to use 'rules-of-thumb' that simplify problems in a way that provides solutions, which, more often than not, lead to satisfactory, but not necessarily optimal outcomes. In terms of markets and consumers, Glenn Ellison suggests that cognitive costs experienced by boundedly rational consumers might simply be interpreted as search costs.²⁸ This involves a reinterpretation of the tourists and natives model from Section II.A, such that in place of searching for price information is the processing of existing relevant information. Natives, then, are consumers with low processing cost, while tourists are consumers high processing costs. From the results in Section II.A it follows that cognitive costs can lead to market power when consumers' tasks are complex to perform.

Some consumer behavior may depart from what is assumed and expected by optimal decision making, because consumers' underlying

²⁴ It is possible that both consumers and firms depart from optimal behavior, but it is usually accepted that firms are likely to have more information about and a better understanding of a market in which they operate as compared to consumers. For instance, competing firms have much more to gain (and lose) than an individual consumer; firms can employ specialists to analyse the market more rigorously than consumers can. Moreover, consumer understanding of a market may be limited if they have minimal experience of a market. As a result, the majority of research has focused on profit-maximizing firms and consumers that depart to some extent from optimisation behavior.

²⁵ Glenn Ellison, *Bounded Rationality in Industrial Organisation*, in *ADVANCES IN ECONOMICS AND ECONOMETRICS: THEORY AND APPLICATIONS* 298 (Mathias Dewatripont et al. eds., Cambridge University Press, 2003) (providing a recent review of the bounded rationality literature with respect to industrial organisation).

²⁶ For two examples of this literature, see Paul Heidhues & Botond Kőszegi, *Competition and Price Variation When Consumers Are Loss Averse*, 98 *AM. ECON. REV.* 1245 (2008); and Julio Rotemberg, *Customer Anger at Price Increases, Changes in the Frequency of Price Adjustment and Monetary Policy*, 52 *J. OF MONETARY ECON.* 829 (2005).

²⁷ The notion of bounded rationality is attributable to Herbert Simon. See HERBERT SIMON, *MODELS OF MY LIFE* (MIT Press, 1996) (reviewing earlier work dating back to the 1950s).

²⁸ Ellison, *supra* note 25.

preferences are structured so that, even if individuals can acquire and process all of the relevant information, what they prefer and how they frame the problem is different from the model of optimization. We refer to this behavior as non-standard preferences.²⁹ In the current state of knowledge there is no operational model that is consistently used to analyze the behavior of people with non-standard preferences.³⁰ With respect to markets and consumers, however, three main areas have been identified where consumer behavior systematically differs from what is expected by standard preferences.

First, consumers may have limited abilities to anticipate and correctly predict their future tastes as well as their and others' actions. Moreover, consumers may also give greater weight to the present and immediate future relative to the weights given to different points in the future.³¹ For example, it has been suggested that people may discount more heavily between the present and the future than between different future time periods.³² This can result in a tendency to put off actions that cost time and effort in the short-run and seem more palatable when postponed slightly, leading to forms of procrastination which may have much of the same implications as the existence of search and switching costs. In addition, people may encode past experience as snapshots, focusing on high/low points, recalling more vividly the most recent elements, and act accordingly, rather than remembering the whole experience and using it as the basis for future choice.

Second, people may behave as if they are 'excessively' risk averse in some circumstances, while being risk seeking in others, seemingly evaluating gains and losses asymmetrically relative to the status quo. In addition, judgments about the likelihood of events,

²⁹ Stefano DellaVigna, *Psychology and Economics: Evidence from the Field*, J. OF ECON. LIT. (forthcoming) (reviewing a substantial and growing body of empirical evidence of people that exhibit non-standard preferences in the field).

³⁰ Some recent empirical studies, summarized in J.D. Wright, *Behavioral Law and Economics, Paternalism, and Consumer Contracts: An Empirical Perspective*, 2 N.Y.U. J. OF L. & LIBERTY 470 (2007), fail to provide empirical support for the non-standard preference models.

³¹ Where consumers do not adequately foresee the cost and benefits of the contract, the 'bargains' may not compensate for later 'rip-offs'. See, e.g., Lawrence M. Ausubel, *Adverse Selection in the Credit Card Market* (Univ. of Maryland, Working Paper, 1999), available at <http://www.ausubel.com/creditcard-papers/adverse.pdf>. Ausubel analyses a field experiment undertaken by a credit card company. There were three offers, mailed out at random: the 'standard' offer was to charge 6.9% on balances for the first 6 months and 16% thereafter; the 'pre-teaser' offer also charged 16% after the first 6 months but offered 4.9% for those first 6 months; and the 'post-teaser' variant started with 6.9% but offered 14% after the first 6 months. Given the actual amounts of borrowing observed among those who took up each offer, the post-teaser treatment was at least as advantageous as the pre-teaser (relative to the 'standard'). However, the take-up rate for the pre-teaser was about 2.5 times greater than that for the post-teaser. One possible explanation of this result is that consumers place excessive weight on the first 6 months, believing that they can take advantage of the attractive initial rate while reducing their post-6-month borrowing sufficiently to come out ahead; but that they underestimate their capacity to rein in their borrowing.

³² See David Laibson, *Golden Eggs and Hyperbolic Discounting*, 112 Q. J. OF ECON. 443 (1997); Ted O'Donoghue & Matthew Rabin, *Studying Optimal Paternalism, Illustrated by a Model of Sin Taxes*, 93(2) AM. ECON. REV. 186-191 (2003); DellaVigna, S and Malmendier, U (2004) "Contract Design and Self-Control: Theory and Evidence," Q.J. OF ECON., 119, 353-402.

especially personal adverse events, may be confounded with and distorted by the nature of the outcome and may systematically fail to follow basic 'laws' of statistics.

Third, some individuals are unlikely to attend equally or 'appropriately' to all aspects of a good or service or all facets of a transaction: they are liable to pay less attention to those aspects or characteristics which are less visible or salient. For example, they may neglect various add-ons and extra charges; while at the same time, if 'optional' charges are included, they may not notice that they can opt out. There may be a tendency to act as if those characteristics which are more difficult to assess receive too little attention and those which are easier to assess receive too much. Uncertainties may be neglected or simplified, probabilities may be found difficult to compute, interest rates difficult to compound, and so on, with short-cuts vulnerable to bias.

It is not always easy to draw a sharp distinction between limitations of judgment and the heuristics and possible errors that may follow from this and 'genuine' preferences that are configured differently. It could be that, in the face of the lack of time and ability to acquire and process all of the relevant information appropriately, many individuals exhibit the same kinds of heuristics, which then take on the appearance of some alternative non-standard model. For example, with respect to the ways in which people handle decisions involving risk, a number of alternative theories have emerged which relax one or more of the conventional axioms of rational choice.³³ But whether these are alternative forms of non-standard preferences, or models which systematize certain subsets of heuristics, is still an open question. Likewise, with respect to the ways in which people handle intertemporal decisions, it is not clear whether people actually discount the future in some non-standard way, or whether their shortcuts and errors tend to operate as if they follow some alternative system of discounting.³⁴

III. HELPING CONSUMERS OBTAIN INFORMATION AND MAKE COMPARISONS

The previous section showed that lack of consumer information can provide firms with a degree of market power, because consumers may purchase a product even though a rival product is cheaper or suits their wants better, other things equal. This section discusses the interventions that are available to increase consumer ability to acquire the necessary information to make informed purchasing decisions either

³³ See generally Chris Starmer, *Developments in Non-Expected Utility Theory: The Hunt for a Descriptive Theory of Choice under Risk*, 38 J. OF ECON. LIT. 332 (2000).

³⁴ As in some form of 'hyperbolic' discounting of the kind discussed by O'Donoghue and Rabin. See Donoghue & Rabin, *supra* note 32.

through searching the market effectively or using information provided by others.

There may be two reasons why before the point of sale (POS) consumers find it difficult to identify which firm offers the lowest price or which firm's product satisfies their wants best. On the one hand, they may not have the information because they are unaware that there is something to search for or the costs of searching for it are too high. On the other hand, they may have the information, but make poor use of it due to high processing costs; such as where pricing structures and products are complex to understand. An important aspect is whether firms have an incentive to provide consumers with the necessary information, and if they do, whether they have the ability to do so in a manner which consumers would find credible. Thus, it is not just a matter of making consumers come to information; instead, the information could come to the consumer.

Remedies can increase the number of consumers making informed choices by providing consumers with information about products, assisting consumers to compare offerings when comparisons are complex, and reducing the costs of finding the necessary information. Regulating the information is a less intrusive way of making a market work well, which may be beneficial to all, including policymakers, as it uses fewer resources. The best remedy may then be to help or encourage firms to provide better information.³⁵ There may indeed be a benefit from requiring firms to communicate with consumers, as they are likely to do so more effectively than policymakers as illustrated by Ippolito and Mathios.³⁶ In order to design a remedy which supports or encourages firms to communicate directly to consumers requires an appreciation of why firms are not already doing so. Before considering remedies to increase consumer search or the efficiency of their information processing, we provide a brief discussion of when adequate information will not be provided by the market³⁷ and problems that can occur when this happens. We then turn to measures that are available to help consumers search the market and make comparisons include providing information about

³⁵ Although regulators must be careful when it comes to the manner in which the information is provided, since information provision can increase the likelihood of collusion in some situations. See Section VI for a detailed discussion of the effects of searching and information provision in a potentially collusive consumer market.

³⁶ See Pauline M. Ippolito & Alan D. Mathios, *Information and Advertising: The Case of Fat Consumption in the United States*, 85 AM. ECON. REV. 91 (1995). They examined changes in consumption during two regulatory regimes in the US. One regime was characterised by attempts by government and others to educate the public about links between fats and disease risks. The other gave firms incentives to provide this education themselves through advertising and labels. Their main finding was that while consumers responded to information flows throughout the two periods by reducing their fat consumption, the rate of change of fat consumption was higher in the second period where the information was provided by the firms.

³⁷ For an in-depth review of the advertising literature, see Kyle Bagwell, *The Economic Analysis of Advertising*, in 3 HANDBOOK OF INDUSTRIAL ORGANIZATION (Mark Armstrong & Robert H. Porter eds., North Holland, 2007).

quality, standardization of pricing structures (to facilitate comparisons), and price comparison sites.

A. *The Economics of Information Provision*

In a competitive market, firms can have incentives to provide consumers with information about the deal they are offering. For example, the 'unraveling principle' suggests that firms have an incentive to provide consumers with complete information about their products if there are differences between products, which consumers care about, and firms can make credible statements about their products. The intuition is that if no firm revealed the relevant information, consumers would assess all firms as 'average' in terms of what they offer. Therefore, the firm offering the best terms has an incentive to disclose its information to consumers in order not to be considered average. Among any group of firms yet to reveal information, there is a firm that is 'best among the rest' which is hurt by being considered one of the rest and which hence also discloses information. This occurs until there is one firm left (that offers the worst deal on the market) and consumers infer its quality from the firm's silence.³⁸

The unraveling principle rests on the assumption that the truthfulness of revealed information can be verified either directly by consumers or at least by a trusted third party. As a result, the principle suggests that a powerful remedy may be to help firms make credible statements so that they are able to communicate with their consumers. Although the unraveling principle may not be as effective when some of the assumptions it is based upon are relaxed,³⁹ there is evidence that the unraveling principle does exist in reality, but rarely works perfectly.⁴⁰

³⁸ Sanford J. Grossman, *The Informational Role of Warranties and Private Disclosure About Product Markets*, 24 J. OF L. AND ECON. 461 (1981); Paul R. Milgrom, *Good News and Bad News: Representation Theorems and Applications*, 12 BELL J. OF ECON. 380 (1981).

³⁹ See, e.g., Boyan Jovanovic, *Truthful Disclosure of Information*, 13 BELL J. OF ECON. 36 (1982); Insuk Cheong & Jeong-Yoo Kim, *Costly Information Disclosure in Oligopoly*, 52 J. OF INDUS. ECON. 121 (2004). Both find that information provision is incomplete where disclosure is costly. See Joseph Farrell, "Price as Signals of Quality," Ph.D. Dissertation, Brasenose College, Oxford Univ. (1980). Farrell finds that unraveling may not occur where acquiring information is costly for the producer. In addition, in Paul Milgrom & John Roberts, *Price and Advertising Signals of Product Quality*, 94 J. OF POL. ECON., 796, the authors argue that competition is not generally sufficient to provide decision makers with full information about products if they are strategically unsophisticated. Lastly, in Steven Shavell, *Sharing of Information Prior to Settlement or Litigation*, 20 RAND J. OF ECON. 183 (1989), Shavell highlights the importance of the credibility of the firms' statements.

⁴⁰ Alan D. Mathios, *The Impact of Mandatory Disclosure Laws on Product Choices: An Analysis of the Salad Dressing Market*, 43 J.L. & ECON. 651 (2000) studies the impact of mandatory labelling in the US on salad dressing during the change in the laws governing that food products must display labels. Mathios finds evidence that there is some, if not perfect, support for unraveling. In Rosemary Avery, Donald Kenkel, Dean Lillard, & Alan Mathios, *Regulating Advertisements: The Case of Smoking Cessation Products*, 31 J. OF REG. ECON. 185 (2007) analyse the information provided by firms for smoking cessation products when the products move from prescription to over-the-counter (OTC) status. As a result, an expert purchaser (the general

Information about the relative qualities of competing products can be difficult to gather, as in many cases consumers have to purchase the product before they can make a full assessment.⁴¹ As firms are often well informed about the quality level, this gives rise to an information asymmetry pre-purchase. When consumers cannot verify firms' claims about their products, fully rational consumers will disregard any information that is provided.⁴² As a result, the unraveling principle fails to provide consumers with the relevant information.

The ability of consumers to verify the quality of different products pre-purchase depends upon the characteristics of each product. Products have traditionally been divided into three separate categories. The first is search goods where it is easy to assess quality pre-purchase, so firms can disclose credible information about its products. The second is experience goods where consumers cannot verify a product's quality pre-purchase, but it is easy to assess post-purchase. The third is credence goods where consumers are unable to assess a product's quality before or after purchase. Most goods have a mixture of these attributes and in reality it is a question about the nature of this mix. Problems due to information asymmetries are likely to be insignificant for search goods and experience goods that are purchased frequently. A search good's quality can be observed by simple inspection pre-purchase. Previous purchases of an experience good can improve a consumer's information for subsequent purchases and help them to decide whether to purchase the same product again or switch to a different product. Problems for consumers arise in the case of credence goods or, when they have infrequent interaction with firms, experience goods.⁴³

When firms are better informed than consumers about quality,

practitioner) is no longer involved in the purchasing decision. Advertising should increase when a product moves to OTC status, because, compared to an expert, consumers (a) require more information to make a judgement; and (b) are more susceptible to claims. The results show some evidence for the unraveling principle as OTC status increases advertising. Finally, in Ginger Zhe Jin, *Competition and Disclosure Incentives: An Empirical Study of HMOs*, 36 RAND J. OF ECON. 93 (2005), the author provides empirical evidence that the unraveling principle does not work for health maintenance organizations (HMOs) that provide a form of health insurance coverage in the US. Lack of expertise makes it difficult for patients to assess whether the medical intervention is appropriate and properly carried out. Due to HMOs consistent low service quality, they began to be accredited by the National Committee of Quality Assurance (NCQA) in 1991. Controlling for cost and demand factors, Jin finds that in more competitive markets, HMOs are less likely to disclose through the NCQA.

⁴¹ Phillip Nelson, *Information and Consumer Behavior*, 78 J. OF POL. ECON. 311 (1970).

⁴² Information from firms is "cheap talk," as consumers cannot identify which firms are telling the truth and which are not. See Joseph Farrell & Matthew Rabin, *Cheap Talk*, 10 J. OF ECON. PERSPECTIVES 103 (1996).

