

E.CA Economics

# REPORT

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## Economic Research on Loyalty Price Discrimination

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Report prepared for the Competition and Markets Authority

Partner of ESMT European School of Management and Technology

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# 1 Executive Summary

## 1.1 Introduction

In 2018 Citizens Advice, a network of charities providing advice and support to consumers, filed a super complaint on loyalty penalties, which refers to a “situation where, on average, businesses charge higher prices to existing customers who stay with them, than they do to new customers or those who negotiate” (CMA 2018). Building on CMA’s response to this complaint and on-going work thereon by different UK regulators, CMA reconsiders its framework to assess such loyalty penalties and loyalty-based price discrimination more generally. As part of this approach, CMA asked us to provide a technical (but readable) survey of the academic literature on price discrimination focusing on aspects that are central for understanding and evaluating the economic impact of price discrimination based on loyalty.

Our survey reviews the academic literature related to loyalty pricing with a focus on the theoretical mechanisms and their possible policy implications. Throughout, we distinguish between classical models and behavioural ones. The classic models are those in which consumers are, colloquially speaking, “rational” in that they are perfectly forward looking, understand equilibrium reasoning and have equilibrium knowledge, have unlimited self-control and time-consistent preferences, cannot be misguided or deceived by firms’ offers, make no mistakes and otherwise adhere to the common textbook model of consumers taught in introductory economics courses. Models that deviate from one of these strong assumptions about consumer behaviour are referred to as “behavioural”.

Many behavioural market models distinguish between what the literature calls “sophisticated” and “naïve” consumers. Sophisticated consumers in these models are industry experts in every market: they have the time and cognitive resources to study and correctly evaluate contract offers, and - much like an outstanding legal expert - cannot be misled by any clause in a complicated contract. They make expert forecasts regarding future prices, even when this requires intricate forward-looking strategic reasoning. When receiving useful information, they always pay attention. When there is an opportunity to act, they never procrastinate. They never forget to cancel a contract. They never worry that they may be overlooking something. They are almost infallible and at most lack information, which is hidden from them, to take optimal decisions.

All other consumers, who do not possess these super-powers, are referred to as “naïve”. Based on its use in theoretical models, the term should not be misconstrued as implying these consumers are simple-minded or careless. Most of us are busy and cannot pay attention to each and every market. We cannot study law first to ensure we fully understand every contract offer. Indeed we do not even have time to read all contracts or terms of usage we agree to. Regarding the future development of the market, even regulators or economists studying them cannot keep track of every development. Moreover strategic reasoning is for most humans extremely difficult; even if there is a rational solution to chess, we cannot play it. In the technical sense, we are all naïve consumers at least some of the time. Perhaps “human” or “actual” consumers would be a better phrase, but throughout this survey we follow the convention in the behavioural industrial organisation literature and distinguish between sophisticated and naïve consumers. Having naïve consumers in the market models allows firms to exploit consumer misperceptions if it is profitable to do so.

To investigate loyalty penalties, one would expect a market model to have at least the following three ingredients: firms can charge different prices to old and new customers, consumers differ in their propensity to switch to alternative offers, and firms and consumers interact repeatedly over time. Market models that have all of these features are surprisingly rare. Furthermore, for the purpose of this survey it would be ideal if such models investigate a rich set of different possible policy responses to loyalty penalties. Alas, the number of policy responses investigated in the theoretical literature is small.

We thus span the net of the literature we summarise much more widely. Our hope was, and belief is, that market models that only have some of the above features can nevertheless provide useful economic insights regarding loyalty pricing patterns. One downside of this approach is that both the classical and behavioural industrial organisation literature that derives potentially important insights is vast, and we cannot cover every potentially related paper. Another is that any policy implication must remain somewhat speculative as the discussed models ignore some seemingly important aspects. Nevertheless, we hope the reader will find our survey, which discusses existing papers from the perspective of loyalty pricing, insightful.

Finally, before delving into the subject of our survey, we need to acknowledge three important limitations:

- **No survey of the empirical literature:** Given our focus on the theoretical mechanisms, we do not attempt to provide a survey of the vast empirical literature on loyalty penalties and the consumer behaviour that may allow firms to collect such loyalty penalties. We do, however, discuss some empirical patterns in the UK and elsewhere when useful for illustrating existing theoretical arguments or highlighting aspects that appear important but do not (fully) feature in the theoretical literature. We also rely on the empirical literature to argue that classical (or “rational”) switching- or search-cost-based explanations usually do not fully explain the observed behaviour of consumers. This finding suggests that other psychological mechanisms play an important part for understanding consumer inertia, which drives loyalty penalties. This is why we also reserve a considerable part of this survey to discussing findings of the literature on behavioural industrial organisation, which among other things investigates the strategic response of firms to non-traditional aspects of consumer behaviour.
- **Simple concepts of welfare:** When summarising the theoretical literature, our discussion follows the academic literature and almost exclusively focuses on simple concepts of welfare, like total surplus or overall consumer surplus.<sup>1</sup> Even from a classical perspective, ignoring the distributional aspect between consumers can be problematic, and UK regulators are charged with taking the consequences on vulnerable consumers into consideration.<sup>2</sup> Throughout, we sometimes mention that the implications if vulnerable consumers are more inert, but we do not consider alternative welfare formulations more formally. Furthermore, especially models allowing for non-classical consumer

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<sup>1</sup> Broadly speaking, consumer and producer surplus, respectively, measure the benefit of trade for consumers and producers. Consumer surplus is a theoretical construct that in a basic setting amounts to the difference between a consumer’s maximum willingness to pay for a product and the amount she pays for it. The producer surplus in basic settings is the difference between the price of a product and the minimum amount for which a firm is willing to offer it. Total surplus is the sum of (aggregate) consumer and producer surplus. See Mas-Colell, et al. (1995, p. 332 f) for a precise definition of total or Marshallian surplus and necessary assumptions for it to be well defined.

<sup>2</sup> Some groups of consumers, linked to their situational circumstances (e.g. going through a bereavement) and/or characteristics (e.g. being elderly, having a low level of education or income), may be considered vulnerable and at the same time may be particularly likely to incur loyalty penalties. For discussion of vulnerable consumers, see CMA (2018, 2019).

behaviour can lead to difficult welfare issues including how to identify consumer misperceptions or mistakes, and how to differentiate these from non-classical preferences.<sup>3</sup> Throughout, we mainly rely on the presumption that if consumers can get the same product cheaper, they would prefer to do so.

- **Ignore fairness-related concerns:** Our total-surplus- or consumer-surplus-based approach - fully in line with both the classical and behavioural literature - implicitly ignores fairness aspects: if consumers deem it unfair to pay vastly different prices for the same service or product, and this affects how they evaluate the market outcome, loyalty penalties could be even less desirable. In line with the existing academic literature on price discrimination,<sup>4</sup> we ignore any such fairness considerations and their possible implications altogether.

## 1.2 Short Summary of Literature

Loyalty penalties are prevalent in several UK industries, including for example energy, home and motor insurance, broadband and mobile services, as well as cash savings and mortgage products. Loyalty penalties are the result of various pricing patterns that treat loyal (i.e. longstanding) customers worse than new ones. In some industries, firms often increase prices drastically after an initial contract period ended (i.e. firms induce price jumps). In others, prices are steadily increasing at contract renewal for an extended period of time (i.e. firms engage in price walking). In yet others in which prices trend downwards over time, firms refrain from reducing prices for existing customers (i.e. firms engage in legacy pricing). We now turn to summarising how economic models explain such pricing patterns.

### 1.2.1 ‘Classic Literature’

While the classic literature has its limits in explaining loyalty penalties, it still provides some useful economic insights that we deem important for understanding them. Main theories and concepts that contribute to the understanding of the loyalty penalty are:

#### **Waterbed effects**

In a simple two-period model in which firms can charge high prices in a second period because consumers are reluctant to incur the costs of switching suppliers, attracting these customers in the first period becomes even more profitable. These future profits act like a reduction in costs, and as a result, firms in competitive industries end up lowering first-period prices by this amount (a complete waterbed effect).<sup>5</sup> An immediate implication of this simple example is that it can, and typically will, be inappropriate to simply use the price difference between new and old customers to calculate the harm that loyalty penalties cause inert consumers.

Yet, even if there is a complete waterbed effect, high loyalty penalties will have a detrimental impact on total surplus when realistic features such as downward-sloping demand, the possibility of inefficient switching, or different consumers preferring different firms are incorporated into our simple example. Furthermore, for many reasons waterbed effects are likely to be incomplete in that the initial price reduction does not or does not fully compensate for the later loyalty penalty. Finally, loyalty penalties

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<sup>3</sup> For a detailed discussion thereof, see Bernheim and Taubinsky (2018).

<sup>4</sup> For a discussion of how firms optimally set prices if consumers care about the fairness of the offer they receive, see Rotemberg (2011) and Eyster et al. (2020).

<sup>5</sup> This simple example also illustrates why firms may use price jumps at contract renewal.

may be disproportionately paid by vulnerable consumers, who can face additional barriers/challenges to switching or renegotiating, and going beyond the total-surplus standard in the literature, societally such large interpersonal price differences can be considered unfair.

### **Price discrimination**

While the concept of the waterbed effect is often considered in a very simple two-period setting in which consumers face two prices, another perspective is to consider new customers on the one hand and long-term customers on the other hand as different groups in the same market, which can be charged different prices. Static (or one-period) oligopolistic price-discrimination models predict loyalty penalties if - roughly speaking - the demand from long-term customers is less responsive to price increases (i.e. more inelastic) than that of new ones. In such models, the impact of price discrimination on profits, consumer surplus, and total surplus depends very much on the nature of the demand and are notoriously ambiguous, calling for careful empirical investigation. Surprisingly, these models almost exclusively focus on one rather simple policy choice: whether or not to ban price discrimination. However, one insight in the literature, which is confirmed in other classic models, is that banning price discrimination can reduce price competition: it makes it less desirable for firms to cut prices to attract new customers as this reduces the profits a firm earns from its loyal customers.

### **Behaviour-based price discrimination**

In (classic) models considering behaviour-based price discrimination, firms can condition their current offer on past consumer choices such as the contracts the consumer selected beforehand. These models abstract from switching costs, so past purchases matter only in as much as they reveal a consumer's preferences for one firm or product over another. Again, the literature focuses on the rather simple policy choice of whether or not price discrimination should be banned and confirms that banning price discrimination can reduce price-competition (but can nevertheless be welfare-improving).

One important additional insight of this literature is that lower prices need not increase consumer surplus if they come at the cost of enough consumers having to switch to a product they enjoy less in order to reap the benefits of these lower prices. We highlight that some results in that literature depend very much on consumers making optimal forward-looking choices.

### **Switching costs**

In switching cost models a consumer pays an extra (monetary or hassle) cost when changing her supply contract, which can explain consumers' reluctance to do so. Consumers' reluctance to switch gives firms short-run market power and induces firms to set high prices for its existing customers. Customers with low switching costs change suppliers while others end up paying these higher prices. Hence, switching costs can predict pricing patterns with loyalty penalties.

The literature on switching costs, however, emphasises that with rational forward-looking consumers these high prices result from a "commitment problem" of firms: whenever feasible, to attract more consumers, firms would like to promise low future prices. Once a firm attracted a substantial customer base, however, it would like to break this promise and raise prices for existing customers. In addition, the desire to initially commit to low future prices relies on well-informed forward-looking consumers correctly anticipating the higher prices they end up paying absent commitment.

Most switching costs models simply presume that commitment to future prices is impossible, and that price discrimination between old and new customers is infeasible. Despite the infeasibility of this price

discrimination, loyalty penalties can arise since firms with a greater market share often have an incentive to charge higher prices. Importantly, however, these are loyalty penalties across rather than within a firm. When allowing firms to price discriminate between old and new customers, existing models predict loyalty penalties.

Banning price discrimination, again, lessens price competition since it reduces firms' incentives to lower prices for new customers. Especially when waterbed effects are important, it turns out that lower prices at the switching stage may not even benefit consumers in these models. The reason is that these lower prices can increase costly switching and, because increased future switching makes attracting customers initially less profitable, reduce the introductory discount firms offer to consumers. The reduced discount can hurt consumers more than the lower prices at the switching stage benefit them, once we take into account that consumers themselves incur the switching costs.

Despite some important caveats, firms (as a group) typically have an incentive to increase switching costs.

### **Search costs**

The classic search literature in oligopolistic markets focuses on firms that set prices only once and thus mostly abstracts from dynamic pricing considerations that are likely important for understanding loyalty penalties. If existing customers have higher search costs, however, these models can be interpreted as giving rise to loyalty penalties. In as much as vulnerable consumers have higher search costs, this may give rise to additional concerns.

Most models allowing for search costs suppose that firms cannot price discriminate, so loyalty penalties can again only arise across firms. In such models successfully "activating" consumers increases the share of consumers finding good deals and thereby increases the benefit of offering one for firms. Depending on the market structures banning price discrimination can increase or decrease consumer surplus.

An important insight is that in models in which consumers actively decide whether or not to search, reducing search cost may not induce more (observable) equilibrium search, but still reduce prices. The reason is a competition-for-inattention effect: to earn profits, high-price firms need to prevent a sizeable amount of consumers from searching and finding a better deal. To do so, high-price firms in equilibrium set their prices just low enough so that a significant portion of consumers remain inactive. When search costs are reduced, these high-price firms end up setting lower prices so that again a sizeable amount of consumers refrain from searching. As a result, despite encouraging competition, lower search costs need not lead to more (equilibrium) switching, and a simple comparison of switching rates can be misleading.