⁴³ In Julia A. Caswell & Eliza M. Mojduszka, *Using Informational Labelling to Influence the Market for Quality in Food Products*, 78 AM. J. OF AGRIC. ECON. 1248 (1996), the authors point out that labelling and government monitoring can affect how we might classify a product. "For example, mandatory nutrition labelling makes characteristics such as fat content into search attributes that can be verified by reading the package label, while government oversight of claims increases their credibility. Thus labelling policies are intended to improve the quantity, and often the nature, of quality signalling in markets in order to improve the functioning of markets for quality attributes." *Id.* at 1252.

two types of problems can occur. Either a market may not exist for a good or service or a market is less efficient than if there is symmetric information. As an example, consider a used car market, where salespeople hold private information on which cars are high quality and which are low quality. Consumers are uncertain of a car's quality until they have purchased the car, and so both high and low quality cars sell for the same price. Consequently, for a car of unknown quality, consumers are willing to pay more than they would for a low quality car, because it may be high quality but less than they would for a high quality car, because it may be low quality. A market for high quality cars may not exist, because a salesperson is willing to sell a low quality car at a higher price, but is unwilling to sell a high quality car at a lower price. As a result, rational consumers realize that only low quality cars will be offered so they will only be willing to pay the value of low quality cars.⁴⁴ If consumers do not have the strategic sophistication to work out that only low quality products will be produced and believe information provided by interested parties to some extent, there is a possibility that consumers will be misled by firms.⁴⁵

In some cases firms can overcome the problems arising from asymmetric information. This can occur when producers of high quality durable goods offer warranties, which low quality producers would not implement, as they expect consumers will use the warranty on too many occasions,⁴⁶ where firms develop a reputation of supplying high quality goods,⁴⁷ and where firms are able to signal their product's quality through price.⁴⁸

B. Interventions

If firms cannot be relied upon to provide consumers with relevant, accurate, and credible information, a close substitute may be to make more use of comparison sites, particularly those that are internet based. This is considered immediately below. Most sites focus on price, but they may also contain information about certain aspects of quality. The beneficial effect of such sites may be negated by firms creating overly complex or incomparable prices or indeed variants of

⁴⁴ George A. Akerlof, *The Market for 'Lemons': Quality Uncertainty and the Market Mechanism*, 84 Q. J. OF ECON. 488 (1970).

⁴⁵ In Daylian M. Cain, George Loewenstein, & Don A. Moore, *The Dirt on Coming Clean: Perverse Effects of Disclosing Conflicts of Interest*, 34 J. OF LEGAL STUD. 1 (2005), the authors give an example from psychology where subjects are paid for their ability to estimate the number of coins in a jar. Subjects only see the jar from a distance, but they can rely on the information of advisors who can inspect the jar up close. In treatment 1, advisors are paid with respect to how close the subjects' guesses are to the actual amount, but in treatment 2 they are paid with respect to how high guesses they are. Despite the advisors' incentives being common knowledge, guesses are on average 28 per cent higher in treatment 2, which suggests that the subjects are influenced by advisors despite the conflict of interests.

⁴⁶ Grossman, *supra* note 38.

⁴⁷ JEAN TIROLE, *THEORY OF INDUSTRIAL ORGANISATION* (MIT Press, 1988).

⁴⁸ Milgrom & Roberts, *supra* note 39.

the product. The following sub-sections discuss the potential effects of various forms of standardization which may facilitate comparisons whether or not there is a price comparison site in operation.

i. Price Comparison Sites

When information is costly to gather, consumers may not search exhaustively for the supplier that offers the best terms. Price comparison sites⁴⁹ provide consumers with a list of prices for similar products that are available from multiple firms as well as possible quality reviews.⁵⁰ In this case, while consumers have to do some search and information processing, most of the information is provided for by a third party. This can lower search costs as consumers can quickly locate the best deal, which can intensify competition.⁵¹ These sites can be operated by a regulator or a private company, which may or may not be for-profit, which may affect their credibility.⁵² Moreover, a price comparison site can at the same time increase the amount of information in the market for firms, increasing the likelihood of tacit collusion in some markets.⁵³

The ability to search the market with a single click of a mouse radically reduces search costs and intensifies competition. Some academics believed that the internet would create intense price competition and the law of one price would prevail.⁵⁴ Current research suggests that this belief was optimistic, despite robust evidence that price comparison sites have lower prices.⁵⁵ A number of explanations

⁴⁹ Price comparison tables can be Internet-based but need not be. Since the advantages of being internet-based is evident, including up-to-date information, easy access and assistance by presenting other information such as shopping guides, third party reviews and consumer reviews, we focus on Internet-based sites.

⁵⁰ In Amanda Hollenbacher & David B. Yerger, *Third Party Evaluations and Resale Prices in the US Used Vehicle Market*, 8 APPLIED ECON. LETTERS 415 (2001), the authors find that a negative evaluation of a make of a car by a consumer report provided by a third party could have an adverse effect on the value of at least some classes of second hand cars. According to the authors, this is the first study to find any such adverse effect, suggesting that even when it comes to big-ticket items such as cars, consumers may ignore readily available information.

⁵¹ Office of Fair Trading, "Credit Card Comparisons," A report by the OFT (Feb. 2008), available at http://www.offt.gov.uk/shared_offt/reports/financial_products/oft978.pdf. This report recommends the FSA to introduce a price comparison site for credit cards to reduce search costs for consumers. Research shows that about 70 percent of consumers who have taken a credit card out in the last three years did not search the market.

⁵² For example, the Financial Services Authority operates a price comparison table for financial products, available at <http://www.moneymadeclear.fsa.gov.uk/>; and there a number of private firms operating sites for insurance and utility switching; financial products; hotels and holiday packages; and consumer products, such as laptops, digital cameras and TVs, among others. Energywatch sponsors a voluntary code for price comparison sites. For more details, see www.energywatch.org.uk/help_and_advice/saving_money/index.asp

⁵³ For more discussion of the conditions likely to lead to collusion, see Section VI.

⁵⁴ J. Yannis Bakos, *A Strategic Analysis of Electronic Marketplaces*, 15 MIS Q. 295 (1991).

⁵⁵ In Fiona Scott Morton, Florian Zettelmeyer, & Jorge Silva-Risso, *Consumer Information and Discrimination: Does the Internet Affect the Pricing of New Cars to Women and Minorities?* 1 QUANTITATIVE MARKETING & ECON. 65 (2003), the authors show that consumers pay on average 2.2 per cent less for cars using a referral site, which is a saving of \$450 for an average car. In Jeffrey R. Brown & Austan Goolsbee, *Does the Internet Make Markets More Competitive?*

have been offered for the failure of the internet in general and comparison sites in particular to remove price dispersion. Some of these failures could in turn be remedied.

Price comparison sites will not eliminate price dispersion in the market if only some consumers use the facility. Varian⁵⁶ models an information clearinghouse, such as a price comparison site, where those consumers who use the clearinghouse are able to purchase a homogeneous product from the lowest-priced supplier, but those who do not, shop at random.⁵⁷ The model shows that increasing the number of consumers using the information clearinghouse lowers prices, and prices tend to approach marginal cost if all consumers use the information clearinghouse.⁵⁸ Baye and Morgan present a model where the price comparison site is a profit-maximizer. They show that the price comparison site can lower prices, but price dispersion will remain on the sites even if all consumers use the site to shop at the lowest-priced firm.⁵⁹

Trust, however, may matter. Varian, as well as Baye and Morgan, assume that consumers shop at the lowest-priced firm when they use an information clearinghouse.⁶⁰ Baye, *et al*, provide evidence that this is not the case for price comparison sites as they found that only 13% of consumers on average purchased from the lowest-priced

Evidence from the Life Insurance Industry, 110 J. OF POL. ECON. 481 (2001), the authors provide evidence that price comparison sites in the US lowered prices for life insurance by 8-15 per cent between 1992 and 1997. In Glenn Ellison & Sarah Fisher Ellison, Search, Obfuscation, and Price Elasticities on the Internet, (MIT Department of Economics, Working Paper 04-27), available at <http://web.mit.edu/gellison/www/search.pdf>, the authors show that demand for computer memory becomes extremely price sensitive when a price comparison site plays a dominant role, but price dispersion of about 5 per cent remains. See Michael R. Baye, John Morgan, & Patrick Scholten, *Price Dispersion in the Small and in the Large: Evidence from an Internet Price Comparison Site*, 52 J. OF INDUS. ECON. 463 (2004) (showing that prices are more dispersed on a price comparison site when fewer firms list prices. Specifically, average price dispersion between the lowest and second lowest price is 23 per cent when there are two firms, but this falls to 3.5 per cent when there are 17.). Michael Smith & Erik Brynjolfsson, *Consumer Decision-making at an Internet Shopbot*, 49 J. OF INDUS. ECON. 541 (2001) (showing that there is 33 per cent (\$16.54) price dispersion between the lowest and the mean price for homogeneous books). Xing Pan, Brian T. Ratchford, & Venkatesh Shankar, *Why Aren't the Prices of the Same Item the Same at Me.com and You.com? Drivers of Price Dispersion Among e-Tailers*, (Univ. of Maryland, Working Paper, 2001) (showing that suppliers of electronic goods differentiate themselves across shopping convenience, reliability, product information, shipping fees and pricing policy, but despite controlling for this, price dispersion is still large). The economic literature of online price dispersion is reviewed by OFT (2007) "Internet Shopping," An OFT Market Study, June 2007, Annexe F, chapter 5.

⁵⁶ Varian, *supra* note 12.

⁵⁷ This is another version of the tourist-native model; see Section II.A for more discussion.

⁵⁸ OFT (2007) suggests that 47 per cent of consumers have used at least one price comparison site, but about 20 per cent of consumers do not search other firms' sites when purchasing online.

⁵⁹ Michael R. Baye & John Morgan, *Information Gatekeepers on the Internet and the Competitiveness of Homogeneous Product Markets*, 91 AM. ECON. REV. 454 (2001). The intuition is that if the price comparison site is so efficient that there is no price dispersion, the price comparison site has no informational value and receives no profit, intense competition in the product market leads to zero profit for subscribing firms, which eliminates the rents the price comparison site can extract from the firms, and a price comparison site that is extremely efficient at allowing consumers to shop at the lowest-priced firm is likely to make rivals exit the market to leave just one firm.

⁶⁰ Varian, *supra* note 12; Baye & Morgan, *supra* note 59.

retailer of electronic products.⁶¹ One explanation is that consumers are unwilling to purchase from the lowest-priced firm if it is an unknown brand. Trust is important for online consumers as they rely on firms to provide the product after they have paid for it. Some empirical evidence of online brand loyalty backs this up.⁶² As a result, firms can differentiate themselves on the quality of their delivery service, as firms that are reliable can attract consumers who are concerned with the firms' credibility while still charging a higher price.⁶³ It is possible for internet retailers to address some of the reputation effects through consumer assessments included on price comparisons sites. Adding this extra dimension to a price comparison site increases its informational content, but also adds complexity for the consumer.

Furthermore, price comparison sites may not cover all firms within a market.⁶⁴ As a result, consumers may need to use more than one price comparison site to increase their chance of finding the firm that offers the best terms. Consumers may be unwilling to spend time and effort on checking each firm's offerings even though it can take a single click of a mouse. They instead focus on the products that are most prominent. Thus, Brynjolfsson, *et al*, show that only 16% of consumers search more than one firm on a price comparison site and as few as 9% clicked through subsequent search pages.⁶⁵ De Vos and Jansen suggest that consumers spend only 11 seconds viewing search results.⁶⁶ In addition, Jansen, *et al*, showed that about 67% of 18,113 users did not search beyond their first enquiry on a major search engine.⁶⁷ Consumers may overestimate the ability of comparison sites to

⁶¹ Michael R. Baye, John Morgan, & Patrick Scholten, *Temporal Price Dispersion: Evidence from an Online Consumer Electronics Market*, 18 J. OF INTERACTIVE MARKETING 101 (2004).

⁶² Michael R. Baye, John Morgan, & Patrick Scholten, *Pricing and Reputation in Online Consumer Electronics Market*, (Indiana University, Working Paper, 2002) estimate that 17 per cent of online price dispersion for electronic goods can be attributed to brand loyalty. See also Smith & Brynjolfsson, *supra* note 55 (finding that consumers use brand as a proxy for retailer credibility and shipping reliability, so well-known book retailers can maintain a \$1.72 price premium, on average, over lesser known retailers). Michael Baye & John Morgan, *Price Dispersion in the Lab and on the Internet*, 35 RAND J. OF ECON. 449 (2004) (showing that as consumers exhibit more brand loyalty for electronic products price dispersion falls, but the average and lowest prices increase). Internet Shopping, *supra* note 55 (finding that consumers are willing to pay a premium for goods at a 'bricks and clicks' retailer compared to a retailer that is online only, as this provides more security if the product is faulty). An Online Shopping Report commissioned by Quidco in 2007 found that one in three consumers go directly to well-known brand's websites as an alternative to using price comparison sites. See "British consumers wary of price comparison websites" (27 August, 2007) available at <http://www.bizreport.com>.

⁶³ Other reasons for consumers not purchasing from the lowest-priced firm can include obfuscation strategies by firms, which are aimed at dampening competition and making comparisons between offerings difficult, and paying for prominence. These are discussed below.

⁶⁴ Baye & Morgan, *supra* note 59 (showing that profit-maximising price comparison sites prefer to list only some of the firms in the market, because this generates price dispersion).

⁶⁵ Erik Brynjolfsson, Michael D. Smith, *The Great Equalizer? Consumer Choice Behavior at Internet Shopbots*, (MIT Sloan School of Management, Working Paper, No 4208-01, 2001).

⁶⁶ De Vos and Jansen, "Visual Attention to Online Search Engine Results," A study by Market Research Agency De Vos & Jansen in cooperation with full service Search Engine Media Agency Checkit (2001), available at http://www.checkit.nl/pdf/eyetracking_research.pdf.

⁶⁷ Major Bernard J. Jansen, Amanda Spink, & Tefko Saracevic, *Real Life and Real Users: A Study and Analysis of User Queries on the Web*, 36 INFO. PROCESSING & MGMT. 207 (2000).

deliver the best outcome for them. The OFT estimates that if consumers use only one of ten price comparison sites, they would have only a 50% chance of finding the lowest price.⁶⁸ It also finds that approximately one million internet shoppers only use one price comparison site, because they are unaware of the benefits available from searching other price comparison sites.⁶⁹ It is suggested that if these internet consumers used each price comparison site as effectively as possible they could gain between £150 and 240 million per annum.

This behavior provides firms with an incentive to pay to be prominently displayed at the top of the list.⁷⁰ This may lead to consumers paying more for their products if they expect the products to be listed in terms of price or quality.⁷¹ According to the 2007 Online Shopping Report commissioned by Quidco, paying for prominence has lowered consumers' confidence in price comparison sites.⁷² One in three consumers have stopped using them and 47% said they would not use them again after finding out that results are often biased by which firm pays the most. As a result, price comparison sites will be more effective if consumers have the ability to select how the information is ordered.⁷³ This will make consumers' search tasks easier and limit the incentive for firms to pay for prominence, which may increase consumer confidence in price comparison sites and increase usage. Consequently, consumers should be made aware of the limitations of individual comparison sites in terms of their coverage of the market and the way in which the coverage affects their ability to find the best deal. Consumers should also be made aware that independent price comparison sites, if available, have no incentive to exclude some firms from the comparison and may be a better resource to use.

It may be that the sites increase the information readily available to consumers but at the same time have no, or possibly even a negative effect on the cost of processing this information. The more complex products become, the more difficult it can be to rank them or for consumers to select from a wide range of attributes. Firms can attempt to limit the competitive effects of price comparison sites by making products more complex. Ellison and Ellison show that suppliers of CPUs and memory upgrades have adapted to intense price competition through a price comparison site by introducing obfuscation strategies that prevent consumers from searching the market as effectively as they would otherwise.⁷⁴ There is evidence that firms

⁶⁸ Internet Shopping, *supra* note 55.

⁶⁹ *Id.*

⁷⁰ *Id.* (finding that 14 percent of Internet retailers pay to have their products featured more prominently on price comparison sites).

⁷¹ *Id.* (suggesting 61 percent of internet users were aware that firms pay to be included and 50 per cent were aware that price comparison sites placed a retailer higher in the list if it paid. Even if consumers are aware it is not always likely that they will take account of this).

⁷² See *supra* note 63.

⁷³ *Id.* (finding that this is possible on 50 per cent of price comparison sites).

⁷⁴ Ellison & Ellison, *supra* note 55, at 450.

create multiple versions of similar products thereby complicating consumers' understanding of a product's quality to such an extent that consumers find it difficult to understand what is on offer, and which products should be compared. In addition, Ellison and Ellison suggest that the internet retailers use 'bait and switch' strategies in that they offer low priced and low quality products on the price comparison site to attract consumers to their webpage, but then are able to sell more medium and high quality goods with higher margins.⁷⁵ Consumers may use price comparison sites to find the lowest-priced firms and then search within these sites to find a product that better fits their preferences. However, there is no guarantee that the retailer is the lowest-priced provider for this preferred product.

Price comparison sites can lead to lower search costs and lower prices. This mechanism is most likely to be beneficial to consumers when they have access to the sites; are aware of the sites; firms do not pay for prominence or offer commissions which can bias recommended rankings; consumers have the ability to rank items that are compared; firms do not spuriously differentiate products that are compared; consumers use more than one price comparison site; consumers are made aware of the range of products covered and use sufficient sites to cover the market; and the price comparison site is independent and not for profit (but well advertised).⁷⁶

ii. Standardization of Pricing Information

Comparisons of prices may be hampered by the way in which prices are presented or calculated. A level of standardization is essential for comparison sites to function. More generally, some degree of standardization of prices can make consumer choices easier, as it reduces the number of dimensions that consumers need to consider in order to find the best deal. Standardization reduces computational costs for the consumer, thereby enabling more consumers to make comparisons, and to improve their accuracy, leaving consumers better informed at the POS. Standardization may simply involve insisting on a standard unit of measurement on a price label or the entire pricing structure. Alternatively, it may involve creating a single, common, measure to aggregate the different elements of the overall price; or it may restrict the way in which prices can be presented to consumers.

There is some empirical evidence that when time, effort, and cognitive resources are scarce, some consumers may make sub-optimal choices between offerings. Wilson and Waddams Price provide evidence of the benefit of consumers' switching decisions in the UK

⁷⁵ *Id.*

⁷⁶ There is robust theoretical analysis and empirical evidence of this intervention's potential effects.

retail electricity market.⁷⁷ Focusing on only those people that stated price as the sole reason for switching, they found that: (i) only 8-19% of consumers selected the cheapest supplier, which is just higher than the expected level (7-14%) if they selected a firm at random; (ii) switchers appropriated between 28-51% of the gains available, which means they are better off by £16-22 per year, on average; and (iii) 20-32% of consumers selected a more expensive supplier, losing £14-35, on average, per year. The authors argue that consumers' ability to select a cheaper firm is impaired by the difficulty of comparing firms' complex non-linear tariffs.

Standardizing the units of measurement, such as price per unit, allow consumers to make simple choices between products when firms attempt to cater to heterogeneous preferences by bundling their products in different sizes. Such an intervention is very common. For example, in the UK, firms are required to provide standard price comparisons by the Consumer Protection Act 1987. Standard price comparisons do not always arise naturally from competition; and are particularly unlikely to do so when products are complex and there is no obvious comparison that captures the total cost of the product. As a result, it may be necessary for policymakers to create a standard that can be compared.

An example of this is the annual percentage rate (APR) of charge for credit.⁷⁸ The APR is a measure of the overall cost of credit expressed as an annual percentage rate. This allows consumers to consider the cost of credit across products, whatever rate or method of charging is used by different lenders. Although APR simplifies comparisons, the OFT warns that it is unlikely to capture all information the consumer needs to consider when choosing the best deal for credit.⁷⁹ Research conducted by Which? in 2007⁸⁰ found that APR for credit cards does not provide consumers with an adequate like-for-like comparison, because the top 20 credit card providers use 12 different methods to apply interest charges to their customers' accounts. This illustrates the difficulty in creating a single measure of the actual cost (price) of a complex product. As a further remedy, the OFT recommended an introduction of an independent credit card price comparison site run by the FSA.⁸¹

⁷⁷ Chris M. Wilson & Catherine Waddams Price, *Do Consumers Switch to the Best Supplier?*, (CCP Working Paper 07-6, July 2007), available at http://www.uea.ac.uk/polopoly_fs/1.104586!ccp07-6.pdf.

⁷⁸ APR was introduced in the UK in The Total Charge for Credit Regulations, made under Section 20 of the Consumer Credit Act 1974.

⁷⁹ OFT (2004) "Credit card survey," Prepared for the OFT by FDS International Ltd. "For example, the deal with a lower APR might require monthly payments the borrower cannot afford, or run for much longer than the borrower wants or than the goods bought with the credit are likely to last, or the goods might be cheaper from another store, making that a better deal even though the credit charges are higher."

⁸⁰ Which?, Press Release, "Which? launches super-complaint on credit card interest charges," April 1, 2007, available at <http://www.which.co.uk>.

⁸¹ Credit Card Comparisons, *supra* note 51.

While standardization of prices may assist consumers in comparing between offerings, this may not always be translated into lower prices, as the introduction of the Euro has illustrated. Here the standardization is not in terms of the unit of measurement but the unit of currency. In 2002 the Euro standardized currencies across 12 European countries, which had the potential to improve consumers' ability to make comparisons across participating nations, as they do not have to calculate prices in terms of their own currency. Baye, *et al.*,⁸² provide empirical evidence that online prices in the Euro Zone increased compared to prices outside the Euro Zone, despite the widespread belief that standardization would intensify competition and lower prices. Baye, *et al.*, further argue that standardization caused higher prices because it became more profitable for firms to set prices to extract rents from their captive consumers rather than competing for consumers that searched the market.⁸³ For example, standardization enables consumers to compare products of a greater number of firms, as they become aware of firms that they did not previously consider. When this occurs and firms can supply loyal consumers who purchase from the firm, and non-loyal consumers, who search for the lowest-priced firm, there are two effects: (i) a 'business stealing' effect which means firms are willing to set lower prices; and (ii) a 'surplus appropriation' effect which means that firms are more likely to set high prices to extract rents from loyal consumers, because they are less likely to attract non-loyal consumers after the number of competitors has increased.⁸⁴ As a result, prices may increase if the surplus appropriation effect outweighs the business stealing effect.

Consumers can find comparisons difficult when firms separate prices into different cost components, which can lead to some consumers being inattentive to less salient parts of the price; and comparisons require more than one characteristic to be compared, such as a price-quantity comparison and the total cost to the consumer depends upon usage, such as non-linear tariffs.⁸⁵ The corresponding remedies are to require firms to advertise a common headline price or a standard pricing comparison.⁸⁶

⁸² Michael R. Baye, *et al.*, *Did the Euro Foster Online Price Competition? Evidence from an International Price Comparison Site*, 44 *ECON. INQUIRY* 265 (2006).

⁸³ *Id.* An alternative explanation is that uninformed consumers become aware of what other people are charged preventing the firms from giving preferential treatment to informed consumers. See Morten Hviid & Peter Møllgaard, *Countervailing Power and Price Transparency*, 108 *SCANDINAVIAN J. OF ECON.* 499 (2006).

⁸⁴ Marten C.W. Janssen & José Luis Moraga-González, *Strategic Pricing, Consumer Search and the Number of Firms*, 71 *REV. OF ECON. STUD.* 1089 (2004).

⁸⁵ The total cost of a non-linear tariff is given by a flat rate, which is paid per period, and variable rates, which are dependent upon how much is used.

⁸⁶ A common headline price includes setting all-inclusive prices rather than separating the cost of add-ons and extra fees from a base line price. A standard pricing comparison requires firms to advertise an average price that captures the total cost of the product. Standardisation of price comparisons may make it easier for firms to observe each other's pricing strategies. In some situations, this may lead to tacit collusion. For more discussion of collusion, see Section VI.

Pricing strategies that separate baseline prices from other associated costs have long been standard parts of the marketing toolkit. If consumers are aware of each part of the components that make up the total cost, the price of each component can be driven down without detriment to consumers. However, when some parts of price are more prominent than others, consumers may neglect or place less emphasis on some of the components that make up the total price. Chetty, *et al.*,⁸⁷ show that consumers' inattention to taxes not included in the headline price is substantial in the US. First, they conduct a field experiment where tax-inclusive prices are posted for 750 products over a three-week period (where prices are usually posted exclusive of tax). They find that demand for these products falls by 8.8% compared to control products and nearby control stores, as tax-inclusive prices appear to be higher. Second, they find that alcohol consumption is more sensitive to a tax increase when it is included in the headline price as opposed to when it is added upon purchase. Hossain and Morgan⁸⁸ find evidence that consumers are inattentive to postage and packaging charges in a series of field experiments on an auction website. It is common practice for distance sellers to separate a product's total price into the price for the item itself and the price for postage and packaging. If consumers were fully aware of the total price, it would not matter how the price is divided, as only the total price matters. It is found that starting an auction for a CD at a lower opening price and charging a higher shipping cost leads to earlier bidding, more total bids, and a 21% higher final price.⁸⁹ Separating prices into cost components can be detrimental to inattentive consumers as they may visit a store, which they believe to be the cheapest, but can be charged more in extra fees once the consumer is at the point of sale.⁹⁰ For example, the OFT⁹¹ finds that some internet retailers defer unavoidable extra charges until the end of the transaction, when consumers are committed to buying the product.⁹²

A remedy that requires all associated costs to be brought together so that consumers are presented with a single all-inclusive price can resolve consumers' inattention to price components. There is some theoretical evidence which suggests that this type of remedy can

⁸⁷ Raj Chetty, Adam Looney, & Kory Kroft, *Saliency and Taxation: Theory and Evidence*, (NBER, Working Paper No. 13330, Aug. 2007).

⁸⁸ Tanjim Hossain & John Morgan, ...*Plus Shipping and Handling: Revenue (Non) Equivalence in Field Experiments on eBay*, 6 *ADVANCES IN ECON. ANALYSIS & POL'Y* 2[3]. Article 3

⁸⁹ *Id.*

⁹⁰ See Section IV for a detailed discussion of the effects of a point of sale advantage.

⁹¹ Internet Shopping, *supra* note 55.

⁹² OFT (2008a) "Web sweep analysis," a report by the OFT finds that 40 percent of 400 UK-based retailers whose websites were examined did not indicate that compulsory charges would be added when price was first shown. It is estimated that such unexpected charges costs consumers between £50-85 per unaware online consumer per annum, which amounts to between £60-100 million per annum.

lower prices.⁹³ This remedy was used in the European airline industry when in 2006 the European Commission passed regulations that require airlines to quote online prices inclusive of taxes, fees and charges (TFCs) to prevent them from misleading consumers.⁹⁴ The Air Transport Users Council (AUC) believed that airlines used low base prices on their websites to attract consumers who were unaware that advertised prices did not include firm-specific TFCs until they were set on purchasing the flights.⁹⁵ Requiring firms to set an all-inclusive price is easy to implement when the extra fees are unavoidable and paid by all consumers. It may be more difficult for firms to show the true cost of a product when it varies from one consumer to another, because of complementary purchases or difference in usage.

A remedy that implements a standard comparison can lead to easier comparisons and more people making informed choices. Such an intervention is most likely to be beneficial to consumers when the measure simplifies comparisons, consumers shop around and will use the comparison, and the comparison does not neglect important information.⁹⁶ A remedy requiring firms to set an all-inclusive price is easy to implement when the extra fees are unavoidable and equal for all consumers. It may be more difficult for firms to show the true cost of a product when it varies from one consumer to another because of complementary purchases or difference in usage.

iii. Providing Information About Quality

Price is not the only factor in a consumer's purchasing decision. To make an informed decision, consumers typically require information about the characteristics of the products to assess whether it meets their requirements. Often this is summarized as the "quality" of the product. Remedies can include information provision about quality levels.

Providing consumers with the ability to assess quality pre-purchase can enable consumers to make informed choices and increase the average level of quality in the market. If consumers are not aware of the terms and conditions of purchasing a product before they buy, they will be unable to assess the 'quality' until post-purchase, when consumers may need to seek redress. As a result, the lack of awareness about terms and conditions can mean that a product becomes an

⁹³ See Luke Garrod, *Price Transparency and Consumer Naivety in a Competitive Market*, (CCP Working Paper 07-10, Apr. 2008). For a more general discussion of price transparency see Elisabetta Iossa, *Modelling Changes To Consumer Welfare Caused By Reduced Price Transparency* (FSA Occasional Paper 26, Aug. 2007).

⁹⁴ See European Commission Press Release, "More competition and better quality: European Commission wants to strengthen the Single Market for Aviation," July 18, 2006, available at: http://europa.eu/index_en.htm.

⁹⁵ AUC Report, "Taxes, Fees and Charges: An AUC Report on Pricing on Airlines' Websites," (2005), available at www.auc.org.uk.

⁹⁶ There is limited theoretical analysis and empirical evidence of this intervention's potential effects and this is an area where more research is needed.

experience good, despite many other quality attributes being verifiable pre-purchase. Externally enforced rules on information provision about quality can enable or require firms to disclose a product's quality or some closely related information to act as a proxy.⁹⁷ Such information can be provided with a product, on a product's packaging, in a firm's store window, or on a website.

There is empirical evidence that providing information on quality can have beneficial effects. For example, Jin and Leslie⁹⁸ study the effect of an increase in quality information of restaurants in Los Angeles between 1996 and 1998. The Los Angeles County government passed an ordinance that required restaurants to display a letter-grade card (A, B or C) prominently in their window corresponding to the result of their most recent Department of Health Services hygiene inspection. Before grade cards were introduced firms' revenues were insensitive to changes in hygiene scores. After the regulation, an "A" grade (the best) increases revenue by 5% compared to a "B" grade (second best), on average. There is also evidence that health inspection scores increase over the period and food borne illness hospitalizations decreased by 20%, which implies that restaurants increased their quality due to grade cards. The effect upon price is unknown.⁹⁹

For quality information to have such an effect, consumers must be willing and able to process the information. Carlton and Perloff¹⁰⁰ argue that a "sensible" consumer would process information up to the point where the marginal benefit of processing the information equals the marginal cost. This implies that some consumers may not make use of all of the available information,¹⁰¹ other things being equal, when the information is complex and extremely costly to understand and the expected benefit of processing the information is limited. Consequently, consumers are likely to be uninformed about products that are complex and difficult to understand or products that are less expensive, other things being equal.¹⁰² With this in mind, information provision is going

⁹⁷ Actual information can be provided for the nutritional content on food, for example. But information about the quality of a meal in a restaurant can be more difficult to provide, but past quality may be a good proxy of present quality. Generally, actual information can be provided for goods, but this is more difficult for services.

⁹⁸ Ginger Zhe Jin & Phillip Leslie, *The Effect of Information on Product Quality: Evidence from Restaurant Hygiene Grade Cards*, 118 Q. J. OF ECON. 409 (2003).

⁹⁹ In Tasneem Chifty & Ann Dryden Witte, *Effects of Information Provision in a Vertically Differentiated Market*, (NBER Working Paper No W6493, Apr. 1998), the authors study the effects of information provision in the childcare industry. They find that providing information about quality intensifies competition. The BRE and NCC Report (2007) "Warning: Too Much Information Can Harm," an interim report by the Better Regulation Executive and National Consumer Council also found evidence in their focus groups that consumers believed that this form of 'scores' would be helpful to consumers in the UK when considering food hygiene inspection information.

¹⁰⁰ MODERN INDUSTRIAL ORGANIZATION, *supra* note 10.

¹⁰¹ To be sure, a fully rational consumer that has no cost of processing information would process all information. A boundedly rational consumer that faces costs of processing information may decide not to use all information that is available.

¹⁰² Products that are more expensive can be more complex to understand; so, information

to be most effective when it lowers the costs of consumers processing the information for expensive products. This would be the case where in the absence of the remedy, firms are unable or unwilling to provide consumers with the information in an adequate format.

Provision of quality information may also not be as effective when quality can vary along a continuous scale, but available information only distinguishes between high and low quality. In this situation, firms will only have an incentive to produce the minimum quality to get into each quality bracket. Thus, the inability to provide precise information can reduce the number of quality variants provided in the market. In addition, it may be difficult or inadequate to simplify some information. For example, when there is a large amount of information to be processed, such as information on terms and conditions of complex products, reducing the quantity may limit the usefulness of the terms and conditions because the devil is in the detail.