Due to their static nature, most search-cost-based models cannot not explain price walking or price jumps. The scarce literature on dynamic competition in which consumers have to search, however, can plausibly generate price walking at least in some environments.

### **Common Themes**

To sum-up, the classic literature can account for loyalty penalties to varying degrees. With regards to price discrimination, the literature cautions that while a ban eliminates the loyalty penalty, it is likely to raise prices charged to new customers with the net welfare effects being difficult to predict. At the same time, for the purpose of deriving policy implications, there are some important limitations. First, the classic literature abstracts from distributional (fairness) aspects and thereby also vulnerable consumers. Second, conceptually, these models do not differentiate between a loyalty penalty or a healthy introductory discount, and one needs other information - such as information on the firms' costs and

details on the demand side - to evaluate whether loyalty penalties may in fact be a representation of such healthy desirable discounts. Third, the classic literature has investigated only very few policies among the many possible policy approaches regulators have been considering, and existing models are not necessarily rich enough to elucidate the relevant policy trade-offs. Relatedly, the literature mostly models search and switching costs in reduced form and, hence, gives no or too little guidance on concrete business practices or the impact of certain contract clauses. Fourth, parts of the existing results rely on careful forward-looking behaviour of consumers for which we have not seen strong evidence. Indeed, fifth, the literature arguably does not capture many facets of actual consumer behaviour that are likely important in understanding the full impact of loyalty penalties.

### 1.2.2 Going Beyond the ‘Classic Literature’

Recently, a growing literature on behavioural industrial organisation investigates the implications of behavioural effects on market outcomes. We are unaware, however, of a single paper that explicitly analyses loyalty penalties. Furthermore, while regulators are very much aware and concerned with the possible heterogeneity of various different consumer types, existing behavioural models tend to focus on at most two different (behavioural) types in the marketplace. Nevertheless, the respective literature provides important insights into possible causes of loyalty penalties:

- **Search and switching behaviour:** Empirically, it is often difficult to separately identify different possible reasons for consumer inertia such as switching cost, search costs, or behavioural reasons such as inattention or procrastination. Existing estimates in many markets that ignore behavioural effects suggest that empirical search- and switching costs need to be implausibly large to explain observed behaviour. Some papers that identify consumer inattention separately find that estimated switching costs become calibrationally much more plausible when inattention is accounted for. Bolstering the argument that behavioural effects are important, the widespread evidence on default effects from many domains suggests that behavioural reasons are likely to play a significant role in explaining observed switching behaviour. Yet, despite the ubiquitous finding of default effects in the behavioural economics literature, the different underlying psychological drivers for default effects and their relative importance in different contexts are rarely analysed, limiting the possibility to provide policy guidance on how firms may be exploiting them.
- **Knowledge about the loyalty penalty:** If consumers misperceive how much in loyalty penalties they end up paying, loyalty penalties may be especially detrimental: the misperception that the loyalty penalty is low may keep consumers from actively searching and finding a better deal. At least in principle, empirical tests that identify whether consumers underestimate the loyalty penalty seem feasible; for example, one could simply survey price expectations and compare them to actual prices. Such tests, we believe, would help inform the policy discussion around consumer perception and activation.
- **Misperceptions:** A simple model with consumers who overestimate their likelihood to remember to renegotiate their contract when it expires can give rise to loyalty penalties. Importantly, despite firms’ ability to fully commit to future prices, loyalty penalties can in such a situation arise in the optimal pricing strategy of firms. This results from a more general principle: when some consumers have systematic misperceptions, perfectly competitive markets typically maximise the consumers’ perceived (rather than their actual) utility subject to firms breaking even. As a result, regulation that limits consumers’ misperception - here via limiting loyalty penalties - can be beneficial even in perfectly competitive markets. When also introducing more sophisticated consumers who are more

likely to renegotiate and hence not to pay the high future price, naïve consumers<sup>6</sup> end up cross-subsidising sophisticated ones in competitive markets. Even when educating is free and credible and the market competitive, due to this cross-subsidy firms often have no incentive to debias consumers about their misperceptions. Regulation that limits the exploitation of naïve consumers may, due to waterbed-type effects, reduce the equilibrium cross-subsidy sophisticated consumers receive from the more naïve consumers. There are, however, additional reasons to presume that waterbed effects are often incomplete when some consumers make systematic mistakes. In addition, if naïve consumers are more likely to be vulnerable, the resulting cross-subsidisation seems particularly undesirable and unfair.

If sophisticated consumers, in contrast to the case discussed above, are as likely as naïve consumers to not renegotiate but have realistic expectations about this fact, sophisticated and naïve consumers will often self-select to different type of offers in the market equilibrium. We discuss additional feature of markets in which firms earning money by deceiving consumers can have considerable incentives to spend money on advertising or commissions in order to expand their market share. Furthermore, we point out that the ability to confuse consumers through obfuscation is often a source of profits. In such models, exogenously increasing transparency can increase competition for well-informed sophisticated consumers at the potential expense of more firms redirecting their business activity to exploit naïve consumers. Finally, the scarce existing theoretical results suggests that while being a useful tool to inform consumers, intermediaries or price-comparison platforms can also often benefit if they allow firms to sell products deceptively and at high prices.

- **Heterogeneous attentiveness and competition:** When consumers differ in their attentiveness, low-price introductory offers are likely to over-proportionally attract attentive consumers who avoid paying high renewal prices also in the future, limiting the extent to which firms hand back expected future loyalty penalties up-front. This suggests that waterbed effects are especially incomplete when firms cannot differentiate customers according to their likelihood to be attentive.
- **Complex contracts:** Economic theory gives no clear guidance on what a complex or “simple” product is. Yet, the models with classical consumers that we discussed above consider products that are simple in two ways: they have a single price that consumers fully understand, and products in a consumers’ choice set are easy to compare. In contrast, in some behavioural models that we discuss below, naïve consumers, when seeing a contract offer, have difficulty comparing offers or misperceive the price when contracts are too complex. In many models, if consumers are less able to compare offers, good offers attract fewer consumers, reducing competition. Also, if some consumers misperceive the price while others do not, firms can price discriminate based on their knowledge about this misperception. Because in these models consumers who misperceive the price are more profitable customers, knowledge about existing customers that enables firms to predict the more profitable naïve types can also reduce the level of competition: firms tend to offer better deals to those existing customers who are more profitable. Competitors lack the knowledge to target these more profitable customers. Attractive competitors’ offers, thus, will tend to attract many less profitable consumers, reducing incentives to make such offers. Whenever this is the case, the market features both loyalty penalties and a lack of overall competition. In this case, banning price discrimination or enabling rivals through data-sharing requirements to better target more profitable consumers encourages competition.

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<sup>6</sup> This terminology, which originates from the theoretical behavioural literature, should not be misconstrued as implying these consumers are simple-minded or careless. See Section 1.1.

One has to bear in mind, however, that making one market segment more competitive reduces the profits firms can obtain in that segment, potentially inducing firms to focus their business model on other market segments in which they can still earn additional profits from consumers' misperceptions. Similarly, the theoretical literature shows that regulation that facilitates comparison may induce firms to focus on offering even more complex and hard-to compare product prices in order to avoid the increased competition. The literature so far, however, provides only simplified stylised examples in which the firms' response to increased transparency reduces comparability in equilibrium, making it hard to predict in which markets this is likely to be the case.

- **Mistrust:** We take up the observation by regulators documented in the electricity market (but presumably also valid in others) that some consumers are afraid of switching because they fear they end up paying a higher price. A classical consumer model cannot easily capture the observed consumer mistrust in competing offers. Limited attention or ability to read complex contracts, however, can naturally explain this phenomenon. One model with this feature predicts that regulation that limits how much consumers can be exploited post purchase can increase trust in the market and foster competition.

### 1.2.3 Business Practices to Influence Inertia

Business can engage in a variety of practices to increase consumer inertia, which include making switching difficult, managing consumers' attention, and strategically using autorenewal clauses.

- **Influencing switching:** While not formally modelled, economic intuition suggests that individual firms want to make switching away from them hard but facilitate switching to them. Following the logic set out previously for classic models, firms will refrain from making cancelling hard only if they can commit to do so, and consumers observe and consider the ease of cancellation when looking for a new contract. Classic models illustrate also that firms may want to influence switching costs to reduce inefficient switching, increase market power, or deter or accommodate entry. There is, however, surprisingly little literature on how firms can exactly influence switching costs and competition in consumer markets. One exception highlights that an incumbent firm can use exit (also referred to as breakup) fees together with other contractual clauses to deter future market entry by more efficient rivals. Banning exit fees in these situations can benefit consumers. But there clearly seems to be a need for further research in this area.
- **Influencing consumer attention:** In many search models, firms jointly would benefit from more inattentive consumers in the market. The theoretical literature studies incentives to increase or reduce search costs, but is not explicit on how firms can influence search costs (see above). Thus, it gives little formal guidance of how certain business practices influence search costs and whether regulation of particular business practices may be called for. It does, however, illustrate a potentially negative effect of price caps on the total price: intuitively, price caps limit potential price differences in the modelled market, thereby reducing consumers' incentives to become informed and to seek out better prices. Especially when these price caps are rather loose, this can, but by no means must, increase average prices. While price caps on the total price reduce incentives to search, if consumers' attention is limited, price caps on secondary features - such as cancellation fees - may increase rather than decrease search incentives. Intuitively, when the fee is regulated, a consumer need not study it, thereby reducing the attention necessary for searching, making (informative) price comparisons easier.

- **Autorenewal contracts:** In models with classical consumers the impact of autorenewal contracts is typically modest. They affect behaviour only in as much as they influence transaction- or switching costs. Furthermore, if firms can commit to future prices, classic switching cost models do not predict the commonly observed price jumps at renewal. We discuss evidence that some consumers overestimate their future probability to cancel contracts. When consumers overestimate their probability to cancel, profit-maximising firms use automatic renewal contracts to exploit this bias. In competitive markets, this induces price increases at automatic renewal despite firms' ability to commit to prices. Policies lowering switching costs can reduce consumer mistakes about future cancellation, and thereby increase efficiency. Furthermore, intuition suggests that low-price introductory offers may over-proportionally attract attentive consumers who avoid paying a high renewal price. This may reduce the intensity of competition in the market. If firms can price discriminate between consumers who are more likely to be inattentive and others, price discrimination can induce lower introductory- and larger renewal prices for inattentive consumers, distorting their renewal decision more. Existing models also ask when regulators should send (or have firms send) reminders regarding the possibility to become active. Existing results find that attempts to activate consumers should be directed at the renewal stage.

### 1.3 Policy Implications

Given the lack of a wider policy discussion that we identified throughout the theoretical literature, we focus mainly on potential remedies mentioned by CMA (2018) in their response to the super complaint of Citizens Advice. Given the lack of full analysis of these remedies in the existing literature, however, one needs to be very cautious when relying on the intuitions below to guide regulations and further research is called for.

- **Efficiency consequences of loyalty penalties:** The academic literature highlights that loyalty penalties can be a serious concern despite waterbed arguments. These price differences can lead to a variety of inefficiencies and can have detrimental distributional and fairness implications. Especially when consumers underestimate the (current or expected future) loyalty penalty, the literature suggests that limiting it can be desirable.

One set of policy responses is focused on activating consumers.

- **Activating consumers:** The Ofgem engagement trials in the UK energy market demonstrate that through providing information and reducing switching costs, consumer engagement in the marketplace can be considerably increased. But even the most "far-reaching" intervention, which solved the consumers' search problem and made switching almost as easy as possible did not induce 70% of consumers on default contracts to switch. In as much as consumers do not react to such a prompt, it is questionable whether their "loyalty penalty" can be overcome by activating consumers alone or whether activation and regulation may need to go hand in hand. These findings are consistent with evidence in the academic literature that consumers often remain inactive despite large potential savings.
- **Activation and switching:** While the Ofgem trials have illustrated the potential to activate consumers, their degree of activation is often implicitly measured in terms of switching rates. But switching is costly, and ideally one would want the threat of switching to drive competition rather than see a lot of switching taking place. Indeed, in theoretical models lowering search costs - for all and not just a randomly sampled subset of consumers as in these trials - can induce firms to offer better deals without any equilibrium impact on the overall switching rate. Ideally, the fear of active

consumers drives competition and thus policies should be evaluated based on the offers they induce, not the amount of switching taking place. Furthermore, we emphasise results from the theoretical literature that increased switching by others could hurt consumers who remain inert. Activation and regulation are thus likely to have to go hand in hand to safeguard non-switchers.

Before turning to potential remedies, we want to highlight that the Ofgem trials raise an important economic question in our minds: with energy being a relatively homogenous good, why doesn't a regulator choose the best available deal for consumers directly? Being explicit about the benefits and costs of consumer choice in such a setting could inform policy discussion.

Closely related, regulators can aim to facilitate consumer choice by providing information and increasing transparency.

- **Providing information and increasing transparency:** In classical search models measures to increase transparency reduce search frictions and thereby increase consumers' ability to find appropriate offers. Fixing the supply, consumers thus benefit. In addition, firms will typically respond by making more competitive offers, benefiting consumers further. Overall this gives rise to a powerful intuition that consumers benefit from these measures. Nevertheless, the academic literature emphasises that information and transparency remedies may be ineffective or even backfire especially with richer models of consumer behaviour: transparency facilitates comparing offers for active consumers, and tends to reduce the margins firms can earn from these consumers. If the market, in addition, has some inactive consumers who do not compare offers or have problems identifying good deals, the margin firms earn on these consumers are often less affected. This can induce profit-maximising firms to reorient their business activities in order to better target and exploit inactive consumers. With more firms targeting these consumers, they can end up with worse deals. Additional regulation protecting inactive consumers may thus be needed.
- **Facilitating comparability:** The academic literature emphasises that when regulators attempt to make it easier for consumers to compare offers, firms may have even greater incentives to obfuscate their pricing in order to avoid the tough competition in markets in which consumers can easily compare offers. Indeed, through stylised examples the academic literature demonstrates that the overall effect could even be negative but currently gives little guidance as to when this is likely to occur.