When a product's actual quality is difficult to measure, past quality of the product or service can be used if it is a good proxy for present quality. Firms may have an incentive to free ride on a high quality score (given by past performance) by selling or producing low quality to reduce costs in the present. Firms may try to influence their quality ratings in other ways. Dranove, *et al*,¹⁰³ analyze the impact of publicly reporting the physician and hospital mortality rates for coronary artery bypass graft (CABG) surgeries. The study concludes that New York and Pennsylvania hospitals began to avoid operating on unhealthy patients, who spent large amounts on hospital bills in the year before their surgeries, to limit the likelihood of affecting their mortality rates negatively. The authors noted that this is only a short-term effect, and that the long-term effect is unknown.

An alternative to information provision is to impose minimum standard requirements. These place a lower bound on the quality of goods or services within a market. Compared to providing information, this type of restriction also increases the average quality in the market, but the significant difference is that the variety of products within the market can be reduced. Any increase in product quality required to adhere to a minimum standard is likely to raise firms' costs and the prices faced by consumers. Consumers who prefer to purchase products with quality below the minimum requirement at lower prices will be denied the opportunity to do so. The welfare effects of such a policy are dependent upon whether the increased quality or higher prices dominate.¹⁰⁴ This type of quality standardization also has the potential

provision for these types of products will be especially effective, as consumers have more to benefit from making informed choices.

¹⁰³ Daniel Dranove et al., *Is More Information Better? The Effects of 'Report Cards' on Health Care Providers*, 111 J. OF POL. ECON. 555 (2003).

¹⁰⁴ Hayne Ellis Leland, *Quacks, Lemons, and Licensing: A Theory of Minimum Quality Standards*, 87 J. OF POL. ECON. 1328 (1979); Hayne Ellis Leland, *Minimum Quality Standards in Markets with Asymmetric Information*, in OCCUPATIONAL LICENSURE (Washington DC:

to increase barriers to entry for potential new firms. Given that firms must invest in high quality technology they are more likely to be put off by the higher (marginal and sunk) costs. Carlton and Perloff¹⁰⁵ argue that restrictions upon quality may also prevent new innovative products entering the market. They discuss how US model plumbing and building codes required pipes to be made out of copper. As a result, manufacturers that produced plastic pipes, which were less costly to produce and could be installed more quickly by a less skilled laborer, were restricted from entering the market.¹⁰⁶

iv. Regulating Non-Price Dimensions of Products

When consumers are not adept at choosing between complex offerings, firms may have an incentive to make consumer tasks more difficult. Spiegler¹⁰⁷ analyses a theoretical model where consumers use heuristics to overcome their inability to understand a product's multiple characteristics. He finds that firms respond to an increase in the number of competitors by spuriously increasing the complexity of their product, which can be detrimental to consumers as they become poorer at selecting a good deal, so competition is less intense.

Before designing a remedy, it is worth considering whether competition among firms may come to the rescue of consumers. Gaudeul and Sugden¹⁰⁸ argue that in theory firms may not be able to increase the complexity of consumers' decision problems if there is a common standard, which simplifies comparisons and is taken as a signal that the product offers value for money. Because of beliefs, competition may force firms to use common standards and set competitive prices, even if consumers are liable to make sub-optimal choices when faced with non-common standard comparisons. Although this is a plausible argument, the results of the theory depend upon there being a common standard across products and that consumers recognize when comparisons are standard and when not.

Where competition fails to reduce complexity, policymakers can for example assist consumers to make comparisons by restricting firms to package products in a standardized way. This can help consumers pick the best deal, because the number of dimensions a consumer has to consider is reduced.¹⁰⁹ Restricting product attributes can limit product

American Enterprise Institute, 1979).

¹⁰⁵ MODERN INDUSTRIAL ORGANIZATION, *supra* note 10.

¹⁰⁶ It is generally claimed that the plumbing union supported the restrictive codes to increase demand for their trade.

¹⁰⁷ Ran Spiegler, *Competition over Agents with Boundedly Rational Expectations*, 1 THEORETICAL ECON. 207 (2006).

¹⁰⁸ Alexis Gaudeul & Robert Sugden, *Spurious Complexity and Common Standards in Markets for Consumer Goods*, (CCP Working Paper 07-20, Nov. 2007).

¹⁰⁹ This remedy has the potential to lead to tacit collusion, because it restricts the dimensions that firms can compete on. See Section VI for more details.

differentiation and increase competition.¹¹⁰ However, the benefits of lower prices come at the cost of limited product variety, as consumers may be less able to purchase a good or service that satisfies their wants and needs.¹¹¹

Evidence from psychology suggests that people can be harmed by 'too much' choice. It is argued that a great variety complicates decisions and so people avoid making choices altogether, even when there are acceptable options available ('choice avoidance').¹¹² Choice avoidance could be driven by high cognitive costs of selecting a deal which is the best. When a consumer cannot work out which deal is best they may decide to procrastinate on the decision, even when they know there are gains to be made, because they believe (rightly or wrongly) that they will be able to find which deal is best in the near future. The evidence on choice avoidance suggests that some consumers may not always be harmed by a reduced variety in the market.

At the present it is unknown in which situations consumers will avoid making choices. Intuitively, it seems possible that some consumers may avoid making choices when they have limited and infrequent experience in a market, as choices will become less complex as they are made more often; the benefits from making a choice are realized in the future, so the incentive to make a choice is reduced; and they have a rolling-contract of supply of a good or service, as it is not necessary for the consumer to make a choice.¹¹³

¹¹⁰ Michael Waterson, *Models of Product Differentiation*, 41 BULL. OF ECON. RES. 1 (1989).

¹¹¹ For example, a remedy that requires firms to set a two-part tariff that has the same flat rate simplifies comparisons, as consumers only need to compare variable rates to work out which firm is cheaper. This is likely to intensify competition. However, high-usage consumers will prefer a higher flat rate and a lower variable rate compared to low-usage households. As a result, this remedy would restrict the ability of some consumers to get a deal that suits them. To the extent that there are cost differences in supplying the two groups the remedy would also make prices less cost reflective.

¹¹² There is some empirical evidence of 'choice avoidance.' In Sheeyna S. Iyengar & Mark R. Lepper, *When Choice is Demotivating: Can One Desire Too Much of a Good Thing?*, 79 J. OF PERSONALITY & SOC. PSYCHOL. 995 (2000), the authors provided consumers with the opportunity to taste a number of jams in a grocery store before purchase. Consumers were offered six varieties of jams in treatment 1, and 24 in treatment 2. There is evidence that when more jams were on offer, more consumers sampled the jam, but significantly fewer consumers purchased the jam. Moreover, Sheena S. Iyengar, Wei Jang & Gur Huberman, *How Much Choice Is Too Much? Determinants of Individual Contributions in 401(k) Retirement Plans*, in DEVELOPMENTS IN DECISION-MAKING UNDER UNCERTAINTY: IMPLICATIONS FOR RETIREMENT PLAN DESIGN AND PLAN SPONSORS (Olivia S. Mitchell & Stephen P. Utkus eds., Oxford University Press, forthcoming) presents evidence from the US that the participation rates of 401(k) (pension) plans increase when individuals have fewer options to invest in. James J. Choi et al., *For Better or For Worse: Default Effects and 401(k) Savings Behaviour*, in PERSPECTIVES IN THE ECONOMICS OF AGING 81 (David A. Wise ed., Univ. of Chicago Press, 2004) shows that participation rates of 401(k) plans increase if non-participating members are sent a reminder with only one option. While Marianne Bertrand, Sendhil Mullainathan, & Eldar Shafir, *Behavioral Economics and Marketing in Aid of Decision Making Among the Poor*, 25 J. OF PUB. POL'Y & MARKETING 8 (2006) analyzes the take up of 50,000 mailed loan offers in South Africa. They show that when the advertisement only lists one loan option example, significantly more people take-up loans than compared to an advertisement, which has four examples. The effect is equivalent to reducing the monthly interest rate by 2.3 percentage points.

¹¹³ Requiring firms to send annual renewal notices may prompt consumers into making

Limiting product differentiation can lead to easier comparisons for consumers, more intense price competition and reduced choice and variety to satisfy consumers' needs. This intervention is most likely to be beneficial to consumers when product differentiation is spurious and variety makes consumers' decisions difficult (relative to benefit from choice).¹¹⁴

C. Summary

Where consumers find price and non-price information costly to gather and possibly difficult to process, they may not be as active in a market as is necessary for them to get the best deal. When this occurs policymakers can implement interventions that either increase the information easily available or attempt to eliminate or overcome the obstructions that consumers face when searching the market. Examples of such interventions are establishing price comparison sites, standardizing prices and quality. Such interventions are not always necessary as in some cases firms have already got incentives to provide consumers with relevant information. They may be unable to do so effectively and hence there may still be scope for interventions that help firms make credible statements. Examples of such interventions are certification of claims and regulation of untruthful or misleading statements.

Consumers can find it difficult to choose the best deal when they are faced with a choice between several complex products or pricing structures. An intervention that attempts to resolve the complexity of the task by limiting the choice available to consumers can reduce the likelihood that consumers will find a product to best suited to their wants and needs. Therefore, less intrusive interventions that aim to assist consumers to make informed decisions without affecting the choice available in the market may be superior in the majority of cases.

Design of a remedy must take account of the sophistication of consumers and their access to information. It is not enough that the information is available to consumers; they must also be willing and able to act upon it. When consumers find information costly to process they may misunderstand the message or choose to ignore much of the information provided. As a result, interventions that attempt to increase the ability of consumers to make informed choices will be most effective when the information is simple and easy for consumers to grasp. In addition, information requirements should not be overly prescriptive, preventing firms from communicating with consumers

choices. In effect such a remedy would aim to increase the consumers' perceived cost of procrastination. Whether such costs should be included in the assessment of the remedy is an open question.

¹¹⁴ There is robust theoretical analysis on this intervention, but no empirical evidence.

effectively. The effectiveness of the interventions will be enhanced if the interests of firms can be aligned with those of policymakers.

IV. HELPING CONSUMERS MAKE INFORMED CHOICES AT THE POINT OF SALE

This Section discusses the interventions that are available to prevent consumers from making uninformed decisions at the point of sale (POS) and those that allow consumers to correct such decisions post-POS. The POS is the location at which consumers purchase goods and services. This can include a supplier's bricks and mortar store, a website and a visit by a firm to a consumer's home. At the POS, firms can have a significant advantage over other potential suppliers ('point of sale advantage'). This is most likely to occur when consumers access the POS poorly informed about the products, their substitutes and their complements, and it is costly (in terms of time, effort and/or psychological pressure) to leave the POS without making a purchase to gather more information or shop elsewhere.

Consumers may be uninformed at the POS for various reasons.¹¹⁵ Consumers may 'choose' to be uninformed for behavioral or search cost reasons; it may be the first store they have visited as part of their search strategy; they may receive an unanticipated visit from a doorstep salesperson; or they may be faced with product offers they did not expect such as upgrades or add-ons. Firms with a POS advantage can introduce products to consumers they had not previously considered, charge high prices or offer low quality terms and conditions, and use a range of pressures to tempt consumers to make ill-considered decisions.¹¹⁶

Interventions at the POS can be complements to remedies that increase consumer information before the POS, or substitutes when interventions before the POS are likely to be ineffective. Remedies at the POS can attempt to limit a firm's POS advantage by enabling consumers to defer purchasing decisions until they have the ability to make informed choices; provide consumers with an enhanced ability at making choices; or allow consumers to revise purchases after the POS. The measures that are available to potentially help resolve the issues at the POS include written quotations, which last for a fixed period of time; in-store price comparisons; and cooling-off periods. Alternative forms of market interventions to address the POS advantages can include price control and preventing the sale of certain goods at particular locations. The focus here is on interventions that seek to

¹¹⁵ The likelihood that a consumer will be uninformed at the POS is greater when consumers have only limited experience of the market, if any. *See* Section III for more details.

¹¹⁶ In the UK, the behavior of firms at POS is regulated through a fairly complex set of consumer protection law and by a number of agencies, including trading standards, OFT and the Advertising Standards Authority plus sectoral regulators covering food standards, financial services and energy.

change consumer behavior.

Before we review the impact of the remedies, we focus on the issues that arise when consumers believe they have searched adequately, but at the POS are faced with an unexpected choice of upgrade or add-on.

A. *The Economics of Add-Ons*

Add-ons are products that complement a base good. There are numerous examples which include popcorn at a cinema; wine at a restaurant; refreshments in a hotel room's mini bar; an extended warranty for an electrical product; and an ink cartridge for a printer, to mention just a few. For the purpose of this discussion, there is a distinction between add-ons that complement a base good without impairing the effectiveness of that base good,¹¹⁷ and add-ons that are consumable and are necessary to make the base good work at all.¹¹⁸ In this Section, we are more concerned with the former, as in most situations the latter are usually bought as replacements at a later date, so firms do not benefit from a POS advantage.¹¹⁹

Add-ons sold at the POS can have high prices because it is convenient for consumers to purchase a complementary product at the same store rather than visiting another store to purchase a similar product. The Chicago School argues that there may be no detriment to consumers when firms charge excessive prices for add-ons, if competition exists for the base good. Lal and Matutes¹²⁰ and Verboven¹²¹ show that in theory positive profits for add-ons will intensify competition for the base good and the rents will be competed away. For instance, if firms make an £X profit on each add-on sold, a firm has a greater incentive to attract consumers with a lower base good price to realize the add-on profit. Therefore, firms are willing to undercut each other on base goods and, if the base goods are homogeneous, this occurs to the extent that the price is £X below cost, where firms receive normal profits.¹²²

More recently, Ellison extended the Chicago School's analysis to show that positive profits on add-ons may not be competed away via base good prices if firms also supply the base good to a number of more

¹¹⁷ For example, an extended warranty for a washing machine.

¹¹⁸ For example, ink cartridges for printers and new blades for razors.

¹¹⁹ This is not to say that add-ons bought at a later date are unproblematic. Competition can be affected as consumers may be locked-in to a certain consumable brand. Moreover, consumers may find it difficult to estimate the life cost of the product when purchasing the base good. See Section V for a discussion of these types of switching costs.

¹²⁰ Rajiv Lal & Carmen Matutes, *Retail Pricing and Advertising Strategies*, 67 J. OF BUS., 345 (1994).

¹²¹ Frank Verboven, *Product Line Rivalry and Market Segmentation—With an Application to Automobile Optional Engine Pricing*, 47 J. OF INDUS. ECON. 399 (1999).

¹²² The results of these models are driven by a similar intuition as the 'bargain-then-ripoff' pricing when consumers face switching costs (discussed further in Section V).

price-sensitive consumers who do not purchase the add-on.¹²³ Under such circumstances, firms face an adverse selection problem that reduces their incentive to set base good prices below marginal cost compared with a situation where all consumers purchase the add-on or where they are equally price sensitive. The intuition is that although a lower base good price attracts rents from a greater number of consumers who purchase the excessively priced add-on, it can result in greater losses from the more price-sensitive consumers who do not do so.

Firms' ability to set high prices for add-ons is aided by the fact that consumers are usually poorly informed about add-ons at the POS. For example, Cruickshank¹²⁴ finds that just under half of respondents to a UK Treasury survey said they had "no idea" about the fees for their bank's additional financial services and Hall¹²⁵ reports that only 3 per cent of printer owners claim to know the cost of printing when purchasing a printer. Consumers' inability and unwillingness to find information about add-ons before the POS is exacerbated in some situations where firms seem to make gathering more information difficult by obfuscating prices and not advertising add-on information. For example, in the CC market inquiry into extended warranties on domestic electrical goods, the CC argued that "Most manufacturers do not actively promote their own [extended warranties]".¹²⁶

Gabaix and Laibson present a model of add-ons that focuses on firms' incentives to advertise add-on prices or not.¹²⁷ They consider a market in which consumers have the possibility to substitute away from add-ons before the POS. However, some consumers are sophisticated, in the sense that they correctly forecast firms' add-on prices if they are not advertised; but other consumers are myopic, in that they do not consider purchase of the add-on until the POS of the base good where they are captive as they have missed the opportunity to purchase the add-on elsewhere. The model shows that when there is a sufficient proportion of consumers that (myopically) select a firm on the level of firms' base good prices only, firms find it profitable to not advertise add-on prices. Firms exploit myopic consumers by attracting them with low base good prices but set add-on prices at the monopoly level. In contrast, sophisticated consumers take advantage of low base good prices but substitute away from high priced add-ons. When there is a sufficient proportion of sophisticates, however, firms advertise add-

¹²³ Glenn Ellison, *A Model of Add-on Pricing*, 120 Q. J. OF ECON. 585 (2005).

¹²⁴ Don Cruickshank, "Review of Banking Services in the UK," (London: HM Treasury), available at http://www.hm-treasury.gov.uk/fin_bank_reviewfinal.htm.

¹²⁵ Robert Hall, *The Inkjet Aftermarket: An Economic Analysis*, (Stanford Univ., Working Paper, 2007) available at <http://www.stanford.edu/~rehall/Inkjet%20Aftermarket%201997.pdf>.

¹²⁶ Competition Commission, *Extended warranties on domestic electrical goods*, Cm 6089 (I-III) (2003), available at http://www.competition-commission.org.uk/rep_pub/reports/2003/485xwars.htm#summary.

¹²⁷ Xavier Gabaix & David Laibson, *Shrouded Attributes, Consumer Myopia, and Information Suppression in Competitive Markets*, 121 Q. J. OF ECON. 505 (2006).

on prices and set prices of the base good and add-on at more cost reflective levels.

Shapiro¹²⁸ argues that such obfuscation of add-on prices is likely to be unsustainable as firms will have a unilateral incentive to advertise add-on prices before the POS as this is likely to prompt consumers to consider the impact of the add-on on their purchasing decision. Therefore, if add-on prices are not advertised, each firm should have an incentive to advertise a lower add-on price and increase its base good price closer to marginal cost, so that consumers can realize that purchasing both the base good and add-on at a firm with an observable add-on price is a better option.¹²⁹

Gabaix and Laibson, however, show in their model that it is not profitable for a firm to unilaterally advertise its add-on price when other firms have obfuscated, even when it educates some myopic consumers to act as if they are sophisticated.¹³⁰ The intuition is that sophisticated and educated myopic consumers prefer to purchase from firms that set high add-on prices compared to purchasing at the firm that has advertised its base good, because they benefit from low-priced base goods as they can avoid high-priced add-ons by purchasing elsewhere.

With regards to interventions in add-on markets, the above theoretical literature suggests that excessively high add-on prices is a necessary but not sufficient condition to establish that a market is not competitive, as rents can be passed through from add-ons to consumers via low prices for base goods. Therefore, it is important for policymakers to consider this possibility before intervening in an add-on market, as any remedy that attempts to lower the prices of add-ons when the profit margin is used to subsidize low base good prices can have the side effect of increasing the prices for the base goods. Such an intervention may be a benefit to consumers who purchase the add-on, but detrimental to those who do not.

On the other hand, if a policymaker is of the opinion that an add-on market is not sufficiently competitive but finds it difficult to activate consumers to an extent that intensifies competition, an alternative method to increase consumer welfare may be to activate consumers in the base good market if rents are not passed through via lower base good prices. For example, if, in the Ellison model¹³¹, firms have the ability to price discriminate between consumers who do and do not purchase the add-on, firms would not face a problem of adverse selection, which would enable them to pass through the rents from high-priced add-ons. Consequently, providing firms with the ability to

¹²⁸ Carl Shapiro, *Aftermarkets and Consumer Welfare: Making Sense of Kodak*, 63 ANTITRUST L. J. 483 (1995).

¹²⁹ This advertisement will turn consumers from being myopic to sophisticated; see Gabaix & Laibson, *supra* note 127.

¹³⁰ *Id.*

¹³¹ Ellison, *supra* note 123.

price discriminate between add-on purchasers and non-purchasers may resolve such competition issues.

Policymakers, however, may prefer base good and add-on prices to be more cost reflective for non-competition reasons. There may be sufficient consumer protection arguments that mean policymakers prefer the pricing of add-ons and base goods to be more cost reflective. For instance, firms selling high-priced add-ons may have a greater incentive to actively encourage consumers to purchase their add-ons at the POS, which may lead to pressure selling tactics. Furthermore, there may also be distributional issues if a certain group of consumers purchase the high-priced add-on, which subsidizes low prices for the base goods.

B. Interventions

The following Sections discuss the potential effects of two remedies: in-store price comparisons; and cooling-off periods.

i. In-Store Price Comparisons

In-store price comparisons are statements at the POS about the firm's rivals' prices for similar products.¹³² When consumers are at the POS and have not searched the market thoroughly, in-store price comparisons can increase competition within a market, as they can provide rivals with the ability to credibly inform consumers of lower prices for their products. This can lower prices as firms have greater incentives to attempt to attract consumers from each other and maintain the consumers that visit them first.¹³³ When consumers are uncertain of – or underestimate – the benefits of searching other firms, in-store price comparisons can also provide consumers with some of the information needed to enable them to determine whether the marginal benefit of visiting another store to purchase a similar product is greater than the marginal cost. However, in-store price comparisons will only be fully exploited by consumers if they provide credible comparisons that are trustworthy.¹³⁴ This credibly can be achieved by the monitoring of firms' comparisons by a trusted third party who removes and

¹³² Other possible comparisons at the POS include comparisons with a past price, for example 'now £X, was £Y', or with a reference price, 'X% off recommended retail price'. The focus in this Section is on present price comparisons with rivals' prices. See OFT (2005) "Research into Misleading Price Comparisons," prepared for the OFT by the Nottingham Business School, June 2005 for discussion of the impact of other price comparisons on consumer behavior.

¹³³ Given that in-store price comparisons may increase the firms' ability to monitor each other's strategies more closely, in some situations there is a possibility that this type of remedy may increase the scope for tacit collusion in markets with certain structures and characteristics (see Section VI).

¹³⁴ For example, if comparisons are not credible, rational consumers will choose to disregard the information, as all firms have incentives to claim they are the cheapest to prevent further search, but if some consumers are not fully rational they may be misled by untruthful price claims.

punishes erroneous comparisons.¹³⁵

Nelson conjectured that false advertising can mislead even fully-rational consumers if there is only partial monitoring of comparisons, because consumers would trust the comparisons to some extent but some may not be verified by the policymaker and turn out to be incorrect.¹³⁶ This argument was formalized by Wilson for a duopoly market selling homogeneous goods in the context of in-store price comparisons.¹³⁷ To understand the intuition, consider a situation where consumers are initially uninformed of prices and they face costly search to become informed. Without in-store price comparisons, prices will be at the monopoly level and consumers will select one firm at random and search no further.¹³⁸

However, when firms provide in-store price comparisons that are only partially monitored, an increase in monitoring leads to two effects. First, there is the “deception effect”, which may lead to a larger probability that consumers are misled by false comparisons as they begin to trust comparisons more. This can provide firms with the incentive to increase prices. Second, there is the “competition effect” which leads to consumers being more able to purchase at the lowest priced store. This provides firms with a greater incentive to reduce price. In the context of his model, Wilson shows that the competition effect is unambiguously larger than the deception effect.¹³⁹

The ease and costs of monitoring price comparisons are likely to vary from industry to industry which will have an effect on the appropriateness of such a remedy. When the POS is a bricks and mortar shop or a website, monitoring price comparisons is likely to be relatively simple in principle (although potentially costly), because the comparisons and prices are public knowledge and can be verified easily; whereas when the POS is on a consumer’s doorstep, monitoring and verifying comparisons can be much more difficult. The costs of monitoring are also likely to be higher in markets where prices change frequently.¹⁴⁰ In such cases, this is likely to place a large burden on firms, not only due to administration costs, but also because it places considerable risk on firms because of the increased likelihood of an out-of-date comparison which can lead to harsh punishments from the existing consumer protection legislation. Such compliance risks may be

¹³⁵ In the UK, the Consumer Protection Act 1987 provides clear rules for in-store price comparisons, which are enforced by local Trading Standards offices. Their powers of enforcement are considerable and providing misleading price comparisons is potentially a criminal offence. Other consumer laws protect against misleading, false or inaccurate statements by sellers.

¹³⁶ Philip Nelson, *Advertising as Information*, 82 J. OF POL. ECON. 729 (1974).

¹³⁷ Chris M. Wilson, *The Effects of Consumer Protection on Sales Signs, Consumer Search and Competition* (CCP Working Paper 05-9, 2005).

¹³⁸ This result is the Diamond paradox. See Section IIA for more details.

¹³⁹ Wilson, *supra* note 137.

¹⁴⁰ While covered by the Consumer Protection Act 1987 in the UK, a remedy may want to specify the frequency with which firms monitor rivals’ prices. However, such remedies may impact on the frequency of price revisions.

a particular problem for smaller firms, who have fewer resources to comply with all relevant legislation and to monitor prices accurately. Exempting smaller firms from the comparison requirements may alleviate this problem to some extent, but this may place them at a competitive disadvantage, as comparisons direct consumers to those firms that are compared.

When the issues regarding monitoring are manageable, in-store price comparisons are likely to be more effective in activating consumers in homogeneous product markets. When products that are compared have non-price differences, consumers will be less price sensitive compared to a situation when consumers perceive the products to be homogeneous, so they may not search even if they are informed that a rival's product is cheaper.¹⁴¹ Moreover, non-price differences may increase the complications which arise from market definition as there will be a product as well as a geographic dimension to determine which firms should be compared.

A subtler problem regarding which products should be included and which excluded from the price comparisons than how the market is defined, is how much information consumers require.¹⁴² An excessive number of comparisons can lead to information overload, which may mean consumers choose to ignore such comparisons so limiting the remedy's effectiveness. Too few comparisons may mean consumers will not be directed to the lowest-priced firm, which may lead to consumers questioning and, in the extreme, disregarding the information provided.¹⁴³ When consumers in general prefer limited information, a compromise could require that firms compare their price with the lowest-priced rival, which would direct consumers who are only interested in price to the best deal in the market. This would also provide firms with a greater incentive to set the lowest price as it would receive free advertising in each of its rival's stores. However, a caveat to this is required when firms are vertically differentiated, as this remedy may provide an incentive for firms to lower their product's quality to reduce costs in the pursuit of becoming the cheapest firm.

ii. Cooling-Off Periods

A cooling-off period provides consumers with the ability to cancel a contract unconditionally or return a product to receive a full

¹⁴¹ Price information of differentiated products may still assist consumers to take account of the actual price effects on their purchasing decisions rather than forming expectations of the likely price dispersion across the market. The consumers could then use this information to understand whether their non-price preferences are strong enough to warrant purchasing the product at the POS.

¹⁴² In general, policymakers have much experience regarding definition of markets and so are likely to determine which firms are involved with a high degree of accuracy, but less is known about the information requires of consumers.

¹⁴³ This may be complicated further if firms bundle their products differently and such comparisons may lead to excessive bundling as firms attempt to differentiate their offerings.

refund from the firm during a given period. This remedy is generally imposed in order to give consumers the opportunity to reconsider purchases of goods they have not previously seen, contracts they have not had the opportunity to read, or products purchased under pressure. This can prevent consumers from being exploited at the POS as firms are unable to impose unfavorable refund terms and conditions to prevent the product being returned.¹⁴⁴ Cooling-off periods may also help competition in markets where some consumers are inactive before the POS, because consumers may prefer to try a product out with the intention of returning the good if it is not of the required quality rather than undertaking research about the available products beforehand.¹⁴⁵ For the remedy to be successful, consumers must be aware of the period that the return is available for, be prepared to revise their purchasing decision post-purchase and be willing to return the product.¹⁴⁶

There is only limited research into the effects of cooling-off periods. However, we can draw some inferences on their likely effectiveness from research of similar practices such as money back guarantees (MBGs) that are sometimes used as a marketing strategy by firms. These are similar in that they both allow consumers to revise a decision post-purchase, but differ in that MBGs are profitable strategies for firms and are usually conditional on a consumer's dissatisfaction with the quality of a firm's product. Nevertheless, both cooling-off periods and MBGs can have the same effect on consumers as it reduces the risk of purchasing a product that does not match their preferences.

The literature on MBGs has shown that this reduction in risk can lead to a problem of moral hazard as it may make consumers more risk loving when purchasing a product, because they have the ability to return the product if they are not satisfied.¹⁴⁷ Consequently, the introduction of a cooling-off period may increase the number of uninformed purchases at the POS and increase the number of returns. Although this may not cause adverse welfare effects in isolation, a cooling-off period may be detrimental if it increases consumers' uninformed purchases and at the POS they underestimate the hassle

¹⁴⁴ In George Loewenstein, Ted O'Donoghue, & Matthew Rabin, *Projection Bias in Predicting Future Utility*, (UC Berkeley Economics, Working Paper Eoo-284, 2000) it is argued that firms' pressure selling techniques at the POS can put a consumer into a "hot state", which increases the likelihood that they will make a purchase at the POS that they would not have made when they are in a "cool state". The ability to return the product provides consumers with the chance to revise their decision when they have 'cooled off'.

¹⁴⁵ This could also have the potential of reducing *ex ante* search if consumers perceive *ex post* switching as a substitute.

¹⁴⁶ A distinction needs to be made in this paper as to cancellation rights, which are available at any point during the contract, rather than just after a short period of time. The effects of cancellation rights are discussed in Section V.

¹⁴⁷ See Duncan P. Mann & Jennifer P. Wissink, *Money-Back Contracts with Double Moral Hazard*, 19 RAND J. OF ECON. 282 (1988); and Duncan P. Mann & Jennifer P. Wissink, *Money-Back Warranties vs. Replacement Warranties*, 80 AM. ECON. REV. 432 (1990).

costs of returning the product in the future.¹⁴⁸ As a result, consumers may not return the product if they are dissatisfied, even though they planned to do so in the event of being dissatisfied when they purchased the product. This could mean they end up accepting more bad purchases that they would have done without a cooling-off period.¹⁴⁹

To minimize such a side effect from a mandated cooling-off period, it is important that policymakers attempt to keep the hassle cost of returns low relative to the price of the product and ensure that firms do not try to artificially increase the costs on consumers. This can be achieved by complementing the cooling-off period with other information regarding the consumers' rights. Nevertheless, it is equally important to realize that cooling-off periods also impose significant costs on firms which not only include the cost of administering returns but also the lost value of the returned good (if any). When consumers have low hassle costs they may exploit the returns policy by what is known as 'free renting' (when consumers purchase the product with the intention of returning it after limited use). The importance of these costs is illustrated by Davis *et al*, who show that firms impose hassle costs on MBGs to prevent such behavior.¹⁵⁰

Cooling-off periods will not be effective if consumers are unable or unwilling to reassess their purchasing decisions within the required period, as they will not realize when they have made a poor purchasing decision. Whether consumers revise their decision or not is likely to vary from product to product. For example, consumers are less able to revise purchasing decisions for credence goods compared to experience goods, as they are unable to update their beliefs about the product post-purchase for credence goods. However, even for experience goods, consumers must become better informed about the product quickly to be able to exploit the ability to return in the required time frame. Therefore, the length of the cooling-off period becomes important. Mandated cooling-off periods tend to be of 1, 2 or 4 weeks.¹⁵¹

When considering the optimal length of a cooling-off period, there may be a trade-off that policymakers need to consider. For example, a lengthy cooling-off period may allow consumers to analyze whether the product is of a desirable standard but a shorter period may mean that consumers will not delay redeeming their refund and so do not eventually forget to do so. Although there is no empirical evidence that this occurs for cooling-off periods, Silk¹⁵² finds evidence that

¹⁴⁸ Consumers incur hassle costs when employing a cooling-off period, because they must spend time and effort returning the product to the firm.

¹⁴⁹ See Joseph P. Mulholland, *Behavioural Economics and the Federal Trade Commission*, Presentation to the Australian Productivity Commission Roundtable on Behavioural Economics and Public Policy (Aug. 2007).

¹⁵⁰ Scott Davis, Eitan Gerstner, & Michael Hagerty, *Money Back Guarantees: Matching Products to Consumer Tastes*, 71 J. OF RETAILING 22 (1998).

¹⁵¹ The cooling-off periods implemented in the CC's market investigation of extended warranties on domestic electrical goods last 45 days.

¹⁵² Tim Silk, *Getting Started Is Half the Battle: The Influence of Deadlines and Effort on*

consumers forget to redeem rebates on prices – especially when redemption periods are long.¹⁵³ The optimal length of a cooling-off period is likely to vary between different goods, and without further research this is likely to remain unknown. If consumers are more likely to forget to use cooling-off periods it may be worthwhile requiring firms to remind consumers that the cooling-off period is approaching its end. This is likely to increase marginal cost for some firms if communications are conducted by telephone or by post, but for internet retailers, where communications are usually conducted by email, an automatic reminder would add very little cost for firms.