Another difficulty with facilitating comparisons is that this often requires simple to digest summary information, which can be abused by firms. Regulation in Mexico's privatised social security system to activate workers that responded only little to the involved fees illustrates. The government introduced a single index that workers indeed took into account when selecting a firm. Because the importance of different fees that firms charge depends on consumer characteristics, however, the index can be misleading for any given individual consumer. Indeed, evidence shows that firms responded to the regulation by adjusting their pricing in a way that lowered the index (and thus looked attractive to customers) but actually increased the revenues the firms received from workers.

- **Consumer misperception about potential savings:** One reason why consumers may ignore even easily accessible information is that they may misperceive the potential savings of looking for alternative offers. If some consumers incorrectly believe that loyalty does not harm them much, they need not look for alternative offers and as a result need not learn about their mistake.<sup>7</sup> One tool at a regulator's disposal is to publish data on the size of loyalty penalties, which - especially if discussed

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<sup>7</sup> As mentioned before, the prevalence of such misperceptions can be empirically uncovered.

in the press - could raise consumer awareness or may even pressure firms afraid of bad press indirectly.

Other policies to reduce loyalty penalties involve regulating prices.

- **Directly addressing price differences:** Regulating price differences directly can be difficult in practise for a variety of reasons, and there are different ways in which one could limit price differences. A common concern is that limiting the price differences between old and new customers directly can reduce firms' incentives to attract new customers, harming competition. Indeed, this policy seems to be rarely used. It has been introduced in the UK energy market but was abandoned after switching rates declined, which is consistent with theoretical concerns. Nevertheless, such a policy could have still, in principle, benefitted vulnerable consumers.

We propose that a possible option could be to regulate the difference between a firms' price and what competitors charge for new customers. Yet, also such a regulation has (possible) drawbacks. Finally, we note an interesting parallel between a "best-deal-requirement" imposed by regulators, which requires firms to move all of their customers to their best available deal, and so-called most-favoured-nation clauses, in which firms voluntarily promise the same thing to their customers. As we discuss, one common antitrust concern is that in the presence of such a clause, setting low prices to customers requires lowering the price to existing ones, reducing the incentives to aggressively attract customers, harming competition.

- **Price caps:** Similar to price differences, there are a number of potential practical issues with price caps, and they are easiest to implement for homogeneous goods. If the price cap is too low, firms will cease offering the service (at decent quality). Also, a price cap may increase prices either because it becomes a focal point for collusive prices or because it reduces consumers' incentives to engage in costly search. We argue that price caps on additional fees - such as cancellation fees - do not have this drawback and may even increase the incentives to search. At the same time, regulators must identify what is an additional fee and make sure that it does not have an important efficiency purpose.<sup>8</sup>
- **Activating consumers through regulating:** Regulating additional prices or hidden contract terms can limit possible post-purchase surprises and thereby make searching for new offers more attractive. For this to be the case, however, consumers must know or trust that such a regulation is in place. This can give rise to a trade-off between market-specific regulations that perfectly fit the competitive structure of a given industry and coordinating regulation across industries.
- **Price regulation may reorient firms towards desirable business models:** While not emphasised in the academic literature, price regulations can induce firms to reorient their business models from exploiting consumers who do not compare offers or have problems identifying good deals to providing offers that are attractive to consumers who are better at finding good deals. By limiting the margin firms earn from exploiting consumers, the relative profits of targeting active consumers capable at finding good deals increases, which provides an incentive for firms to do so.
- **Banning targeted pricing:** Being able to differentiate new offers between attentive and less attentive consumer groups can induce lower introductory- and larger renewal prices for inattentive consumer groups, distorting their renewal decision more. Banning such price discrimination among new

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<sup>8</sup> Similarly, CMA (2018) argues that if a price cap only applies to a subset of consumers, it is likely to be less distortionary. To our knowledge, this has not been discussed carefully in the academic literature, and is an interesting question for future research.

customers may make it more difficult for firms to target exploitative contracts to inattentive consumers, which may induce firms to design on average less-exploitative contracts for their whole customer base and thereby also reduce the loyalty penalty.

Another possible policy is to regulate business practises, especially those related to switching providers.

- **Firms can have an incentive to make cancelling unnecessarily difficult:** Firms have an incentive to refrain from making cancelling hard only if they can commit to do so, and consumers observe and consider the ease of cancellation when looking for a new contract. Indeed, consumers often complain about unnecessary hurdles when trying to cancel a contract. One possibility to reduce switching costs, thus, might be to facilitate contract cancelling. Regulators could insist that cancelling is as easy as signing up for a new contract and take other measures to instill trust and reduce uncertainty for consumers in the cancellation process.
- **Firms may misrepresent the loyalty penalty:** Firms may misrepresent prices or price increases, provide the wrong impression that consumers receive a ‘good deal’ for being loyal or that they are on ‘the best deal’. In addition, sometimes firms provide wrong or not easily understandable information on how to cancel their contract. Standardising information firms need to provide (e.g. at contract renewal) as well cancellation procedures may thus benefit consumers.
- **Potential benefits of autorenewal terms:** Automatic renewal may be convenient for busy consumers, effectively reducing their transaction costs or ensuring that they have continued service. If, and only if, autorenewal is tied to regulation that prevents or severely limits firms from changing the contract terms (including price) at the renewal stage, it may give firms an ability to commit to future prices. Such commitment can be pro-competitive if consumers are rational and perfectly forward-looking.
- **Autorenewal as exploitation device:** Following existing evidence that some consumers overestimate their future probability to cancel contracts, behavioural models suggest that firms use automatic renewal contracts to exploit this bias. In competitive markets, this induces price jumps at automatic renewal. According to these theories, policies lowering switching costs can also reduce consumer mistakes about future cancellation and thereby increase efficiency. More generally, firms may often have an incentive to use autorenewals to default or nudge consumers into undesirable contracts. Regulators may thus want to restrict firms’ ability to do so. At the same time, regulators could try to avoid tying the default to a firm’s own best offers for new customers, as this reduces the incentives to vigorously compete.
- **Trigger points:** Existing behavioural models argue that policies aimed at activating consumers should focus on the renewal stage, when reminders are most likely to be effective. To increase consumer awareness indirectly using market forces, regulators may also synchronise consumers’ switching decisions, which has increased advertising campaigns and consumer attention in the Hungarian auto-insurance market.
- **Opt-out of autorenewal:** One possible policy is to force firms to offer consumers the potential to receive the service without autorenewal terms. But because in existing models firms optimally design renewal terms to cater to consumers’ misperceptions about their future switching behaviour, the resulting automatic renewal contracts appear better to biased consumers than viable alternatives in the marketplace. Therefore, at least if alternative contracts without autorenewal terms are not regulated to have the same conditions otherwise, consumers who overestimate their likelihood to cancel are unlikely to select contracts without harmful autorenewal terms. Thus, transparency about

automatic renewal options in itself or insisting that consumers can choose a contract without automatic renewal may not be sufficient to improve outcomes for such biased consumers.

If some consumers - due to limited attention, search costs, or misunderstanding the contract terms - are unaware of the renewal features of the contract, requiring explicit consent may nevertheless increase awareness and effective choice regarding automatic renewal. In this case, however, the effect may be greater if an explicit opt-in to the renewal clause is required. Because consumers who are overconfident regarding their future tendency to pay attention may not opt-in and sometimes unexpectedly forgo the benefits of receiving the service, regulators need to carefully select an alternative default (especially) for essential services in which disruption of the service is very costly to consumers.

Regulators can also encourage firms or intermediaries to debias consumers.

- **Consumer confusion or misunderstanding:** Consumer confusion or misunderstanding is often a source of profits for firms, and their incentives to educate consumers about possible misperceptions is often severely limited. Indeed, they may actively want to obfuscate the offers they are making. Hence, relying on firms' or industry associations' own initiative to overcome informational barriers is unlikely to suffice.
- **Will intermediaries lead to transparency?** Non-expert consumers can use the aid of intermediaries or price-comparison websites to find better deals. These institutions often help consumers find offers, and one may wonder whether they will induce transparency and facilitate consumer choice. In addition, data-driven technologies and services may aid consumers even more by enabling more sophisticated comparisons in the future. At the same time, there are considerable hurdles that can keep unregulated price-comparison sites or other tools from finding the best deals for consumers.

First, such intermediaries need to be able to assess the different supplier deals in a way that enables a comparison between them.<sup>9</sup> Second, to locate better deals consumers need to become active in the first place. A prerequisite is that consumers trust that any private data they provide is safe and the comparison useful.<sup>10</sup> Third, such intermediaries must charge a reasonable price for their service of matching consumers to appropriate suppliers. This relates to question as to when platform markets have a tendency to monopolise due to network and scale effects, an important question beyond the scope of our survey. Fourth, ideally these intermediaries would have an incentive to actually find good deals on behalf of the consumer. But in practise they - very much like the suppliers themselves - can have incentives to offer consumers misleading deals or match consumers to deals that are suboptimal.

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<sup>9</sup> While the benefit of reaching consumers may induce suppliers - especially those with good offers - to cooperate with price-comparison websites, both theory and evidence suggests that firms offering worse deals want to make such price comparisons hard - be it by not allowing intermediaries to access their data or by quoting prices in such a way that simple comparisons become misleading. Additionally, in as much as the advertised offers on comparison sites are - e.g. due to hidden fees - not those that consumers end up selecting when visiting the supplier, the benefit consumers receive may be unnecessarily limited.

<sup>10</sup> Furthermore, consumers who have no easy internet access may face barriers when trying to use such services and thus fail to benefit from their development. And in as much as consumers remain inactive or are reluctant to use the service, entering the price comparison market in the first place is unprofitable, so such services need not even develop.

Both the existing casework as well as existing results in the theoretical literature suggest that intermediaries such as price-comparison websites need active regulation in order to develop their full potential to benefit consumers.<sup>11</sup>

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<sup>11</sup> Indeed, the academic literature highlights that such intermediaries may have even bigger incentives to steer consumers towards high-fee or otherwise undesirable products than the suppliers themselves. These theoretical findings are fully in line with the fact that regulators in many industries and jurisdictions brought cases against price-comparison websites for, sometimes severely, misleading consumers.

## 2 Different Patterns of Loyalty Penalties

### 2.1 The Loyalty Penalty

As emphasised in the super complaint from Citizens Advice on loyalty penalties, UK consumers who do not cancel or renegotiate contracts with firms from whom they bought in the past often end up paying considerably higher prices than new customers do for the same service. Because not switching and staying with your former supplier results in consumers paying more for the service, they incur a so-called loyalty penalty. We address the economic question on why this may be the case throughout the report. In this section, we start by explaining typical loyalty pricing patterns and various examples of UK markets in which such loyalty penalties are common.

Paying a loyalty penalty can arise in different contexts, as discussed in CMA (2018):

- After an initial contract period, customers can experience sharp price increases onto higher rates ('price jumps').
- Customers may experience successive price increases over time, for example at points of contract (auto-) renewal ('price walking').
- In 'legacy pricing', which is prevalent in industries in which prices trend downwards over time, new customers get better deals while legacy (out-of-contract) customers remain on outdated expensive contracts.

Before turning to how theoretical models account for these pricing patterns in subsequent chapters, we first give examples of specific UK markets in which firms charge a loyalty penalty. In these markets many customers may be affected due certain market characteristics ("market-specific vulnerability").<sup>12</sup> We then provide examples of consumers that may be more 'vulnerable' and encounter such problems more persistently across markets ("vulnerability associated with personal characteristics").<sup>13</sup>

### 2.2 Loyalty Penalty Across Markets

CMA (2018) in its response to Citizens Advice finds pricing practices with loyalty penalties in a number of markets. In each case a substantial number of customers may be affected:

- **Retail domestic energy market:** Customers who do not take action after receiving a renewal letter from their energy provider at the end of their fixed-term contract will often be rolled over onto the default option, which is typically significantly more expensive so that the overall price jumps upward. According to CMA's 2016 energy market investigation,<sup>14</sup> 70% of domestic customers of the largest six energy suppliers are on 'default' standard variable tariffs (SVT) with revenues per kWh being 11%

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<sup>12</sup> See CMA (2019a).

<sup>13</sup> See CMA (2019a).

<sup>14</sup> CMA's market investigation in 2016 was a reason for the retail domestic energy market not being included in Citizens Advice super-complaint.