C. Summary

The remedies discussed in this Section are aimed at resolving the problems that occur when consumers are inadequately prepared at the POS. The remedies are aimed at either giving consumers more time to search for information themselves or directly providing consumer with information. The former are only effective when consumers are willing and able to search the market. The incentive to search may be affected by whether the consumer already possesses the good (cooling-off periods) or can purchase it at known terms of trade at a later date (written quotations). They are more likely to be effective where unexpected add-ons are introduced at the POS, because in this case there may be good reason for the lack of pre-POS search¹⁵⁴. The latter can be effective where goods are relatively homogeneous and there are few firms. However, these conditions mirror those identified in Section VI as most likely to cause concern about tacit collusion.

A common feature of the remedies discussed in this Section is the lack of direct empirical evidence of likely impacts. The existing evidence is more indirect arising from research on MBGs and rebates. In addition, apart from add-ons, the theoretical analysis is also sparse.

V. INTERVENTIONS TO HELP CONSUMERS SWITCH SUPPLIERS

This Section discusses the interventions that are available to intensify competition between firms by increasing the likelihood of the

Consumer Self-Regulation to Redeem Rewards (Univ. of British Columbia, Working Paper, 2006).

¹⁵³ A rebate is similar to a cooling-off period in that consumers need to expend some effort to receive a refund on some proportion of the price, but differs in that consumers still own the good or receive the service after they redeem the rebate. In Silk's experiment, subjects are able to buy two cinema tickets for \$11 or for \$13 with a \$6 or \$9 rebate, which could be redeemed by mail within 1, 7 or 21 days depending upon the treatment. Since the majority of subjects selected the more expensive price with the rebate, it shows that consumers expected to redeem the rebate, otherwise they would purchase at the lower price. However, 25-35 per cent of consumers that purchased the product with a rebate did not redeem it and the likelihood that the rebate was not redeemed increased with the length of the redemption period.

¹⁵⁴ Recall that that high-priced add-ons may not cause detriment if there is competition for the base good.

consumer switching firms. Many products and services involve further (repeat) purchasing and service contracts may be of indefinite duration or subject to automatic renewals. For some products, consumers switching to a new supplier face a cost when, which is not incurred if they remain loyal to their current supplier. Such switching costs provide firms with a degree of market power as consumers have an incentive to continue purchasing the product from their supplier even if a rival, who sells an identical product, is known to be slightly cheaper. When consumers are reluctant to switch supplier, firms can charge high prices, exploit high entry barriers and attempt to strengthen their position by increasing switching costs further.

To switch between firms, customers would require the necessary information about rival offers and hence any reluctance to search would also hamper switching.¹⁵⁵ Remedies can increase customers' willingness to switch by preventing consumer lock-in, lowering the tangible and intangible costs that consumers incur when switching suppliers, and encouraging firms to offer cost reflective prices. The measures that are available to potentially help resolve the issues after the POS include: cancellation rights or limitations on contract duration; product attribute portability; and customer information portability.

Before analyzing the likely impact the remedies may have on markets, we provide a brief review of the economics literature on switching costs.¹⁵⁶ The next sub-Section analyses more closely the differences between certain types of switching costs and the implications of lowering switching costs in a competitive market.

A. The Economics of Switching

The 2003 OFT study defined switching costs as "the real or perceived costs that are incurred when changing supplier but which are not incurred by remaining with the current supplier".¹⁵⁷ The extent and nature of switching costs can vary for different products. In some cases they can be observed and quantified by third parties, while in others only consumers themselves may perceive switching costs. As outlined by Klemperer¹⁵⁸ and the OFT¹⁵⁹, switching costs can fall into six

¹⁵⁵ Issues arising from lack of price and non-price information, and associated remedies, are discussed in Section III. Some people treat search and switching costs as a single cost. Research by Chris Wilson, *Markets with Search and Switching Costs*, (CCP Working Paper 06-10, 2006) and Yoonhee Tina Chang & Catherine Waddams Price, *Gain or Pain: Does Consumer Activity Reflect Utility Maximisation?* (CCP Working Paper, forthcoming 2008) show that there are important differences between these costs and that incorrect inferences may be made by grouping these costs together.

¹⁵⁶ Section II.B provides a general overview in of how switching costs can affect markets. For more discussion of the effects of switching costs in a potentially collusive market see Section VI.

¹⁵⁷ Switching Costs, *supra* note 18.

¹⁵⁸ Paul Klemperer, *Competition When Consumers Have Switching Costs: An Overview with Applications to Industrial Organisation, Macroeconomics and International Trade*, 62 REV. OF ECON. STUD. 515 (1995).

categories, defined in the table below:

TABLE 1: CATEGORIES OF SWITCHING COSTS¹⁶⁰

<i>Transaction costs</i>	For some goods and services there can be significant transaction costs of switching supplier. These costs can include the opportunity cost of time taken or the monetary costs that a consumer has to incur to switch supplier.
<i>Contractual costs</i>	Firms can construct loyalty programs that provide consumers with benefits each time they purchase from their brand. This can provide consumers with incentives to repeat purchase at a firm as they usually receive lower rewards if they switch between different firms.
<i>Informational costs</i>	For some differentiated products, consumers may incur a cost of learning how to use a new product, which they would not incur if they continued purchasing the product from their previous supplier.
<i>Compatibility costs</i>	Compatibility costs can occur when consumers purchase a durable base good and a complementary add-on, as the add-on of a specific brand may not be compatible with another brand's base good. Consumers then have to purchase the durable base good of another brand to be able to use that brand's add-on.
<i>Uncertainty costs</i>	Consumers may be reluctant to switch supplier if they are less certain of a product's quality compared with a brand they use frequently.
<i>Psychological costs</i>	Even when there is no objective reason for consumers to exhibit brand loyalty, experience of purchasing a product in the past or an effective advertising campaign may affect a consumer's preferences.

The effects upon competition of the different types of switching costs can vary. Nilssen suggested that transactional costs have more of an impact on a market than informational costs since consumers incur costs each time they cancel a contract, but learning only needs to be undertaken once.¹⁶¹ For example, if a consumer switches from brand A to brand B, returning to brand A would not require them to learn how to use the product, but they would experience the hassle of terminating the contract and beginning another.¹⁶² Furthermore firms may have the potential to select endogenously the level of contractual costs and transactional costs in order to dampen competition.¹⁶³ In general a firm

¹⁵⁹ Switching Costs, *supra* note 18.

¹⁶⁰ Searching costs, sometimes included as a type of switching cost, are not included here.

¹⁶¹ Tore Nilssen, *Two Kinds of Consumer Switching Costs*, 23 RAND J. OF ECON. 579 (1992).

¹⁶² This result relies on consumers not forgetting how to use the product.

¹⁶³ In a theoretical model, D. Koh, *Competition by Endogenous Switching Time*, (UCLA Graduate School of Management, Working Paper, 1993) shows that firms may prefer to commit to

will attempt to increase costs of switching away from its product while trying to reduce the cost of switching to it, so as to be able to attract its rivals' consumers but keep its own customers locked-in. For example Adams describes how the manufacturers of razors and profitable razor blades attempted to make their razor blades compatible with other manufacturers' razors, but their razors only compatible with their own razor blades.¹⁶⁴

Transaction costs and contractual costs are also more likely to provide firms with the capability to price discriminate between consumers they have supplied before and those they haven't, as their 'old' consumers are likely to have contracts with firms that make them distinguishable from potential new consumers.¹⁶⁵ The ability to price discriminate between consumers affects the firms' incentives to compete for new and existing consumers. When firms are able to price discriminate between their customers and their rivals' customers, lower switching costs can intensify competition. For example, Chen analyses a two-period duopoly model where firms can offer discounts to a rival's customers.¹⁶⁶ Customers have heterogeneous switching costs which are unknown by the firms, so customers with low switching costs may switch firms. The model shows that offering discounts to a rival's customers means that firms face more elastic demand, as consumers are more likely to switch. This intensifies competition compared to a situation where firms are not able to price discriminate. Despite more intensive competition, consumers may not necessarily be better off: switching is costly and, compared with a situation where price discrimination is not possible, some consumers may be charged higher prices.

On the other hand, when firms do not have the ability to price discriminate between consumers who are "locked-in" into the their product and those who are not, they face a trade-off between setting high prices to extract rents from captive consumers and low prices to increase their market share. As a result, the effect on prices of lowering switching costs is ambiguous. The intuition is that lower switching costs lead to an incentive for a firm to set either a lower price, to prevent captive consumers switching to rivals; or to set a higher price, because new customers are less valuable in the future as they are freer to move to other suppliers:

Despite this ambiguous theoretical result about the effect of switching costs, Klemperer provides three arguments that increased switching costs will generate higher prices.¹⁶⁷ First, firms discount the

positive switching costs to dampen price competition before they compete in prices.

¹⁶⁴ RUSSELL B. ADAMS, KING C GILLETTE: THE MAN AND HIS WONDERFUL SHAVING DEVICE (Little Brown, 1978).

¹⁶⁵ See Klemperer, *supra* note 158, at 526-27.

¹⁶⁶ Yongmin Chen, *Paying Consumers to Switch*, 6 J. OF ECON. & MGMT. STRATEGY 877 (1997).

¹⁶⁷ Klemperer, *supra* note 158.

future, so they prefer to receive a given amount of profit in the present (the profits from exploiting captive consumers) compared with the future (profits from newly recruited consumers). Second, with positive switching costs, setting a higher price today increases the market share of a rival today which makes that rival less aggressive in competing for new consumers tomorrow, enabling the firm to attract consumers tomorrow with a higher price. Third, consumers realize that with positive switching costs, a low price today will be followed with a high price tomorrow as the low price is only profitable if it creates a large set of captured consumers today which can be "exploited" tomorrow. Consumers hence become less responsive to price, i.e. their demand becomes less elastic. Given that new consumers are less responsive to price decreases, there is a smaller incentive to set lower prices to attract them.¹⁶⁸

B. Interventions

The following Sections discuss the potential effect of three remedies: cancellation rights; product attribute portability; and customer information portability.

i. Cancellation Rights¹⁶⁹

Cancellation rights allow consumers to terminate a continuous service contract (usually after giving notice for a certain period). This cancellation can be at no cost to the consumer or at a *pro rata* amount for any period of the original contract which has not been honored.¹⁷⁰ This remedy enables consumers to escape from a contract they have realized is not appropriate for them or when they realize that another contract is better. This can provide consumers with confidence in switching suppliers where they otherwise may be unwilling to switch if they are concerned about being locked-in to a contract which may later prove sub-optimal. Cancellation rights can also facilitate entry into the

¹⁶⁸ This result relies on consumers' ability to forecast the future correctly. Consumers who expect price cuts to be maintained in the future are more responsive to current price, as their expected benefits from switching are greater. See Monica Giulietti, Catherine Waddams Price, & Michael Waterson, *Consumer Choice and Competition Policy: A Study of UK Energy Markets*, 115 *ECON. J.* 49 (2005). As a result, firms may have an incentive to initially set low prices. Consumers may find their beliefs to be incorrect, however, as firms have an incentive to increase price once consumers become locked-in. See Christian Von Weizsäcker, *The Cost of Substitution*, 52 *ECONOMETRICA* 1085 (1984).

¹⁶⁹ The effects of cancellation rights in this situation are very similar to those of cooling-off periods. To avoid duplication of these arguments this Section focuses on the impact of cancellation rights when the contract is for ongoing supply and cancellation can happen after longer periods, say, 12 months, as opposed to shorter periods, say, 30 days.

¹⁷⁰ An example of cancellation rights is Ofgem's 28-day rule, which allowed consumers to get out of a contract after giving 28 days' notice, although the firms could charge "a reasonable cancellation fee". See OFGEM, "Consumer Protection in Energy Supply: The Role of the 28 Day Rule," Ofgem submission to the Energy Services Working Group (July 2003).

market as an entrant may be able to attract consumers who would have been locked-in to the incumbent firm. For the remedy to be successful consumers must understand the conditions under which they can cancel current and future contracts, be well-informed about competing offers, and be willing and able to cancel and switch.

A drawback to cancellation rights arises if it prevents consumers from benefiting from commitment to a longer-term relationship with their current supplier. Contracts that offer bargains up front may not be available if firms are uncertain of supplying consumers for a long period. Theoretical models demonstrate that long-term contracts allow some consumers to be locked-in for the duration of their contract, which can lead to 'bargains' initially but 'rip-offs' in the future. When it is less likely that consumers can be locked-in so there is a rip-off phase of the pricing, firms are more reluctant to offer bargains at the beginning of the contract. Consumers may then be deprived of low priced innovative products as incentives to sign up to the long-term contract.

This reasoning lay behind the UK energy regulator Ofgem's decision to remove a '28-day rule' which had enabled customers to cancel their contracts with that period's notice.¹⁷¹ Ofgem wanted to create incentives for suppliers to invest in long-term energy saving measures, equivalent to a offer in the 'bargain' phase of the contract. Since firms are more certain that the cost of such an investment will be recouped within a contract which is not subject to 28 days' notice, they are more likely to invest in consumption reducing measures which further environmental objectives.¹⁷²

More fundamentally, providing consumers with the ability to cancel a contract with a short period's notice may cause uncertainty about whether firms can cover their fixed costs. This may make them reluctant to remain in or even enter a market. Furthermore, the security of a loyal customer base on long-term contracts can directly lower the firms' cost of capital, which may be passed through as lower prices to customers. Consequently introducing cancellation rights may increase prices either through decreased competition, as firms exit or do not enter the market, or by increasing the cost of capital.

ii. Product Attribute Portability

Product attribute portability allows consumers to transfer an attribute of their current firm's product or service to another firm when they switch. This remedy has the potential to reduce switching costs when consumers are attached to a certain attribute of the firm's product or service and this attribute is not transferable to other firms

¹⁷¹ *Id.*

¹⁷² This is similar to the contracts for mobile phones, as consumers that sign up for longer contracts are provided with more expensive and innovative mobile phones.

when consumers switch. The most prominent example of this remedy is the portability of phone numbers in telephony markets.¹⁷³ Given the perceived success of number portability, policymakers may wish to implement a similar remedy for other product attributes.¹⁷⁴ For the remedy to be effective in other general situations the attribute that consumers are attached to must be identifiable; it must be the main impediment to switching; and property rights must be easily transferable between firms or between the firm and consumer.

Evidence indicates that competition within telephony markets has increased since the introduction of number portability. Lyons, studying a dataset on mobile number portability (MNP) from 38 countries from 1999 to 2004, found that consumer switching increased when mobile numbers are portable and the switching process takes less than five days, but not if it takes longer.¹⁷⁵ There is also evidence that, in markets where increased switching has been observed, average prices are reduced by 6.6 per cent in the short-term (three months) but the effect in the long-term is much greater at 12 per cent. Moreover Viard analyses toll-free 800-numbers in the US, which provide callers with the ability to contact firms without paying for the call themselves.¹⁷⁶ In 1986 the Federal Communications Commission (FCC) decided toll-free calls should be routed based upon the next 3 digits after 800 (800-NXX-YYYY) with each provider of toll-free services, assigned a unique NXX code. In 1993 the FCC allowed inter-exchange carriers (IXCs) to switch providers without changing numbers. Prices fell, on average, by 4.4 per cent in the period after phone numbers became portable.^{177 178}

¹⁷³ Number portability arguably lowers switching costs in the telephony markets because informing friends and family of a new number may be very costly. As a result, switching providers without changing numbers reduces this cost and is likely to make consumers more willing to switch.

¹⁷⁴ For instance, a similar example to number portability is the portability of direct debits when switching current accounts. Introducing a reliable system for portability of direct debits may lower consumers' switching costs by reducing concerns about incorrect transfer of existing direct debits.

¹⁷⁵ Sean Lyons, *Measuring the Benefits of Mobile Number Portability*, (working paper, Trinity College, Dublin) (May 2006).

¹⁷⁶ V. Brian Viard, *Do Switching Costs Make Markets More or Less Competitive?: The Case of 800-number Portability*, RAND J. OF ECON. (forthcoming).