(15%) above average revenue from non-standard tariffs for electricity (gas) for the big six energy providers.<sup>15</sup> A number of regulations has been put in place to limit prices on these tariffs, most notably a market-wide price cap for all retail energy consumers on a standard variable tariff ('Tariff Cap'). Furthermore, Ofgem, in a three-year research programme, used behavioural trials to better understand how to increase consumer awareness and engagement in the market.<sup>16</sup>

- **Home and motor insurance markets:** Customers in insurance markets such as home or motor insurance may experience price increases at points of contract (auto-)renewal. In its interim report on general insurance pricing practices, FCA (2019) found that many insurance companies in the sample operated a price-walking strategy, meaning that companies continued to increase customer margins upon renewal until a certain target margin was reached. On average, customers faced year on year margin increases for the first five renewals after which increases in margins were smaller.<sup>17</sup> Price walking can lead to a considerable margin spread between customers by tenure; the difference in margin between new business and renewals was found to be 19% for home insurance and 11% for motor insurance.<sup>18</sup> FCA, in its market study, looked into possible remedies such as pricing restrictions, requiring firms to engage more with consumers and addressing practices that discourage switching.
- **Broadband:** 'Legacy pricing' can be observed in broadband markets. An Ofcom investigation shows that out-of-contract customers pay monthly around 30% to 35% (in % of new customer price) more than new customers<sup>19</sup> for similar services.<sup>20</sup> Overall, around two-fifths of broadband customers (8.8 million customers) are out-of-contract.<sup>21</sup> Practically, this means that a standard (ADSL) broadband customer who for several years has not switched her contract is likely able to upgrade to superfast broadband while still paying less than her current contract.<sup>22</sup> Following its review of broadband pricing practices, Ofcom secured various voluntary commitments from providers. These include, for example, a cap by BT on the in- and out-of-contract monthly price differential for customers who come out-of-contract from February 2020.<sup>23</sup> Furthermore, the introduction of end-of-contract notifications and annual best-tariff notifications for all customers is expected to ease engagement in the market by providing details on contract status and other deals available.<sup>24</sup>
- **Mobile:** A substantial number of consumers may continue to stay on their mobile tariff, whose monthly payments partially cover the initial costs of the phone, at the end of their minimum contract period.

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<sup>15</sup> CMA (2018), p. 26; CMA (2016) p. 128 f.

<sup>16</sup> See Ofgem (2019a).

<sup>17</sup> FCA (2019a), p. 44 ff.

<sup>18</sup> FCA (2019a), p. 49.

<sup>19</sup> This amounts to 20-22% more than re-contracted customers, in % of re-contracted price.

<sup>20</sup> Out-of-contract customers are out of their (initial) contract period and could sign a new contract with their current provider or switch to a new provider. Re-contracting relates to customers signing a new contract with their (current) provider. New customers are customers that have switched to a new provider. Note that the average price differential between customers who re-contract and the new customers are 11-12% (of new customer price). Ofcom (2019), p. 22.

<sup>21</sup> Ofcom (2019), p. 23.

<sup>22</sup> Ofcom (2019), p. 27 f. Standard broadband refers to ADSL broadband that uses copper telephone lines

([https://www.ofcom.org.uk/data/assets/pdf\\_file/0018/100755/UK-home-broadband-performance,-November-2016-Consumer-guide.pdf](https://www.ofcom.org.uk/data/assets/pdf_file/0018/100755/UK-home-broadband-performance,-November-2016-Consumer-guide.pdf) , accessed on: 17.08.2020). See also Ofcom (2019), p. 23, Fn. 62: "88% of out-of-contract customers pay more than the average new customer price".

<sup>23</sup> For additional details, also for other suppliers, see Ofcom (2019), p. 53.

<sup>24</sup> Ofcom (2019), p. 54.

Ofcom<sup>25</sup> finds that 6% of pay-monthly mobile customers say they are continuing to pay their tariff even though the minimum contract period ended, and they could switch to a new contract with a new mobile phone or a cheaper one with sim-only service; these consumers are subject to ‘legacy pricing’.

- **Cash savings:** Easy access cash-saving products are held by nearly three quarters of consumers and involve substantial aggregate balances.<sup>26</sup> There is strong competition between firms for new customers by offering comparably high introductory interest rates. However, longstanding customers (who hold a large share of total balances in these accounts) typically receive on average 0.42 percentage points lower interest rates on their balances.<sup>27</sup> To improve the situation for longstanding customers, FCA recently proposed new rules to introduce a single easy access rate (SEAR) for all easy access accounts after an initial period of 12 months in which multiple introductory rates can be offered.<sup>28</sup>
- **Mortgages:** For mortgages consumer engagement is relatively high with over three quarters of borrowers switching within six months of the end of an introductory deal.<sup>29</sup> Nevertheless, FCA estimates that 10% of mortgage holders (around 800.000 consumers) who would benefit from switching do not. This is the case, although the potential savings of switching are substantial, amounting (on a new 2-year introductory deal) on average to GBP 1,000 per year for the first two years and GBP 100 per year after that.<sup>30</sup> More recent work by FCA explores in detail the characteristics of ‘mortgage prisoners’, that is consumers who were unable to switch to better deals.<sup>31</sup>

CMA (2018) points out that a loyalty penalty “might also arise in other autorenewal, roll over or subscription products or services”.<sup>32</sup> Related to loyalty penalties, CMA is currently investigating the anti-virus software sector<sup>33</sup> and launched an investigation into autorenewal of online video gaming memberships last year.<sup>34</sup> In fact, as subscription services become more widespread, the loyalty penalty pricing patterns may become more prevalent in the future.

To summarise, these are mostly subscription markets in which consumers sign up at given terms for an extended period of time. Additional key patterns are price jumps or price walking at the renewal stage and inactive consumers who miss out on significant price decreases at renewal times. Many examples are markets for essential products in which consumers likely have inelastic demand, and many of these markets have some other types of price regulation in place. Importantly, the loyalty penalty in each case may be paid by a broad range of (longstanding) consumers.

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<sup>25</sup> Ofcom (2018b), p. 22.

<sup>26</sup> FCA (2020), p. 11.

<sup>27</sup> FCA (2020), Figure 4, p. 11.

<sup>28</sup> See <https://www.fca.org.uk/news/press-releases/fca-acts-help-customers-get-better-rates-cash-savings>, accessed on: 19.08.2020.

<sup>29</sup> FCA (2019b), p. 25.

<sup>30</sup> FCA (2019b), p. 26.

<sup>31</sup> For details and results see: <https://www.fca.org.uk/data/understanding-mortgage-prisoners>, accessed on: 19.08.2020.

<sup>32</sup> CMA gives the following examples: “other insurance markets (for example car or health insurance or breakdown cover)”, “pay TV”, “film or music streaming”, “online gaming”, “software”, “credit checking services”, “gym memberships”, see CMA (2018), p. 25 f.

<sup>33</sup> <https://www.gov.uk/cma-cases/anti-virus-software#launch-of-enforcement-investigation>, accessed on: 19.08.2020.

<sup>34</sup> <https://www.gov.uk/cma-cases/online-console-video-gaming>, accessed on: 19.08.2020.

## 2.3 Vulnerable Consumers

In its response to the Citizens Advice super complaint, CMA (2018) broadly characterises consumer vulnerability as not being able to engage effectively in a market and as a result being “at a particularly high risk of getting a poor deal”.<sup>35</sup> Whereas many consumers may in the context of a particular market be vulnerable (“market-specific vulnerability”, see last section), other individuals may experience such issues more persistently across markets (“vulnerability associated with personal characteristics”).<sup>36</sup>

Certain characteristics may make it more likely that consumers encounter issues related to loyalty penalties across markets and CMA’s research focuses on the following groups:<sup>37</sup> elderly people (aged 65 or over), individuals with a low-income (income below 60% of the median income), individuals who have mental health problems, individuals who possess a low level of education, and individuals with physical disabilities. Individuals may be vulnerable on one or more of these grounds and face additional challenges with regard to effective engagement. If an individual faces additional challenges these may include:<sup>38</sup>

- **“Psychological and cognitive barriers”**: A “fear or aversion to change” may inhibit consumers from switching supplier.<sup>39</sup> For other consumers, comparing prices in complex markets or with regard to complex (bundled) products may be particularly difficult. People with other mental health conditions may struggle with financial management or, in case of dementia, may be less able to assess and handle complex information.
- **“Accessibility barriers”**: Some consumers may not be able to use, for example, price comparison websites, thereby losing out on deals. This may be due to a lack of skills or confidence but also due to not having access to enabling products such as a bank account. Other consumers may not use the internet or have access to and confidently use smartphones, tablets, or computers.<sup>40</sup>
- **“Low financial resilience”**: Some consumers or households may not be able to cope with adverse life events that can severely impact finances - such as redundancy, health conditions, or a costly divorce. Low financial resilience can inhibit individuals from switching suppliers in case they fear unanticipated payments from switching. A loyalty premium will cause additional financial distress for these individuals.
- **“Time pressures”**: Shopping around to find a better deal and switching can impose substantial inconvenience and time costs on individuals. For example, for some consumers who just about make ends meet or care for children or other people, searching for a better deal may not be a practical option.<sup>41</sup>

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<sup>35</sup> CMA (2018), p. 38.

<sup>36</sup> See CMA (2019a).

<sup>37</sup> CMA (2018), p. 38.

<sup>38</sup> CMA (2018), p. 42 ff.

<sup>39</sup> CMA (2018), p. 42.

<sup>40</sup> See Ofcom (2018a).

<sup>41</sup> See, for example, Chapter 7 in Mullainathan and Shafir (2013).

Indeed, the available evidence broadly suggests that vulnerable consumers are more likely to stay with the same firm for extended periods of time and as a result end up paying a loyalty penalty.<sup>42</sup> The available empirical evidence (largely compiled by CMA, 2018), however, is limited and includes:<sup>43</sup>

- **Elderly people:** Among mobile customers below 65, only 21% had been with their mobile provider for 10 or more years, while for those aged 65+ this increases to 43%. Similarly, those aged 65+ were also significantly less likely to have switched their broadband provider either in the last 12 months or ever compared to those aged 16 to 64.<sup>44</sup> While overall only 16% of all adults with home insurance are in contract with the same provider for 10 or more years, 43% of those of age 65+ are. Similar results hold for cash savings (43% vs. 27% of all adults with savings account) and residential mortgages (72% vs 31%).<sup>45</sup> Another survey finds for utilities that while only 46% of 65-74 year olds shop around, a substantially higher proportion (66%) of the 25-34 year olds do so.<sup>46</sup>
- **Low income:** Available survey evidence for home and motor insurance shows that 44% of consumers on a low income (less than GBP 17,500) said they shop around “not very much or not at all”, which contrasts to 23% and 15% on medium incomes (GBP 17,500 - GBP 49,999) and high incomes (GBP 50,000+), respectively. The same study reports a broadly similar pattern for telecoms.<sup>47</sup> Importantly, being on a low income is often correlated with other vulnerabilities as well.<sup>48,49</sup>

The CMA energy market investigation (2016) provides corroborating evidence with regards to other groups of potentially vulnerable consumers within the context of an essential market:

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<sup>42</sup> CMA (2018), p. 62.

<sup>43</sup> CMA (2018), p. 59 ff. For additional research, see CMA (2019a).

<sup>44</sup> Ofcom 2018 Switching Tracker as reported in CMA (2018), p. 59 f.

<sup>45</sup> FCA Financial Lives Survey 2017 as reported in CMA (2018), p. 61.

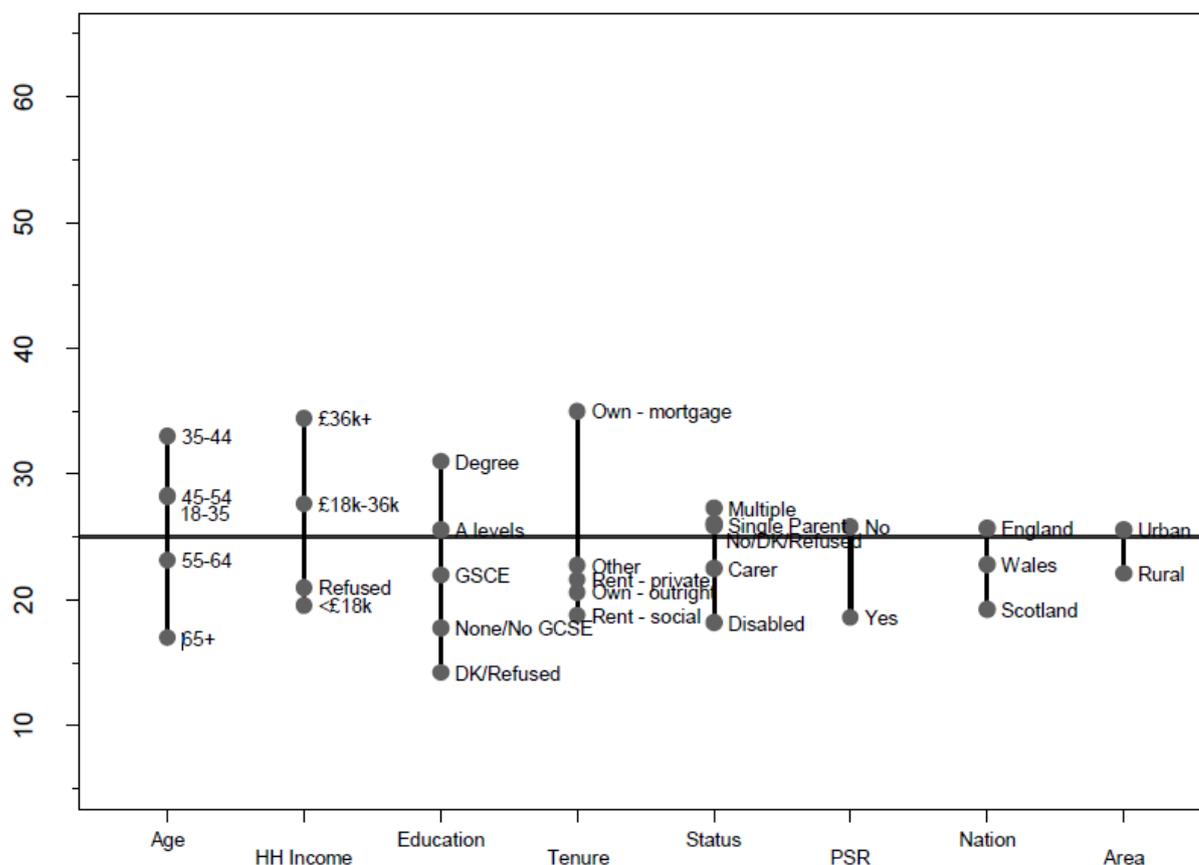
<sup>46</sup> Money Advice Service (2018), p. 5.