¹⁷⁷ The major difference between Sean Lyons, *Measuring the Benefits of Mobile Number Portability*, (Trinity College, Dublin, Working Paper, 2006) and Viard, *supra* note 173 is that mobile companies have the ability to price discriminate between new and existing users, whereas IXCs do not. In both cases number portability has enhanced competition and prices have fallen. The evidence from Viard (2008) is a business-to-business (B2B) market. One may not expect a considerable difference between the behavior of a B2B market compared to a business-to-consumer (B2C) market, except that the switching cost is likely to be greater for small businesses compared with consumers. Businesses are more likely to advertise their phone numbers, so changing numbers can increase advertising costs, and may lead to firms losing consumers.

¹⁷⁸ Despite empirical evidence that number portability has intensified competition in telephone markets, to estimate the overall benefit to consumers it is necessary to consider the prices of related goods. For example, Stefan Buehler & Justus Haucap, *Mobile Number Portability*, 4 J. OF INDUS. COMPETITION & TRADE 223 (2004) conjecture that although the price of phone calls has fallen as a result of introducing number portability, it is likely that the price of

Attribute portability is likely to be significantly easier to implement when the attribute can be transferred to the consumer without imposing significant costs upon the firms, as in the number portability case.¹⁷⁹ However, in general, it is likely that the firms may own and value the attribute to which consumers are attached, and so they must be compensated for transfer of the attribute. This may cause problems if it is difficult to transfer the ownership of the attribute from the firm to the consumer, so it becomes necessary to transfer the attribute directly between firms. The CC came across this problem, among other things, in their recent market investigation into the supply of bulk liquefied petroleum gas (LPG) for domestic use in the UK.¹⁸⁰ They found that when a switch occurred between suppliers of domestic LPG, it was common practice for the outgoing supplier to remove its tank, so that it could be replaced with a similar tank by the incoming supplier. Due to the costly nature of removing and installing tanks, consumers faced charges from both the incoming and outgoing suppliers. Consequently the number of consumers willing to switch suppliers was low and competition limited. To remedy the problem of high switching costs, the CC considered whether they could transfer ownership of LPG tanks to consumers but, because of the hazardous nature of LPG the CC decided on safety grounds that transferring ownership of tanks between suppliers was a safer way to lower switching costs. The remedy enabled the incoming supplier to purchase the tank from the outgoing supplier, who is obliged to accept a 'backstop price'.

When attributes are not transferable they may bestow other benefits on consumers which would be lost if the attribute becomes transferable. For example, if mobile numbers are not transferable between firms, consumers can recognize which company supplies any phone user. since each company's numbers begins with the same numbers. This can provide information to consumers about the cost of a phone call if they can identify the company which supplies the person they are calling.

Furthermore, if the attribute portability lowers transparency of pricing for consumers, firms may have an incentive to raise prices.

handsets has increased, because firms have a smaller incentive to compete *ex ante* for customers as their *ex post* profit is limited. Therefore, consumers may not have benefited from number portability as much as the evidence from the price of phone calls alone suggests.

¹⁷⁹ Making an attribute transferable between firms is likely to result in some increase in the costs imposed on firms. If this occurs some proportion of such cost may be passed on to consumers, so the benefits of reducing switching costs could be offset by higher prices. This is likely to be a short-term increase in marginal cost as firms will learn how to implement switching more cheaply as they become more experienced. Any increase in cost would need to be set against benefits. With regard to mobile number portability, see Jerry Ellig, *Costs and Consequences of Federal Telecommunications and Broadband Regulations*, 58 FED. COMM. L. J. 37 (2006); and R. Aoki & J. Small, *The Economics of Number Portability: Switching Costs and Two-Part Tariffs*, (Univ. of Auckland, Working Paper, 1999).

¹⁸⁰ See Final Report by CC on "Domestic bulk liquefied petroleum gas" available at http://www.competition-commission.org.uk/rep_pub/reports/2006/514lpq.htm.

Buehler and Haucap show that if number portability eliminates switching costs, the effect is unambiguously beneficial for consumers; but if it means telephone numbers no longer identify companies, termination charges increase, with an ambiguous net effect on customers.¹⁸¹ Similarly, Gans and King examine the influence of mobile network competition on the prices of fixed-to-mobile calls.¹⁸² When fixed line consumers can distinguish between the different mobile networks they are calling, fixed-to-mobile call prices will fall. Therefore, it may be necessary to attempt to resolve any benefit lost due to non-portability. Policymakers have tried to compensate for the negative effects of number portability. In Finland and Germany consumers can call a toll-free number to find out which company serves a particular number; and in Portugal, Ireland and Belgium an audio sound signals that the consumer is making an off-net call.¹⁸³ However such remedies can be costly themselves and "are often considered a nuisance by many consumers."¹⁸⁴

iii. Customer Information Portability

Competition may not be fully effective when firms do not have the same information about rivals' customers. When a consumer and a firm interact repeatedly, the firm may obtain better information about the consumer's attributes than rival firms. Where the cost of supplying consumers varies, the current supplier can offer low-cost consumers a better deal. Rivals without this information would have to offer a single price to new consumers based on some measure of average costs to supply. Such offers would only be attractive to high cost of supply consumers. Getting such an adverse selection of consumers makes it unprofitable for a rival to attract new consumers.¹⁸⁵ Such asymmetric information may prevent rivals from offering alternatives which they would otherwise have proposed.

Ausubel¹⁸⁶ and Calem and Mester¹⁸⁷ provide evidence that

¹⁸¹ See Buehler & Haucap, *supra* note 178.

¹⁸² Joshua S. Gans & Stephen P. King, *Mobile Network Competition, Customer Ignorance and Fixed-to-Mobile Call Prices*, 12 INFO. ECON. & POL'Y 301 (2000).

¹⁸³ Stephan Buehler, Ralf Dewenter, & Justus Haucap, *Mobile Number Portability in Europe*, 30 TELECOMMUNICATIONS POL'Y 385 (2006).

¹⁸⁴ See *id.* An alternative to solving the loss of transparency is to impose the 'receiving party pays' (RPP) regime for termination charges as opposed to the 'calling party pays' (CPP) regime, which eliminates the need for consumers to be informed of the network they are calling. See Ralf Dewenter & Jorn Kruse, *Calling Party Pays or Receiving Party Pays? The Diffusion of Mobile Telephony with Endogenous Regulation*, (Helmut-Schmidt-Univ. Hamburg, Working Paper, 2005); and S.C. Littlechild, *Mobile Termination Charges: Calling Party Pays versus Receiving Party Pays*, (Univ. of Cambridge, Working Paper 0426, 2004) for further discussion of the impact of the RPP and CPP regimes.

¹⁸⁵ The problems described above are usually observed in the credit market, where firms may be unsure of the credit worthiness of consumers, and in insurance markets, where firms may be unsure of the risks involved of insuring certain individuals.

¹⁸⁶ Lawrence M. Ausubel, *The Failure of Competition in the Credit Card Market*, 81 AM. ECON. REV. 50 (1991).

credit card rates are unresponsive to market fluctuations because banks may not wish to unilaterally lower rates. Consumers with low defaults search less than others, since they 'do not intend to borrow for long' and searching for lower prices is less beneficial; more credit worthy consumers are less likely to change lender as they receive more favorable terms from their current lenders; and consumers with large debts may have greater difficulty in switching because those who are trying to switch are indistinguishable from those who wish to acquire more debt.¹⁸⁸ The problem here is not that consumers do not look for a better offer, but rather that no such offer is forthcoming. Asymmetric information between firms dampens competition in the market.¹⁸⁹

This adverse selection problem can be solved if the information that is available to a supplying firm is also made available to rivals. Such information will enable rival firms to offer consumers a price related to the cost of supplying them. This will increase competition for profitable consumers and provide them with better terms of trade.

Customer information portability increases firms' willingness to compete for customers. Such a remedy is likely to be more successful when information is directly related to 'cost of supply' differences, firms can use cost reflective pricing, and firms use information in the same manner. If customer information provision is to be effective it is essential that it provides firms with the ability to distinguish between profitable and non-profitable consumers. For instance, if credit history is a good indicator for future credit worthiness, then firms may benefit from information about consumers' past behavior in the credit market. In addition, it is necessary that firms are able to set individualized prices, so they can respond to the information provided.

Klapper¹⁹⁰ and Mester¹⁹¹ provide evidence that a portable reliable credit history lowers costs for firms in the credit market. Avery *et al* suggest the information on consumers' credit histories that credit-reporting agencies maintain in the US has lowered the risk of supplying consumers with credit, which lowers the cost.¹⁹² Miller suggests accurate and portable credit rating could increase lending and reduce

¹⁸⁷ Paul S. Calem & Loretta J. Mester, *Consumer Behaviour and the Stickiness of Credit-Card Interest Rates*, 85 AM. ECON. REV. 1327 (1995).

¹⁸⁸ Ausubel, *supra* note 186; Calem & Mester, *supra* note 187.

¹⁸⁹ The adverse selection problem discussed in this Section has similarities with the adverse selection problem discussed in Section III, where consumers cannot determine the quality of the product they are buying pre-purchase. Conversely this Section focuses on firms which lack information about consumer 'quality'. The issues in this Section also contain parallels with the switching cost literature discussed above, with the difference that in the current context firms pay the cost of consumers switching. See Klemperer, *supra* note 18.

¹⁹⁰ Leora Klapper, "Development of Credit Reporting around the World," The World Bank, Development Research Group (2004), available at <http://www1.worldbank.org/finance/html/accessfinance/112004/credit.htm>.

¹⁹¹ Loretta J. Mester, *What's the Point of Credit Scoring?* FEDERAL RESERVE BANK OF PHILADELPHIA BUS. REV. 3 (Sept.-Oct. 1997).

¹⁹² Robert B. Avery, Paul S. Calem, & Glenn B. Canner, *Credit Report Accuracy and Access to Credit*, Federal Reserve Bulletin, 297 (Summer 2004), available at http://www.federalreserve.gov/pubs/bulletin/2004/summer04_credit.pdf.

price for credit worthy consumers.¹⁹³ Barron and Staten show that both positive and negative information can help creditors to make a good decision.¹⁹⁴ They provide evidence that this makes the market more competitive and so reduces prices. Cohen studies the effects on the Israeli insurance industry where there is no portability and found that: (i) insurers make more profit on repeat customers and that this is driven by profits made on customers with good records with the insurer; (ii) this profit is higher the longer the relationship between insurer and customer; and (iii) the price to the low risk customers is not fully reflected in the premium offered. The low risk customers who do not switch pay lower premiums, but not as low as they might have done with more intense competition.¹⁹⁵

An accurate and portable credit history also increases the options available to consumers by reducing the risk to firms of attracting new consumers. Consequently lenders are less dependent on their existing consumers as they can develop trust with new borrowers more quickly. Since consumers with good credit histories will receive lower prices, they will be more likely to be able to repay the loan, which will in turn provide them with a better credit rating in the future.¹⁹⁶

Sharing information about consumer characteristics is most valuable to firms, and hence more likely to increase competition for consumers, if firms rely on and use this information in a similar way. Where they use different measures or different ways of calculating such measures, customer information portability will have less impact. For example, different firms have different ways of calculating the risks involved with supplying consumers with credit and insurance. As a result, firms may not collect data that is not relevant to them, but would be relevant to a rival supplier. To maximize the potential benefit from number portability, the information collected may need to be standardized, to enable all firms to calculate their risks. This may increase the costs of firms somewhat, which can lead to an increase in price.¹⁹⁷

Ownership of customer information may be controversial. Consumers may not wish their information to be available to firms, especially after recent episodes of release of sensitive data in the UK. Access to such information could be subject to permission from consumers, who might need to have the benefits explained.

Information provided by a rival is beneficial only if it is trusted.

¹⁹³ MARGARET J. MILLER, *CREDIT REPORTING SYSTEMS AND THE INTERNATIONAL ECONOMY* (MIT Press, 2003).

¹⁹⁴ John M. Barron & Michael Staten, *The Value of Comprehensive Credit Reports: Lessons from the US Experience*, Credit Research Center, Georgetown Univ. (2000).

¹⁹⁵ Alma Cohen, *Asymmetric Learning in Repeated Contracting: An Empirical Study*, (NBER, Working Paper No W13752, 2008).

¹⁹⁶ See also Competition Commission's report on Home Credit (2006) available at http://www.competition-commission.org.uk/rep_pub/reports/2006/517homecredit.htm.

¹⁹⁷ It may also raise concerns about tacit collusion. See Section VI.

Suppliers have an incentive to offload high cost customers to competitors and so to misrepresent the information.¹⁹⁸ Some audit process is required to confirm the data, without facilitating tacit collusion.¹⁹⁹

C. Summary

The remedies discussed in this Section are aimed at resolving problems which arise when consumers are (or believe themselves to be) locked-in to their current supplier for a non-trivial period of time. The remedies are aimed at either preventing lock-in; lowering switching costs; or expanding the number of competitive rival offers.

Throughout the Section we have assumed that search costs are not so high as to negate any positive incentive to switch. The remedies discussed in this Section are more effective the lower are search costs and hence in many cases they need to be combined with other actions, such as those discussed in Section III, which reduce search costs.

Switching costs can have a detrimental effect on competition. A remedy which bans identified behavior and actions by firms solely aimed at making switching technically difficult without offering counterbalancing benefits to consumers is uncontroversial.

Where switching costs are intangible and consumers appear to avoid switching even with clear net gains from doing so, behavioral economics suggests relevant remedies. For example, if consumers suffer from choice avoidance, a specific remedy aimed at activating such consumers would require contracts for ongoing services to be renewed periodically. The renewal notice would activate at least some of these consumers. Since such a remedy imposes costs on both provider and customer, a detailed assessment of the remedy in the sector concerned would be necessary.

Among informational remedies imposed on final markets by the UK Competition Commission, all but one (Liquid Petroleum Gas²⁰⁰), are applied to sectors or industries for which there is a sector specific regulator. Interventions that help consumers overcome dynamic switching problems may require more detailed information and more monitoring, for which only a sector regulator may be efficient.

¹⁹⁸ See James Ashton & Robert Watts, *Good Payers Face Being Axed By Credit Card Firms*, SUNDAY TIMES, Feb. 3, 2008 (“Credit-checking agencies say banks are beginning to weed out clients with faultless borrowing histories because they can make little profit from them.”).

¹⁹⁹ See Section VI.

²⁰⁰ Final Report by CC on “Domestic Bulk Liquefied Petroleum Gas” available at http://www.competition-commission.org.uk/rep_pub/reports/2006/5141pg.htm.

VI. INTERVENTIONS IN POTENTIALLY COLLUSIVE CONSUMER MARKETS

When firms interact repeatedly, they can form a tacit understanding to dampen competition, which may enable them to maintain higher prices and acquire larger profits than they can when they compete more intensely.²⁰¹ Some remedies that attempt to increase consumers' ability to shop around can facilitate or undermine this type of collusive understanding. The purpose of this Section is to consider the effect of remedies when firms are likely to (or, at least, have the potential to) act collusively; and to identify the remedies and the characteristics of markets where there is a risk of facilitating collusion, and where there is not.²⁰²

In terms of theory, higher prices are sustainable if firms expect that a short-term benefit from 'deviating' from a collusive understanding (undercutting a collusive price or expanding output) will be eliminated by a sufficiently harsh long-term response by its rivals.²⁰³ In general, the market structure and industry characteristics affect the incentives of maintaining the collusive understanding by influencing the profit from maintaining collusion, the short-term gain of deviating and the firms' long-term response to a deviation. It is commonly accepted that firms are more likely to collude in markets with few firms; high entry barriers; limited product heterogeneity, and, in general, limited strategies to compete on; high growth rates; cost and capacity symmetries; and multi-market contact, other things equal.

The main prerequisite for collusion to occur, first discussed by Stigler, is that firms must have the ability to monitor each other's behavior.²⁰⁴ When there is uncertainty over rivals' actions, a firm may not respond harshly to a possible deviation, because it will not know for sure whether a deviation has occurred. As a result, collusion may not be sustainable, even though the other market characteristics and industry characteristics are satisfied, because they cannot credibly threaten a harsh enough punishment to sustain a collusive understanding. Thus, remedies aimed at increasing information for consumers, which, as a

²⁰¹ See Mark Ivaldi et al., "The Economics of Tacit Collusion," Final Report for DG Competition, European Commission (Mar. 2003), available at http://ec.europa.eu/competition/mergers/studies_reports/the_economics_of_tacit_collusion_en.pdf (providing an in-depth discussion of the vast collusion literature).