<sup>47</sup> 2018 Money Advice Service Financial Capability Survey as reported in CMA (2018) p. 60 ff.

<sup>48</sup> See CMA (2019a).

<sup>49</sup> See also Mullainathan and Shafir (2013) for a discussion of the impact of poverty on choices.

Figure 1: Proportion of survey respondents switching energy supplier in the last three years by demographic and household characteristics



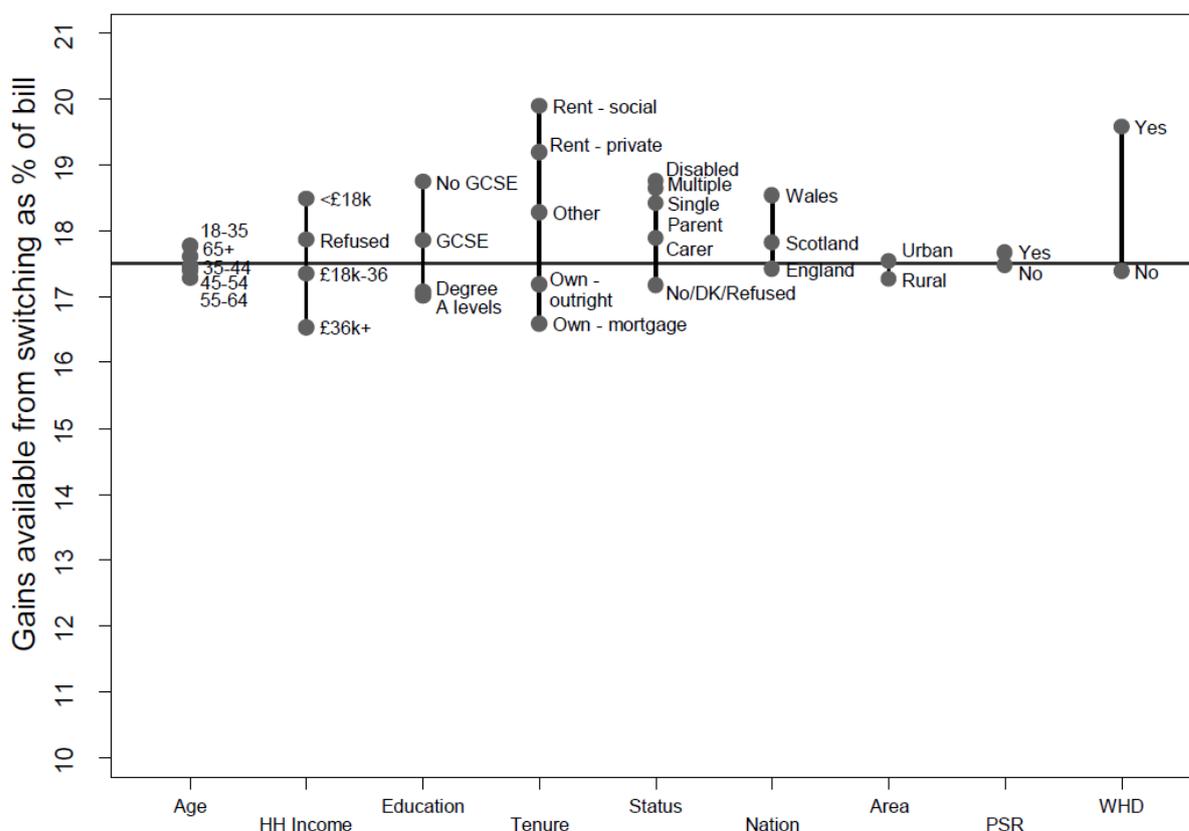
Source: CMA (2016), Figure 9.1, p. 448. © Crown Copyright, 2016. Contains public sector information licensed under the Open Government Licence v3.0. To view this licence, visit <http://www.nationalarchives.gov.uk/doc/open-government-licence/>  
 Notes: PSR = Priority Services Register. GCSE = General Certificate of Secondary Education. “Do not know” answers have been excluded. For full details refer to CMA (2016), p. 448.

As can be seen in Figure 1, findings for both age (“Age”) and household income (“HH Income”) are in line with the previously presented findings on switching behaviour. With respect to other characteristics, higher levels of education increase the likelihood of switching. Furthermore, evidence from the energy market investigation suggests that people with a disability switch less often (“Status”). Individuals on a ‘Priority Services Register’<sup>50</sup> are also less likely to switch.

CMA in its investigation also looked at how gains from switching are related to demographic characteristics (Figure 2). As can be seen in Figure 2, the greatest gains as percentage of the bill exist for those in social rented housing (“Tenure”), a group which is less likely to have switched supplier within the last three years (Figure 1). Larger savings also exist for others that generally are likely to have switched less in the past (“HH Income”, “Education” and “Status”).

<sup>50</sup> Eligible individuals include “people of pensionable age, disabled people and those who are chronically sick”, CMA (2018), p. 448. See also: <https://www.ofgem.gov.uk/consumers/household-gas-and-electricity-guide/extra-help-energy-services/priority-services-register>, accessed on: 19.08.2020.

Figure 2: Demographics of dual fuel customers with gains available from switching, excluding those who prepay for either fuel (Scenario 5)



Source: CMA (2016), Figure 9.2, p. 451. © Crown Copyright, 2016. Contains public sector information licensed under the Open Government Licence v3.0. To view this licence, visit <http://www.nationalarchives.gov.uk/doc/open-government-licence/>

Notes: In scenario 5 customers can change supplier, tariff and payment method. Prepayment customers excluded due to limited gains available from switching. PSR = Priority Services Register. GCSE = General Certificate of Secondary Education. WHD= Warm home discount which offers support towards the electricity bill for eligible customers.<sup>51</sup> For full details refer to CMA (2016), p. 448 and p. 451.

Such findings, of course, could be market specific. With regards to fixed broadband, for example, Ofcom finds no substantial difference regarding the share of vulnerable and overall consumers being out-of-contract (43% vs. 41%). In addition, specific groups of vulnerable consumers are less likely, while others are more likely to be out-of-contract.<sup>52</sup> Interestingly, Ofcom finds that vulnerable consumers are less likely to be new customers (11% vs. 21% of all customers) and more likely to be re-contracted (46% vs. 39% of all customers), consistent with a pattern in which vulnerable consumers have a lower propensity to switch providers.<sup>53</sup>

To conclude, while the various definitions of vulnerable consumers capture different socioeconomic aspects, the available evidence suggests that vulnerability may manifest itself in increased consumer

<sup>51</sup> Eligible individuals include individuals on low income meeting the supplier’s criteria for the scheme or individuals receiving the “guarantee credit element of pension credit”. <https://www.gov.uk/the-warm-home-discount-scheme>, accessed on: 19.08.2020.

<sup>52</sup> “While some groups of potentially vulnerable customers are more likely than average to be out-of-contract, others, including people on lower incomes, are less likely to be so.” Ofcom (2019), p. 1.

<sup>53</sup> Ofcom (2019), p. 36.

inertia at the group level. This inertia, in turn, may be based on cognitive or non-cognitive search or switching costs, or other “behavioural” reasons.

## 3 ‘Classic Literature’ on Loyalty Penalties

### 3.1 Waterbed Effects

A central theme we will touch upon is the extent to which profits earned in the future through “loyalty penalties” are handed back to consumers ex ante when signing up for a given subscription service in the first place.<sup>54</sup> When excessive profits in one market (or part of a market) are compensated by a lack of profits in another, the literature often talks about waterbed effects. In the context of aftermarkets, for example, if high profits in an aftermarket (e.g. razor blades) increase the value of attracting a customer in a primary market (razors), firms will compete more vigorously in that primary market reducing profit therein. In as much as the increased profits in the aftermarket are fully compensated by a reduction in the profits in the primary market, one speaks of a complete waterbed effect (see, e.g., Davis et al. (2012) for a detailed review).

The basic translation to loyalty pricing in the presence of switching costs is the bargaining-then-rip-off pricing pattern, which we discuss in more detail in Section 3.4.1 below. To illustrate some simple points, we introduce a simple two-period example in which firms can sign up customers in the first as well as the second period. Suppose all consumers are homogenous in that they value the service provided at GBP 100 per period, and the cost of providing the service is GBP 50. Let there be many firms that are able to offer the service, but suppose that switching and selecting a novel provider in the second period entails some cost to the consumer of GBP 40.<sup>55</sup> We assume that most consumers enter the market place in the first period but that there is a (small) amount of novel consumers that enters in period 2 to ensure that firms can attract customers in both periods. We also suppose, realistically, that firms can offer a different subscription contract to new customers than to their former customers (or in our example equivalently that previous customers have to pay the switching cost in order to change to select a new contract). That is, firms can either offer an introductory discount that lasts for one period or firms can autorenew customers into a default contract, and in either case consumers must actively select a different contract and when doing so incur the switching costs.<sup>56</sup> Finally, for expositional simplicity, we suppose that neither firms nor consumers discount future payments.

So how would equilibrium pricing in such a model look like? Firms in a competitive market would offer a contract at cost, i.e. GBP 50, to all novel consumers in the second period. At the same time, a firm will charge its customer base - that is to its first-period customers - a second-period price of GBP 90 (i.e. the cost of producing the service plus switching cost). At this price, no customer has an incentive to actively switch to a rival. Here, the switching costs give firms some monopoly power over their prior customers, enabling them to charge a price of GBP 90 rather than GBP 50. What then is the benefit of attracting a

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<sup>54</sup> According to Davies et al. (2012), the term waterbed effect was used by Paul Geroski during the mobile termination inquiry of the UK’s competition commission, and it is likely that the former chairman of the competition commission indeed coined the term. The economic effect, of course, has been discussed earlier in the context of aftermarkets and switching-cost models.

<sup>55</sup> In our basic example, it is immaterial whether selecting a service in the first period also entails a cost of GBP 40 or not.

<sup>56</sup> In our fully rational and deterministic model, all that the firms and consumers care about is the flow of payments. Hence, in a two-period model introductory discounts are indistinguishable from charging a loyalty penalty; all that matters to the consumer is the net payment she pays in the first and the second period. In other words, let  $pay_1$  be the payment in the first and  $pay_2 > pay_1$  be the payment in the second periods. Then if one defines the regular price  $p'$  as  $pay_1$ , the second period payment is  $pay_2 = p' + LP$ , that is the regular price plus a loyalty penalty. Equivalently in these models, however, we can refer to the second-period payment  $pay_2$  as a regular price  $p$  in which case  $pay_1 = p - In$ , where  $In$  refers to an introductory discount. In this sense, nothing in the basic models differentiates between a loyalty penalty from an introductory discounts.

customer in the first period? Well, the per-customer profit in this case is  $(p_1 - 50) + 40$ , where  $p_1$  stands for the first period price. A competitive market will induce firms to compete for customers until they break even overall, that is the competitive price in our example is GBP 10. This is the so-called waterbed effect with a perfectly competitive "primary market", i.e. a perfectly competitive market for signing up new customers. As firms break even with and without switching costs, one may be tempted to conclude that there is safety-in-markets for customers in that the level of the switching costs does not matter and that firms have no incentive to introduce switching costs. As the literature highlights, however, such a conclusion is premature and incorrect for a variety of reasons.

First, as noted for example in Farrell and Klemperer (2007), a complete waterbed effect requires that firms are willing to make aggressive enough introductory offers to attract customers. To see one reason for why this may not be the case, consider the above example, but suppose the cost of serving a customer are GBP 20 instead of GBP 50 per period. Then, by the same reasoning as above, firms in our competitive market will offer a price of GBP 20 to novel customers in the second period and - taking advantage of their market power over their existing customer base - a second-period price of GBP 60 to prior customers. Given that second-period profits per existing customer are GBP 40, in a perfectly competitive market the first period price is GBP -20; that is the firms in the first period pay a monetary bonus for consumers that sign up.

Such negative first-period prices, however, could be infeasible for different reasons in different markets. Suppose the switching costs arise, in line with our discussion above, because a consumer needs to spend time and effort to find a new contract (rather than to cancel an old contract). Then given the candidate equilibrium pricing structure, rational consumers would want to sign up with all firms in the first period just to cancel thereafter. If such "multihoming" is feasible,<sup>57</sup> firms will be reluctant to charge a negative price even in essential markets. And even if multi-homing is infeasible, at a negative price consumers who are not interested in the service - rational arbitrageurs - have an incentive to sign up and exploit the firms' equilibrium pricing structure. If there are enough such consumers, negative (enough) prices become unprofitable and firms will act as if there is a price floor at (or just below) zero.<sup>58</sup> With such a price floor, the exploitation of firms' market power via the second-period loyalty penalty leads consumers to pay higher prices overall.