²⁰² We use the term 'collusion' for consistency throughout this Section, which we take to mean tacit collusion, where firms simply recognise their interdependence and realise that fierce competition is not in their mutual self-interest. Tacit collusion is distinct from illegal participation in a cartel through explicit communication to raise prices or restrict output, although both are modelled in the same way by economic theorists. We focus on tacit collusion because if a competition authority believes firms have illegally fixed prices, the appropriate remedy is to break up the cartel, rather than implementing remedies to activate consumers.

²⁰³ While terms such as retaliation and punishment are often used in this context, the future losses may simply arise because firms no longer trust their rivals to keep prices high and hence adjust their prices downwards on that realisation.

²⁰⁴ George J. Stigler, *A Theory of Oligopoly*, 72 J. OF POL. ECON. 44 (1964).

side-effect, increase the information about the strategies of rivals, have the potential to facilitate collusion where this was otherwise not the case.

A. *The Impact Of Interventions In Potentially Collusive Consumer Markets*

In this subsection, we consider interventions in consumer markets in a very general way: we assume that a remedy can affect the consumer activity in a market and the ability of firms to monitor each other's strategies. We shall consider each of these effects in isolation before turning to the aggregate effect.

Møllgaard and Overgaard show that in a general theoretical model the effect on prices of increasing consumer activity, other things equal, is ambiguous.²⁰⁵ The intuition is that, compared to the status quo, increased consumer activity provides firms with a greater incentive to deviate, as a lower price will attract a greater number of its rivals' more active consumers; but it also strengthens firms' long-term response, because competition becomes more vigorous with increased consumer activity. As a result, the collusive understanding may be undermined if the former effect is greater than the latter.

This has led to a number of theories providing different predictions of the impact on collusion of consumer activity depending upon the situation modeled and the assumptions made. For instance, Schultz shows that price transparency on the consumer side is unambiguously good for consumers,²⁰⁶ Ireland and Waterson show that, other things equal, search costs can facilitate collusion;²⁰⁷ and Farrell and Klemperer conjecture that switching costs may make it easier for firms to monitor collusion, because larger price changes are necessary to attract consumers, which may be easier to observe.²⁰⁸ They also argue that switching costs may provide focal points that enable the market to be divided more easily. But, on the other hand, Padilla²⁰⁹ and Anderson *et al*²¹⁰ suggest that switching costs make collusion difficult to sustain;²¹¹

²⁰⁵ Per Baltzer Møllgaard & H. Peter Overgaard, *Information Exchange, Market Transparency, and Dynamic Oligopoly*, in 2 ISSUES IN COMPETITION LAW AND POLICY 1241 (ABA, 2009).

²⁰⁶ Christian Schultz, *Transparency on the Consumer Side and Tacit Collusion*, 49 EURO. ECON. REV. 279 (2005).

²⁰⁷ Norman Ireland & Michael Waterson, *Cartels and Search*, The Warwick Economics Research Paper Series 770, Univ. of Warwick (2006).

²⁰⁸ Farrell & Klemperer, *supra* note 18.

²⁰⁹ A. Jorge Padilla, *Revisiting Dynamic Duopoly with Consumer Switching Costs*, 67 J. OF ECON. THEORY 520 (1995).

²¹⁰ Eric T. Anderson, Nanda Kumar, & Surendra Rajiv, *A Comment On: "Revisiting Dynamic Duopoly With Consumer Switching Costs"*, 116 J. OF ECON. THEORY 177 (2004).

²¹¹ If the switching cost is a type of brand preference or a perceived difference between heterogeneous products, this result is in accordance with the widely accepted view that less product substitutability makes collusion easier to sustain, despite the impact of product substitutability having a similar ambiguous effect on collusion as consumer activity.

and Møllgaard and Overgaard show that imperfect market transparency on the consumer side undermines collusion when there are a limited number of firms in the market.²¹²

Recent policy papers by Kühn²¹³ and OECD²¹⁴ argue that in general an increase in consumer activity is likely to make collusion more difficult to sustain as, according to these papers, the short-term incentive to attract consumers is likely to dominate the long-term effects of making firms' retaliation harsher. To our knowledge there is no empirical evidence that tests this conjecture, so more research is needed to gain a better understanding of the general impact of increasing consumer activity in a collusive market. Given the lack of empirical evidence and ambiguous theoretical results, a policymaker needs to consider the impact on collusion of increased consumer activity on a market-by-market case. Hereafter, however, we assume that the above mentioned policy papers are correct and that consumer activity destabilizes collusion, other things equal.

Turning our attention to whether remedies can improve firms' ability to monitor each other, Green and Porter consider a theoretical model which shows how important information is to sustain collusion and how little information is needed to improve the situation. In their model, firms face uncertain and unknown market demand, and rivals' prices and quantities are unobservable. When firms experience low sales, they are uncertain whether there is low demand in the market or whether a firm has deviated from the collusive agreement. When this occurs, firms enter the punishment phase for a certain period as if a rival has deviated to eliminate any incentive for rivals to deviate in the future. As a result, the collusive understanding periodically breaks down because of the lack of information on rivals.

In the above model, when firms can directly observe either their rivals' prices or output, they are able to observe when a deviation occurs enabling them to punish deviations and not punish low periods of market demand, which increases the sustainability of collusion. Therefore, in situations where firms do not have this information pre-intervention, publishing firm-specific data on prices or outputs has the potential to facilitate collusion. Furthermore, firms will be able to infer whether a rival has deviated if they have information on the level of total industry demand in the market, as they will be able to tell whether low sales in a given period are due to low market demand or not, and, if it is not, it must be due to a deviation. Therefore, publishing generalized industry-level information could also have the same ability

²¹² H. Peter Møllgaard & Per Baltzer Overgaard, *Market Transparency: A Mixed Blessing?*, Copenhagen Business School & Univ. of Aarhus, CIE Discussion Paper, 1999-15 (1999).

²¹³ Kai-Uwe Kühn, *Fighting Collusion by Regulating Communication between Firms*, 32 *ECON. POL'Y* 169 (2001).

²¹⁴ OECD, "Price Transparency," Policy Roundtable, (Paris, 2001), available at <http://www.oecd.org/dataoecd/52/63/2535975.pdf>.

to facilitate collusion as publishing firm-specific data.²¹⁵

There is some empirical evidence of interventions facilitating collusive understandings. Albæk *et al* show that an intervention which required firms to publish firm-specific transaction prices facilitated collusion in the Danish ready-mixed concrete market in 1993.²¹⁶ The Danish Competition Council published this data to inform buyers of all prices available in the market, which they believed would increase consumers' price sensitivity and intensify competition. However, within one year prices had increased by 15-20 per cent, despite no evident increase in demand or input prices, or reduction in firms' capacities. Furthermore, inflation only increased by 1-2 per cent over the same period. It is argued that the increase in transparency had inadvertently provided firms with a means of detecting deviations from a tacit understanding, which enabled them to enforce higher prices.²¹⁷

Bringing the two effects together, an intervention that increases consumer activity and improves firms' ability to monitor each other has an ambiguous effect on the sustainability of collusion and the outcome will depend upon the size of the two effects. Therefore, the effect will vary on a case-by-case basis, so it may need the policymaker to investigate the possibility of collusion occurring post-intervention. This is especially necessary when the market structure and industry characteristics are conducive to collusion. Such an analysis is likely to be complex as it will be difficult to estimate the effect of an increase in consumer activity, which is the result of a trade-off (as discussed above), and it is not clear how to measure how much firms are likely to benefit from the information. As a result, policymakers should be cautious when firms' ability to monitor each other is improved and the market structure is conducive to collusion.

Having said that, when a remedy increases the information available in a market, it will not always improve firms' ability to monitor each other's strategies. Colluding firms have an incentive to monitor rivals' strategies, so it is likely that the firms would possess the relevant information they need to sustain the collusive understanding regardless of the intervention. Furthermore, it is likely to be especially

²¹⁵ In general, we would expect publication of past and present prices to help firms punish their rivals for deviation, as in the example above. However, publishing information about future prices or outputs is not without its problems, as it may assist firms to coordinate on a future collusive understanding.

²¹⁶ Svend Albæk, Peter Møllgaard, & Per Baltzer Overgaard, *Government-Assisted Oligopoly Coordination? A Concrete Case*, 45 J. OF INDUS. ECON. 429 (1997).

²¹⁷ Another example includes Stephen W. Fuller, Fred J. Ruppel, & David A. Bessler, *Effect of Contract Disclosure on Price: Railroad Grain Contracting in the Plains*, 15 W. J. OF AGRIC. ECON. 265 (1990). They investigate a natural experiment that occurred in 1986 where contract disclosure rules were established in the US by the Interstate Commerce Commission (ICC) to force railroads to disclose firm-specific contractual information for freight to prevent larger agriculture shippers getting more favourable contract offers. They found that, holding constant effects for demand and supply, shipment characteristics and shipping region, there was a significant upward trend in the level of freight rates (between 10-15 percent depending upon the region), despite a significant downward trend before the introduction of the remedy.

easy for firms in consumer markets to gather the required information to sustain collusion, as it is usually available (to someone who searches hard enough). Therefore, it is tempting to conclude that in the majority of consumer markets implementing an informational remedy will not improve firms' ability to monitor each other, so collusion should be undermined.

There are two reasons why this argument may not hold. First, in some consumer markets it may be difficult for firms to monitor each other. This is especially likely to occur in markets where consumers bargain for prices, firms offer confidential price cuts to consumers, or information on rivals is costly to gather or required frequently. Second, it may not be common knowledge that all firms possess the required information to facilitate collusion, so a firm may not expect a sufficiently harsh retaliation in the event of a deviation. In this situation, an informational remedy could facilitate collusion by providing firms with better knowledge about the information set of their rivals, and so they may expect rivals to respond in a manner to sustain collusion post-intervention.

B. Collusion and Specific Remedies

Thus far we have considered remedies in a general manner: we have analyzed the effects of consumer activity and of improving firms' ability to monitor each other, holding other things constant. For the remainder of this section, we will consider how the specific remedies discussed in previous sections can have an impact upon collusion. One issue that we have not yet addressed is whether an intervention can facilitate collusion through changing the market structure and industry characteristics such that collusion is more likely to be facilitated. For most potential examples, we will not be able to make any definite predicts as the effects are likely to vary by a case-by-case basis.²¹⁸ However, we can consider whether a remedy reduces the number of strategies that firms can compete on, which is likely to facilitate collusion.

Table 2 provides a brief summary of whether a specific remedy can have an effect on the market structure and characteristics in a way that facilitates collusion, and/or directly improve firms' ability to monitor each other or not by providing consumers and firms with more information. Table 2 ignores the possibility of increasing consumer activity as all of the remedies discussed in this paper (except minimum standard requirements) directly attempt to increase consumer activity. This table is presented as a guide and policymakers should consider the

²¹⁸ For instance, a remedy may lower industry profit and lead firms to exit the market, which could lead to a market structure with few, symmetric firms left. This may facilitate collusion, but the possibility of this occurring is likely to depend upon a number of factors that we cannot discuss in any depth here.

likely impact upon collusion of a specific remedy on a market-by-market case, as there may be market-specific effects that cannot be generalized across markets.

TABLE 2 – HOW REMEDIES MAY AFFECT COLLUSION

	likely to reduce the strategies firms compete on*	unlikely to reduce the strategies firms compete on*
likely to improve firms' ability to monitor each other	<ul style="list-style-type: none"> • <i>restrictions on non-price differences</i> • <i>standardised pricing comparisons</i> 	<ul style="list-style-type: none"> • <i>in-store price comparisons</i> • <i>price comparison sites</i> • <i>information provision of quality</i> • <i>customer information portability</i>
unlikely to improve firms' ability to monitor each other	<ul style="list-style-type: none"> • <i>product attribute portability</i> 	<ul style="list-style-type: none"> • <i>cooling-off periods</i> • <i>cancellation rights</i>

*Note: This can include reducing product heterogeneity as well as limiting competition on pricing structures or innovation.

In table 2 the remedies that are most likely to have the potential to facilitate collusion are those that are likely to improve firms' ability to monitor each other. Clearly, in-store price comparisons, price comparison sites and information provision about quality may enable firms to become informed about their rivals' strategies more quickly. Furthermore, customer information portability may provide firms with the ability to recognize when a rival is encroaching on a core market. On the other hand, remedies such as restrictions on non-price differences and standardized pricing comparisons may make products less heterogeneous, as well as lower the costs associated with collecting the necessary information to sustain collusion. Product attribute portability is unlikely to increase firms' ability to monitor each other, but it will make products less heterogeneous, as consumers are able to transfer a valued attribute from firm to firm. The remedies that are least likely to improve the sustainability of collusion are cooling-off periods and cancellation rights, as they are unlikely to directly provide firms with information. However, even these remedies may have the ability to improve firms' ability to monitor each other if consumers in turn provide firms with information about better deals.

VII. CONCLUSION

This paper has presented a number of remedies that can be used to encourage consumers to play a more active role in finding the best deal. It has set out the benefits and costs of such remedies, and has tried to highlight the circumstances in which the remedies are most likely to succeed.

Of the remedies considered, those that aim to improve consumer information either directly or indirectly by encouraging more search appear to be the most powerful. Where consumers enter the point of sale well informed about the prices and characteristics of the alternatives on offer in the market, they are more likely to choose the price-quality combinations which suit them the most. This puts pressure on firms to deliver what consumers want at competitive prices.

Remedies aimed at protecting the consumer at the point of sale, other than those already in place as a result of consumer protection laws, generally seem more costly to administer both for consumers and any agencies charged with monitoring the remedy. If firms do not voluntarily offer such remedies, they are likely to resist their implementation, and costs and prices may be raised.

Remedies to encourage appropriate switching behavior are distinguished by their use almost exclusively in industries with specific sector regulators. This is unlikely to be a coincidence and result partly from the novelty of choice in some of these markets. The remedies are all demanding in terms of monitoring and may be difficult to implement cost effectively without a sector regulator with specialist knowledge of the industry and a duty to undertake ongoing monitoring.

There is another potential limit to the effectiveness of the proposed remedies: namely, the fact that consumers' time, attention and information-processing powers are themselves bounded and/or their preferences and motivations may be configured differently from the standard model. This may result in behavior, including responses to remedies, which is difficult to explain or predict conventionally.

A second concern is that if consumers are fully insured from any mistakes they may make (whether through inadequate search, bad judgment or abusive behavior by sellers) their incentives to be active are severely limited. The more consumers face the full force of a bad decision, the more they would be expected to take steps to minimize mistakes and to learn from the past. Where the cost of mistakes and of learning are not too large, general consumer education to help consumers help themselves may be more effective than specific protection measures.

For all the remedies, we considered not only the industrial economics literature, but also the behavioral economics, marketing and psychology literatures. Taken as a whole, this literature suggests that

remedies aimed directly at consumers where both the problem and the remedy are easy to understand will be the most effective. It also suggests that incentivizing firms to communicate relevant information to consumer, and supporting them in these activities, may be more powerful than direct remedies.

Increasing transparency in the market may not just help consumers to make markets work better, but also help firms to soften competition by facilitating tacit collusion. Section VI in particular provides examples of where this has occurred in practice.

A. Future Research Needs

This survey has identified where knowledge and understanding is slight and where more work is needed. For some of the remedies discussed in this paper, robust theoretical analysis backed with sophisticated empirical evidence enable a clear assessment of their likely impact. For other remedies, more research is needed.

While the theoretical analysis is far ahead of empirical research, there remain gaps in theoretical understanding of a number of the remedies considered in this paper. In particular, better models of behavior at the point of sale would strengthen our understanding of the proposed remedies.

The paucity of empirical evidence is more pronounced. More work on the effect of standardization, of price comparisons (whether on the web or in the store) of comparative advertising and of post sale remedies is particularly needed. For some remedies empirical evidence exists, but only from a few industries. Robust evidence of the effects of the remedies across industries, countries and time is also lacking. The biggest hurdle to such empirical work is posed by access to appropriate data. To assess the remedies, the researcher would need data from before and after the deployment of a remedy. While getting the “before” data is a particular challenge because it is difficult to foresee when a remedy will be imposed, Competition Authorities are in a unique position to gather data whose analysis can provide evidence to improve their own future policy interventions.