Second, in a generalisation of the above price-floor idea in the context of aftermarkets, Ellison (2005) highlights that in imperfectly competitive markets, profits in the secondary market may be often passed on at a rate less than one-to-one. Translated to our loyalty pricing context, if low introductory prices disproportionately attract less profitable customers - e.g. customers that are more likely to switch when the fixed contract terms expires instead of ones that can be rolled over to a more expensive contract -, this softens competition and reduces firms' incentive to lower prices initially, thereby raising firms' profits. To illustrate this point, consider the above example with an additional type of consumer. One consumer group has a valuation GBP 100 in each period and switching costs of GBP 40, just like before. The other consumer group has a valuation of 20 and zero switching costs. All consumers have an outside option of zero and in both periods there is an identical number of consumers belonging to both groups. In period 2, prices are as before on the path of play. Firms who did not sell in period 1 will charge marginal cost GBP 50 in period 2, and firms who sold in period 1 charge GBP 90 and sell to consumers with switching

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<sup>57</sup> In the related, but in some aspects economically different, context in which firms earn additional profits from inducing customer mistakes rather than future switching behaviour, Heidhues et al. (2017) provide a multi-homing foundation for price floors in a model of the credit-card industry.

<sup>58</sup> Heidhues et al. (2012) formally discuss a model with costly arbitrage in which firms earn profits from some customers' misperceptions rather than future switching cost behaviour. For the same idea, see also Armstrong and Vickers (2012).

costs. In period 1, however, a price below 20 will attract consumers with low valuation. Since these consumers will not buy again in period 2, prices below 20 induce losses to firms.<sup>59</sup> Therefore, in contrast to the previous setting, firms will charge GBP 20 (not GBP 10 as before) in period 1, and earn positive total profits. The firms earn positive profits because lower prices attract unprofitable consumers, preventing a full waterbed effect.<sup>60</sup>

Third, if firms earn positive profits from consumers due to price floors or their Ellison-type cousin of disproportionately low-profit consumers at lower prices, firms have large incentives to attract profitable consumers and therefore may engage in a number of inefficient activities to do so. Examples of such activities could be paying high commission to intermediaries to steer consumers, excessive advertising or marketing activities, tying the subscription contract with an excessively fancy base-product such as an impressive mobile phone, or simply excessive entry by firms into the marketplace. These follow-on distortions can be non-negligible.

Fourth, while some consumers may benefit from a waterbed effect, others may not, and, particularly where these others are vulnerable consumers, the overall effect can be undesirable. In a variant of our initial example, suppose that half of the consumers can in period 2 switch for free while the others have switching cost of GBP 40. For example, the former may have internet that makes switching easy while the latter are elderly or low-income customers with no/poor internet access for whom switching is hard; for the sake of argument, we think of the latter group as vulnerable consumers. Furthermore, suppose firms cannot a priori distinguish these types of consumers. Then in a competitive equilibrium, the price for novel consumers in the second period is equal to the cost of serving them, which we suppose again to be GBP 50 per period. What then is the optimal price for the existing customer base? As it is impossible to earn profits from consumers whose switching costs are zero, the optimal way to exploit one's market power is to set a price of GBP 90 as before. But now, as only half of the customer base is paying this price, the expected second-period benefit of attracting a customer is only GBP 20 so that the first-period competitive price is GBP 30. Here, despite there being a waterbed effect in that firms earn zero profits, the switching costs have a detrimental effect on the group of vulnerable consumers. Over the lifetime of their subscription, vulnerable consumers end up paying GBP 120 in this example despite the fact that it only costs GBP 100 to serve them and that from the firms' perspective there is a complete waterbed effect.

Theoretically, of course, we could also presume that some groups of vulnerable consumers - say low-income students - have lower cost of switching. If they would be the ones who can switch for free in the above example, then they would benefit from switching costs in the above example because the group of first-period consumers that has zero switching costs ends up paying only GBP 80 for the subscription despite the fact that it costs GBP 100 to serve them. It is therefore important that competition authorities and regulators check these facts carefully in the markets under investigation. Intuition and the limited evidence available (Chapter 2) suggests that it may indeed often be vulnerable consumers that are less

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<sup>59</sup> At a price  $p < 20$ , a firm that attracts an equal share of both customer groups earns  $p - 50 + (1/2) 40 < -10$  per customer they attract. Because prices  $p > 20$  only attract consumers from the first group, firms earn  $p - 50 + 40 > 10$ . In equilibrium, firms must charge a price of 20 at which customers of the second group are willing not to buy.

<sup>60</sup> If, on the other hand, firms can target different offers to the two customer groups, they will earn zero profits in the above example. More generally, with imperfect competition the ability to price discriminate between novel and old customers can increase or decrease profits (see Davies et al. (2012) for a detailed discussion). Indeed, the logic is related to our discussion of price discrimination below in this chapter, where we highlight that in general it is hard to determine whether the ability to price discriminate between different customer groups increases or decreases total surplus.

likely to switch and from the perspective of these models have higher switching costs. Hence, even in the benchmark case of a complete waterbed, they benefit from an industry-wide reduction in switching costs.

Fifth, in the above situation in which the profitability of the different customer groups differ, firms have an incentive to screen them. For example, if we would loosen the exogenous restriction in our example that firms can offer only one-period subscription contracts, then firms in a competitive market would offer a long-term subscription contract at the cost of serving the customers, which would be GBP 100 for both periods, to attract customers with switching costs. But in as much as this is infeasible, firms will have an incentive to find out correlates of consumer profitability and focus their customer acquisition on the most profitable group. In the above example, any costly expenditure on technology to identify customers that are less likely to switch is socially inefficient.

Sixth, if we slightly modify our example with two consumer groups and suppose that one group has switching cost of 40 and the other 10 rather than zero, then the optimal pricing in a competitive equilibrium remains unchanged. But now in the second period there is significant switching and the cost thereof are welfare decreasing. Here, eliminating or proportionally reducing industry-wide switching cost would increase welfare.

If the reduction of switching costs is not proportional, however, it may also be detrimental for the total surplus as it could lead to additional costly switching. Modifying our example one more time, if one customer group has switching costs of 35 and the other (equally-sized) group has switching costs of 40 in the second period, the optimal way of exploiting ones market power over an existing customer base is to charge a second price of 85 for existing customers. At this price, it is suboptimal for any customer to switch. Suppose now, however, that switching costs are reduced such that they are only 10 for one group and 25 for the other (equally-sized) group. Then the optimal second-period price for existing customers is 75, at which the low-switching costs customers strictly prefer to switch. The reduction of switching costs in this example leads to an active market for switchers, who get a better second-period deal. But this reduces total surplus because any costly switching is inefficient. Furthermore, because in this example there is a complete waterbed effect, firms make zero profits and consumer surplus is equal to total surplus minus profits. Hence, it is immediately clear that the inefficient switching also lowers consumer surplus. Somewhat counterintuitively, thus, consumers benefit from higher second-period switching costs in this example.

Seventh, suppose we have a downward-sloping demand curve. Then, if cancelling is free or switching costs are heterogeneous as in our example, the fact that the first period is priced below cost, implies that there will be inefficiently many consumers buying the product initially in the first period simply because it is priced below cost.

We conclude by summarising the main lessons with regards to loyalty penalties:

- Due to a simple waterbed logic in a two-period model, future profits from inert consumers can be competed away ex ante. Immediate implication: it is inappropriate to simply use the price difference between new and old customers to calculate the harm to inert consumers (as, for example, the complaint by Citizens Advice (2018) does).
- For many reasons, however, waterbed effects can be incomplete, and thus one should not simply rely on waterbed effects to protect consumers. Reasons for incomplete waterbed include price floors, cross-subsidies, and adverse selection. When waterbed effects are incomplete, there can be a number

of follow-on distortions. For example, firms can disperse profits in inefficient activities to identify and attract profitable consumers.

- Even in markets with a complete waterbed effect, high loyalty penalties can have a detrimental impact on total surplus. For example, with downward-sloping demand, loyalty penalties can lead to consumption distortions, inefficient switching, and inefficient consumer-product matching.
- One should be especially concerned when loyalty penalties are disproportionately paid by vulnerable consumers. Furthermore, going beyond the total-surplus standard in the literature, societally large interpersonal price differences are likely to be considered unfair. In as much as such fairness concerns are considered important, there can be additional reasons to limit loyalty penalties.

## 3.2 Price Discrimination

Our discussion in Section 3.1 centred on a simple case with at most two consumer groups that differ in their switching costs but were homogenous otherwise. Realistically, firms face downward-sloping demand curves and in many markets have some degree of market power for reasons other than switching costs. Indeed, a natural starting point for explaining the price differences between old and new customers is the classical literature on price discrimination (see, e.g., Stole 2007 for a comprehensive survey on oligopolistic price discrimination), which according to Stigler (1987)’s definition of price discrimination occurs whenever a firm’s price ratio for two different goods differs from their ratio of marginal costs. In the case of loyalty penalties, the goods can be thought of as the contracts offered to new and existing customers, and often the marginal costs of serving them is almost identical.

Broadly speaking, the vast literature on price discrimination observes (both theoretically and empirically) that firms have an incentive to split customers into groups that differ in their price sensitivity, and then charge higher prices to customers whose demand is less price sensitive. At the same time, the classic literature also identifies pre-conditions for firms’ ability to price discriminate. If consumers are rational - as assumed in the classic price-discrimination literature - then firms can engage in price discrimination only if:

1. firms have short-run market power;
2. firms can (directly or indirectly) divide customers into different groups; and
3. it is impossible for consumers (or intermediaries) to arbitrage price differences.

The intuition behind (1.) above is that in a perfectly competitive market, since consumers choose the best deals, competitive forces induce firms to price at marginal costs, implying that any price differences must be cost based. While the logic is simple and robust with rational consumers, as we discuss in Sections 4.3 and 4.5 below, market power (at the time of contracting or re-contracting) is not a prerequisite for price discrimination when some consumers make mistakes. Furthermore, in the presence of switching or informational frictions, consumers will not automatically select the best deal, inducing market power on the side of firms even in markets in which many firms vigorously compete (see Sections 3.4 and 3.5). For these reasons, we believe that in most markets in which firms and consumers sign contracts for an extended period of time, this precondition for price discrimination is met.

Regarding (2.) above: the classic price-discrimination literature typically distinguishes situations in which (i) firms group customers based on an observable signal and (ii) those in which the different customer

groups’ price sensitivity is unobservable and thus needs to be elicited through making different offers to the customers and having them self-select their preferred option.<sup>61</sup> As we discuss below in Sections 3.3 - 3.5, loyalty-based pricing can arise due to conditioning on an observable signal (e.g. past purchase behaviour) as well as due to self-selection (e.g. based on whether consumers become active and “negotiate”). Hence, both classic literatures are potentially relevant for understanding loyalty-based price discrimination. Indeed, while one would expect that both aspects can be important in a given market at the same time, we are aware of only a single paper investigating this in a classic setting in which firms sell products or contracts to final consumers - an aspect that may help gather a deeper understanding of loyalty-based pricing.<sup>62</sup> Furthermore, in the classic price discrimination literature, it is usually assumed that consumers are perfectly informed about available offers and their prices, and there are no switching costs in that the attractiveness of the available offers to the consumer does not directly depend on her past purchase behaviour. To understand loyalty-based pricing, we argue that it is important to relax these assumptions and allow consumers’ behaviour to be influenced by informational (and behavioural) frictions as well as switching costs. Hence, after a brief discussion of some insights of the classic price-discrimination literature in this subsection, we return to insights generated in models of switching costs in Section 3.4 and then discuss those of search costs as well as non-classical consumer behaviour.

Prerequisite (3.) above simply notes that consumers who are meant to buy a unit of the product at a high price must be willing to do so and must not be able to adjust their purchase behaviour and thereby get access to their demand at a lower price in a different market segment or from a different consumer. If, for example, a firm attempts to sell its product at a high price in one store and at a lower price online, it may induce an inherently less price-sensitive group of customers to switch to online purchases instead, limiting its ability to price discriminate. Because many markets in which loyalty pricing is being discussed are subscription markets, in which a contract is signed for an extended period and in which firms collect detailed customer information (such as billing address),<sup>63</sup> we presume that customers’ ability to arbitrage is rather limited, and hence our review will not focus on this aspect but simply presume that firms can offer different prices to old and new customers.

We now briefly discuss some economic insights from the classic literature on price discrimination that are also relevant for understanding loyalty penalties. Before doing so, it is worth emphasising the assumptions underlying that literature. While we acknowledge that there are exceptions, classic price-discrimination models suppose that firms simultaneously make offers to consumers, and consumers upon observing all offers select the offer that maximises their utility. Hence, a consumer’s optimal behaviour is independent of her own past purchase, and there are no informational or behavioural frictions that restrain the consumer from finding the best offer. Furthermore, because firms simultaneously make a single offer, these models abstract from any dynamic considerations - such as building or exploiting a customer base - in the firms’ pricing decisions.

When firms can set a single “linear” price per unit but condition this price on an observable signal (such as for example student status), the price-discrimination literature speaks of third-degree price

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<sup>61</sup> Starting with Pigou (1920), the literature also often considers a theoretical benchmark in which firms can fully extract the consumers’ willingness to pay - which is labelled first-degree price discrimination. While especially tractable even in the oligopolistic case, it is less interesting for the analysis of loyalty penalties whose discussion is typically not based on aggregating highly individualised prices. We therefore ignore this literature below.

<sup>62</sup> We discuss this article by Armstrong and Vickers (2019) in Section 3.5.

<sup>63</sup> Furthermore, many of the markets we discussed in Chapter 2 are markets for essential products such as those for electricity or broadband. The possibility of arbitrage seems extremely limited in these markets.

discrimination (Stole 2007). This literature dates back to Pigou (1920) and Robinson (1933), and while the current debate on loyalty pricing is not one that takes place in monopoly markets, it is worth recounting their original insights. First, as Pigou points out, when firms differentiate the price across market (segments) according to an observable signal, then - in the normal case of a downward-sloping demand curve<sup>64</sup> - the marginal willingness to pay will differ across consumers leading to a misallocation of goods: some consumers end up consuming the good despite the fact that others with a higher willingness to pay do not. This effect is detrimental to overall welfare. But, as Robinson highlights, when demand is non-linear the overall amount of consumption also changes and - since due to the firm’s market power overall output is too low - if third-degree price discrimination leads to an overall increase in output, there is also a positive effect, which in general may even dominate.

Turning to loyalty penalties, this basic price discrimination framework predicts that existing customers will face higher prices if their demand is less elastic. At the same time, because in practise many of the goods and services for which we observe loyalty pricing can be considered essential products,<sup>65</sup> one would expect demand to be very inelastic and - at least in the presence of regulatory price caps - the total surplus effects to be small. Absent non-profit concerns, the monopolist will tend to charge the maximal price allowed in all markets.

It is thus useful to enrich the setup and consider an oligopolistic market in which firms engage in third-degree price discrimination. In particular, we suppose that consumers differ in their willingness to pay as well as in their brand preferences - that is, how much they are willing to pay for one firm’s product relative to that of some other firm. This induces another important effect of price discrimination. Intuitively, when not being able to price discriminate, a firm in such a market can only attract customers by reducing the price for all customers. When being able to price discriminate, on the other hand, a firm can charge a high price for its loyal customers and at the same time compete vigorously with a low price for rivals’ customers. This will tend to intensify competition to the benefit of customers - the so-called pro-competitive effect of price discrimination.

In general, the welfare effects in markets with price discrimination are ambiguous. To exploit their market power, oligopolists in these models charge prices above marginal costs so that - as in the monopoly case discussed above - output is too low. An important driver of the welfare effect is - again as in the monopoly case - how the ability to price discriminate affects overall output. But here the exact condition is more difficult, because how firms adjust their prices depends not only on the overall demand elasticity but also on the cross-price elasticity. The reason is that firms take the competitive situation into account when pricing in oligopolistic markets. Additionally, as before, when prices differ across market segments, this will tend to generate a misallocation effect similar to the one discussed in the monopoly case. With oligopoly, there is another, novel, distortion: within each market segment, a consumer may not buy from the firm that best matches its taste, and in as much as price discrimination changes the price difference between firms, this distortion is also affected by whether firms can price discriminate. And while economic intuition suggests that increased competition tends to lower the price level, there is no intuition that it tends to lead to better relative prices across firms (see, e.g., Stole (2007), page 2237). Finally, the ability to price discriminate will affect firms’ incentives to enter a market, pay intermediaries, or engage in other marketing expenditures, which can change “follow-on” distortions that arise due to the

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<sup>64</sup> Strictly speaking, Pigou restricts his analysis to the case of linear demand. Robinson considers more general downward-sloping demand curves.

<sup>65</sup> Several markets identified in the super-complaint by Citizens Advice can be considered essential, such as mobile and broadband in telecoms. Also some insurance products, such as motor insurance, where there is a legal requirement, or building insurance, which is a standard condition of mortgage agreements, were identified. See CMA (2018), p. 34 f.

firms' market power. Indeed, the overall welfare effect is again ambiguous, since the ability to price discrimination can increase or decrease profits and can, hence, mitigate or increase entry incentives.

The price differences predicted by classic oligopolistic price-discrimination models can explain loyalty penalties when, for example, consumers who have bought from a firm in the past have smaller own- and cross-price elasticities. These static models, however, cannot explain why this would be the case. In Sections 3.3 and 3.4 we discuss dynamic models with brand preferences and switching costs that can endogenously generate such different elasticities.

We conclude by summarising the main lessons with regards to loyalty penalties:

- Oligopolistic price-discrimination models predict that one needs detailed knowledge of the demand system to determine the impact of price discrimination on profits, consumer surplus, and total surplus.
- Regulating price differences can be bad for consumer- and total surplus, because it reduces incentives to compete for new customers. Surprisingly, these models rarely mention alternative regulatory approaches.
- The following potential alternative could be considered: a cap on the price for old customers based on rivals' prices for new customers. While such a policy is not formally discussed in the theoretical literature, we informally discuss some advantages and disadvantages thereof in Section 6.1.1.
- The literature on oligopolistic price discrimination abstracts from a number of issues that are potentially important for understanding loyalty penalties. The models suppose that consumers observe and understand all prices, and then choose the optimal product offered in the marketplace. Due to informational- or behavioural reasons, this is often unlikely to be the case.
- Due to the static nature of these models, they abstract from dynamic considerations of firms and consumers. This implies that they are limited in their ability to study the implications of consumer inertia.
- The existing literature on third-degree price discrimination focuses on simple linear prices and hence cannot capture firms' attempts to increase consumer inertia through contract design or other business practices. In other words, it cannot capture attempts to increase market power.
- The literature almost exclusively considers either third- or second-degree price discrimination in isolation. Intuitively, one would expect in some markets both elements to be important for loyalty penalties. The existing literature gives little guidance in this respect.

### 3.3 Behaviour-Based Price Discrimination

As discussed in the last section, firms sometimes price discriminate based on observable signals that allow them to divide consumers into groups. When firms use consumers' past behaviour as an observable signal, the literature speaks of behaviour-based price discrimination. This type of price discrimination is likely to be relevant in many markets in which firms can identify if consumers were previous customers like telephone service, newspaper subscriptions, or financial- and insurance services.

A key motivation for behaviour-based price discrimination is that firms often want to target consumers who value their brand relatively highly with higher prices, and they may use past purchase history as a signal indicating brand preferences. Indeed, models in this literature abstract from switching cost or consumer inertia arising for other reasons. Past behaviour is thus relevant only in as much as it is informative about consumers' preferences. Consumers with stronger brand preferences typically benefit more when buying their favourite firm's product, even when doing so induces higher future prices. As a result, they often end up revealing their stronger brand preferences through their early purchase behaviour. Once the brand preferences are revealed, firms respond by charging their previous consumers higher prices. In this way, behaviour-based price discrimination offers an explanation for high loyalty penalties. We now give a brief overview over the academic literature on behaviour-based pricing, which is discussed in more detail in the survey by Fudenberg and Villas-Boas (2006).

The vast majority of articles on behaviour-based price discrimination have the following features. First, consumers have exogenously given brand preferences, but the articles abstract from switching or search costs. Second, consumers are forward-looking. They observe and understand all prices, correctly predict future prices, and choose products optimally. Third, firms discriminate on the basis of past purchases: previous own customers get different prices than potential new customers, which typically are the previous customers of rivals. Fourth, most articles consider duopolies in which firms have symmetric information about consumers.<sup>66</sup> This is an important feature to keep in mind: switching consumers can only go to one other firm, inducing market power over new customers. A third firm, however, could induce fierce competition for new customers. Fifth, the only contract features that firms choose is a single price per product. This excludes more complex pricing schemes like prices for additional services or upgrades, or influencing consumers through non-price contract features.<sup>67</sup>

How do these models capture loyalty penalties? With brand preferences, a firm's previous customers tend to prefer this product over the rival's. Behaviour-based price discrimination allows firms to charge higher prices to previous, i.e. more brand-loyal, customers while at the same time targeting new customers with low prices. Overall, consumers with strong brand preferences pay higher prices and do not switch. Consumers with low brand preferences, however, switch suppliers and pay lower prices, which compensate them for not getting their ideal brand.<sup>68</sup>

Fudenberg and Villas-Boas (2006) summarise the following common themes in the literature:

- **Commitment problem of firms:** Consumers' initial purchases reveal their favourite brand. Firms can use this information to extract more surplus later. To prevent this, fully-rational and forward-looking consumers might not want to buy their favourite brand initially. If this is the case, a seller may be better off if it can commit to ignore information about buyers' past decisions. For this commitment problem to occur, consumers need to be strategically forward-looking and anticipate the firms' commitment problem. Despite its theoretical relevance, we are unaware of any evidence of such strategic behaviour.

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<sup>66</sup> An exception is Colombo (2018). He considers behaviour- and characteristics-based price discrimination where firms have more precise information about their old customers than rivals.

<sup>67</sup> Fudenberg and Tirole (1998) and Ellison and Fudenberg (2000) allow for products with upgrades, but they focus on monopoly settings.

<sup>68</sup> Chen and Percy (2010) study behaviour-based price discrimination with brand preferences and ask when firms reward loyalty or offer low discounts to induce switching. They find that without commitment to future prices, firms always use low discounts to induce switching. With commitment to future prices, firms use low discounts for new consumers if consumers' brand preferences are sufficiently positively correlated over time. With little correlation, firms offer loyalty rewards.

- **More intense price competition:** Behaviour-based price discrimination allows firms to target their old customers, i.e. the consumers with stronger brand preferences, with separate offers. Yet somewhat surprisingly, behaviour-based price discrimination may lead to more intense competition and lower profits. The argument is similar to the one discussed in Section 3.2. Price discrimination allows firms to target new potential customers with low prices without reducing profits from existing customers, which intensifies competition. More precisely, relative to uniform prices for all consumers, behaviour-based pricing has two effects on pricing. First, a surplus-extraction effect, whereby firms can target higher prices to consumers with stronger brand preferences. Second, a pro-competitive effect: firms can now make targeted offers to consumers who prefer the rival, allowing them to compete more fiercely in that segment. This will tend to intensify competition and thereby reduce overall prices whenever products are sufficiently close substitutes. If, at the other extreme, the firms almost do not compete with each other - i.e. their demand is almost independent - then the ability to better predict consumers' willingness to pay will often benefit firms, increasing their profits and lowering consumer surplus. Much of the literature focuses on settings where the pro-competitive effect dominates, and price discrimination reduces profits.
- **Long-term contracts:** As pointed out by Fudenberg and Tirole (2000), firms would often gain from using long-term contracts in which they can commit themselves to future prices. These enable firms to commit not to use the information revealed by consumers' initial purchase, and partially avoid the aforementioned commitment problem. To see the consumers' strategic reasoning inherent in these models, suppose a consumer prefers one cell-phone provider A over its rival B. Initially buying A reveals that A is the consumers' favourite brand. Anticipating that buying A induces larger prices in the future, the consumer might rather buy from B initially and switch to A in the future. By offering a long-term contract, A commits not to raise prices tomorrow, which alleviates this commitment problem. As this example also shows, these benefits of long-term contracts occur when consumers correctly anticipate the feedback of their purchase behaviour on firms' future price offers. Again, we are unaware of evidence indicating that such highly sophisticated consumer reasoning is common.

Even when behaviour-based price discrimination increases competition, the implications for consumer surplus are ambiguous (depending on market structure and other characteristics). While lower prices benefit consumers, they might induce consumers to switch providers and no longer buy from their favourite brand. In this way, behaviour-based price discrimination may reduce consumer surplus, even when it induces lower prices.

Behaviour-based price discrimination may also reduce competition. Chen and Zhang (2009) study a two-period duopoly model with the above features in which consumers have brand preferences. They, however, add loyal consumers to the setting who buy either from their preferred firm or not at all. These loyal consumers can be thought of as capturing inactive consumers who do not compare offers. Such inactive consumers directly reduce cross-price elasticities and render the market less competitive, increasing the benefits of price discrimination to firms. But there is an additional, more subtle effect that reduces competition also for new customers: in the first period, all consumers who have stronger brand preferences than a cutoff type buy from a firm. The smaller the first-period market share, the stronger the brand preferences of a firm's existing customer base at the beginning of the second period. This credibly signals that the firm will set a high price for these consumers, reducing second-period competition from the rival. The beneficial effect on second-period competition from a small first-period market share reduces initial competition and can increase overall profits above the level without behaviour-based price discrimination.

This result can have potentially important implications for loyalty penalties. First, with sufficiently many loyal or inactive consumers, banning price discrimination can reduce prices and profits, while benefiting

consumers. Second, activating loyal customers to switch may be more pro-competitive with price discrimination.<sup>69</sup>

We conclude by summarising the main lessons with regards to loyalty penalties:

- The literature on behaviour-based price discrimination identifies a pro-competitive effect of price discrimination. As a result, price discrimination may, but need not, lead to lower prices. The literature on behaviour-based price discrimination does not discuss policies such as price ceilings or other regulations that limit consumer prices providing little guidance for such interventions. As before, we propose that one could consider price regulation for loyal consumers based on rivals’ prices for new customers.
- Lower prices do not necessarily indicate larger consumer surplus, as consumers may inefficiently switch away from their preferred brand.
- “Activating” loyal consumers to switch may be more pro-competitive with price discrimination.
- While the literature captures some dynamic considerations, the literature on behaviour-based price discrimination abstracts away from consumer inertia, which is likely to be important for understanding loyalty penalties (see Section 4.2). Indeed, the literature abstracts from informational and behavioural frictions so that consumers always choose the best available offer for them.
- In the literature on behaviour-based price discrimination consumers make optimal forward-looking choices that sometimes involve intricate strategic reasoning. We are unaware of evidence for this type of consumer behaviour. Absent additional evidence, one should be careful regarding policy recommendations that rely on such complex forward-looking behaviour of consumers.
- The literature on behaviour-based price discrimination focuses on third-degree price discrimination with simple linear prices. This rules out the firms’ ability to influence consumers through the design of other contract features. As such, the literature gives no guidance on the desirability of regulating contracts.

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<sup>69</sup> To see that behaviour-based price discrimination can also increase competition and consumer surplus at the same time, consider the following stark two-period example: There is a market with four potential consumers, two firms, and no cost of production. Suppose one consumer is willing to pay up to 80 for a product of Firm A but zero for a product of Firm B, while another consumer is willing to pay up to 80 for a product of Firm B but zero for that of Firm A; the remaining “non-loyal” consumers are willing to pay up to 10 for a product of either Firm A or B. Then with uniform pricing, it is easy to check that it is uniquely optimal for both firms to charge a price of 80 in the final period independent of the rival’s behaviour and knowledge of consumer types. By backward induction, it is also optimal to charge a price of 80 in the penultimate period. When firms are being allowed to price discriminate, consumers must be weakly better off as the surplus absent price discrimination is zero. Indeed, it is possible to construct an equilibrium where some consumers get strictly larger surplus with price discrimination. On the path of play of the equilibrium, firms charge 80 to all consumers in the first period and only loyal consumers buy from their respective firms. In the second period, as long as a firm made a sale in the first period, it charges 80 for old customers and 0 for new ones. A firm that did not sell in the first period charges a price of 80 for new customers. On the path of play, non-loyal customers pay zero in period 2 and get a strictly positive consumer surplus.

## 3.4 Switching Costs

We already illustrated some basic economics of switching costs in our illustrative example in Section 3.1, and now discuss the role of switching costs in the context of loyalty penalties in more detail.

Following the survey by Farrell and Klemperer (2007), “switching costs [...] arise when consumers value forms of compatibility that require otherwise separate purchases to be made from the same firm.” For example, switching costs may be about learning a new cell-phone operating system, or they may be transactional when cancelling a contract is more difficult than renewing it. The literature also considers pecuniary or contractual switching costs like frequent-flyer programs or loyalty programs that reward consumers for staying with a firm. In contrast to the aforementioned types of switching costs, these pecuniary switching costs do not directly affect total surplus.

Switching costs give legacy providers a competitive edge over rivals, not unlike brand preferences. In contrast to brand preferences, however, switching costs depend on which service provider consumers picked in the past. The cost advantage prior customers have when buying from the same firm again gives this firm market power. The exploitation of such market power is a natural explanation for loyalty penalties. This argument, however, requires that firms cannot commit to future prices. Intuitively, to attract customers, firms facing competition would like to offer a good deal to new consumers. But a deal that involves high future prices requires consumers to engage in inefficient switching behaviour or induces an otherwise inefficient consumption pattern. Promising marginal-cost prices tomorrow therefore would increase the joint surplus that the firm and the consumer realise in the future. Switching to such a pricing pattern allows the firm to earn greater profits while offering the consumer the same amount of utility. Therefore, if consumers are rational and forward looking, a firm would always want to commit to such future prices. But in the subscription markets in which we observe loyalty penalties such a promise will often not be credible beyond the initial contract period: once consumers are locked-in by switching costs, firms have an incentive to increase prices. Furthermore, as we discuss below in Section 5.3 on automatic renewal contracts, firms may induce future switching costs even when they can commit to future prices if consumers overestimate their future tendency to cancel a contract. In this sense, firms avoiding committing to future prices may indicate that they are exploiting behavioural biases about future switching behaviour.

The classic switching-cost literature focuses almost exclusively on models in which forward-looking consumers observe and understand all prices, make correct equilibrium predictions about future prices, and select the contract that is optimal for them. There is, however, some discussion of non-equilibrium expectations that we will present in Section 3.4.3.

In most formal models, there are either two periods or two firms. Except for some rare exceptions that we will highlight below, the literature also imposes that firms charge a single price per period. These assumptions have two important implications. First, they rule out within-firm loyalty penalties. Second, modeling a single price per product and customer group abstracts from cancellation fees and other business practices that make termination difficult for consumers. The existing literature, however, does analyse the incentives of firms to influence switching costs in reduced-form models.

In the next chapters, we discuss common findings in the switching-cost literature and relate them to loyalty penalties. We first introduce the common bargain-then-rip-off price structure, before discussing how switching costs may induce market segmentation that relaxes competition. Such segmentation is crucial to understand the implications of price discrimination. Afterwards, we discuss motives for firms to influence switching costs and the role of consumers' price expectations for competition in these markets.

### 3.4.1 Bargains Followed by Rip-Offs

A common feature of markets with switching costs is a “bargain-then-rip-off” (a.k.a. investing-then-harvesting) price structure that closely relates to loyalty penalties and low introductory prices. Our introductory example in Section 3.1 already illustrates this effect. Switching costs lock-in consumers to their legacy provider, inducing loyalty penalties for consumers who do not switch. Firms, however, compete for this ex post market power ex ante. The resulting price pattern features low introductory prices, possibly below costs, followed by price jumps to larger loyalty penalties. In line with our earlier discussion of waterbed effects in Section 3.1, this suggests that only focusing on loyalty penalties is insufficient to understand how competitive markets are, and it is crucial to investigate introductory prices as well. Ex ante competition might compensate for loyalty penalties with low introductory prices. Thus, a key indicator for the competitiveness of these markets are whether introductory prices are (substantially) below costs.

Section 3.1 already discusses market settings and features that reduce competition with introductory prices: lower introductory prices may disproportionately attract unprofitable consumers, and firms may disperse ex post profits into inefficient activities like commissions for intermediaries, excessive advertisement, or inefficiently expensive base products like overly fancy cell-phones. We also discussed how later profits from vulnerable consumers with potentially higher switching costs may reduce introductory prices also for consumers with lower switching costs such that vulnerable consumers cross-subsidise other ones.

The bargain-then-rip-off structure suggests that switching costs turn market shares into a valuable asset. Absent price discrimination, a common finding in the literature is that firms with larger market shares set higher prices to “harvest” their locked-in customers, while smaller firms set lower prices to “invest” in larger market shares. This can produce stable industry dynamics where smaller firms are more aggressive. They attract market shares over time and catch up with larger less-aggressive firms.<sup>70</sup> Larger firms focus on charging larger loyalty penalties. A possibly surprising prediction is that the loyalty penalties of large firms decrease over time, as firms lose more and more loyal consumers. This price cycle features price walking, i.e. increasing prices for loyal customers, only for smaller firms. In practice, however, price walking seems to be used also by larger firms and involves stepwise price increases until prices reach a target level. These existing models do not seem to capture this logic of price walking well.

We next intuit some missing features in these models that could potentially explain price walking also for larger firms. First, consumers may be inactive but become active if firms change prices too much. This logic is somewhat related to search cost models like Stahl (1989) that we discuss more carefully below in Section 3.5. Intuitively, inactive consumers remain inactive when prices only increase by a narrow range, requiring firms to increase prices over time to make sure these consumers remain inactive. An interesting question is what drives such behaviour of consumers. Second, price increases induce more price-elastic consumers to switch with higher probability. This implies that the remaining consumers are on average less price elastic, making it potentially optimal to increase prices further.

Finally, while existing models do not seem to focus on this, switching costs could also help to rationalise the observed price pattern in industries with predictably declining costs in which some consumers sign up and then fail to take advantage of predictable price savings when switching. Intuitively, as long as some

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<sup>70</sup> Beggs and Klemperer (1992) and Chen and Rosenthal (1996) have this pattern, but also Taylor (2003) and Rhodes (2014). With scale economies, however, firms with larger market shares can have significantly smaller average costs and prices. This can lead to market tipping. See for example Beggs (1989).

consumers have sufficiently large switching costs, they will stay with their legacy provider while consumers with lower switching costs benefit from lower prices. Such a model, however, would also need to explain why it is suboptimal for firms to increase prices following the initial sign up of consumers.<sup>71</sup>

### 3.4.2 Pro-Competitive Effect of Price Discrimination

Switching costs can segment an otherwise undifferentiated oligopolistic market and reduce the overall level of competition. To illustrate, consider a two-period duopoly model in which firms in every period set a single price. Because of the bargain-then-rip-off effect, a rival with a larger market share competes less fiercely tomorrow. A forward-looking firm that takes this into account wants to compete less aggressively today to increase its rival's future market share so that the rival sets higher prices tomorrow, which enables the firm to earn higher profits tomorrow. This can segment the market: one large firm tends to focus on setting high prices for locked-in consumers, and the smaller rival focuses on new consumers and those with lower switching costs. Especially in a duopoly setting, the larger firm has market power over its locked-in consumers, while the smaller firm has market power over the not locked-in consumers. Because firms focus on different market segments, competition is less intense and overall prices increase. As discussed, segmentation can also reduce competition *ex ante* for the market: realising that rivals with larger market shares will compete less fiercely tomorrow, firms have lower incentives to compete fiercely for market shares today. A possible indication for segmentation in a multi-period model is asynchronous sales, suggesting that firms compete for new customers at different times.<sup>72</sup>

There are two important caveats to the segmentation argument. First, in the context of loyalty penalties, firms can set different prices to existing and new customers. Chen (1997) investigates loyalty-based pricing in the presence of switching costs. More precisely, he investigates price discrimination between more-profitable previous customers with switching costs and new customers. Akin to the aforementioned results in Sections 3.2 and 3.3, Chen shows that price discrimination can encourage competition and reduce overall profits. More specifically, he studies duopolists who compete *ex ante* with homogeneous products and *ex post* when consumers have heterogeneous switching costs. Price discrimination allows firms to target loyal consumers with high prices, while at the same time targeting new consumers with low prices. This encourages competition in both market segments. As a result, banning price discrimination in his model reinforces segmentation and increases average prices.<sup>73</sup> Importantly, even with higher prices, consumers can be better off absent price discrimination because they avoid the cost of actually switching. Thus, as in models with behaviour-based price discrimination and brand preferences, despite lower average prices consumers may be worse off when firms can price discriminate.

Taylor (2003) emphasises a second caveat to segmentation: the number of firms. He extends Chen's setting to three or more firms. With three firms, two firms always compete for consumers willing to

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<sup>71</sup> When changing prices requires notifying consumers, models in which such a notification increases consumers' attention could also help to explain this pricing pattern.

<sup>72</sup> If, however, switching costs are learning costs - in that once a consumer tried a product, she can switch back at future date for free -, asynchronous sales cause more frequent switching, which induces learning and a larger set of very mobile consumers. These mobile consumers would induce fiercer competition. In such a setting, firms have an incentive to synchronise sales to reduce switching and do so in equilibrium (see Klemperer (1983, 1989)). For the subscription markets on which this review focuses, we conjecture that such learning costs are at best a small fraction of consumers' switching costs.

<sup>73</sup> In Chen's model, price discrimination between previous and new customers increases competition. But firms retain some market power because consumers have heterogeneous switching costs. Thinking of the consumers that bought from a particular firm as its own market segment, in this segment a firm with a large customer base faces a small rival, and the segmentation argument of the first paragraph of this section implies that firms can earn positive profits.

switch, limiting market power over these consumers and mitigating the segmentation problem. Firms do earn positive rents only on their locked-in customers, but due to waterbed effects these rents might be competed away ex ante.

### 3.4.3 Switching Costs and Consumer Expectations

Most of the literature considers consumers with rational expectations about future prices, i.e. consumers who understand that firms might exploit their future switching costs. Farrell and Klemperer (2007), however, also discuss the role of consumer expectations more generally. The key result is that unless consumers believe that observed price cuts are more persistent than their tastes, switching costs tend to reduce price elasticities and raise prices.

More precisely, absent switching costs consumers buy the product for which the valuation minus the price is highest. If the consumers' valuations as well as prices were permanent, then the consumers' optimal choice would not be influenced by switching costs at all. Assuming that consumers' valuations are positively but imperfectly correlated over time, Farrell and Klemperer (2007) distinguish three types of exogenously specified consumer expectations.

- **Consumers assume that any price cut today will be permanently maintained in the future.** To gain intuition, consider the extreme case where a consumer cannot switch at all. Then a permanent price cut will affect the consumers' expected surplus from choosing a particular product more than an equally-sized increase in valuation because the consumer correctly realises that the increase in valuation is partly transitory. More generally, in the presence of switching costs consumers realise that they may stay with a given firm for longer periods of time. So, a price cut that is (potentially incorrectly) expected to be permanent is of higher value than an equally-sized (but partly transitory) increase in valuation. Since consumers react more to price changes than to changes in valuation, demand becomes more price sensitive. As a result, switching costs encourage competition in this case.
- **Consumers expectations about future prices are unaffected by current prices.** This includes the case where consumers are completely myopic about future prices. Consumers expect that price cuts are transitory and less permanent than differences in valuations. Hence, by a similar logic as above, consumers become less price sensitive. Thus, switching costs reduce competition in this case.
- **Consumers have rational expectations** and understand that lower prices today are generally followed by larger prices tomorrow. These consumers are even less sensitive to price cuts than consumers in the previous case and thus switching costs reduce competition.

The CMA (2018) mentions that some consumers may (falsely) believe that loyalty pays off. In that case a consumer believes she will get a lower price tomorrow if she does not switch. As a result, switching becomes less attractive than in the case in which consumers consider current prices to be permanent. As a result, we conjecture that such consumers are typically hard to attract and therefore that switching costs will tend to lower competition in this case also.

We conclude by summarising the main lessons with regards to loyalty penalties:

- As before, price discrimination has a pro-competitive effect. Again, the literature has almost exclusively focused on whether or not to allow price discrimination and thus is only of limited guidance for other policy choices.

- Because consumers incur switching costs, lower prices at the switching stage may not benefit them. They are less likely to benefit from the lower prices at the switching stage if waterbed effects are important.
- Despite some caveats, firms (as a group) typically have an incentive to increase switching costs.
- The switching-cost literature is based on a reduced-form model of switching costs and therefore is restricted to investigating the implications of exogenous increases or decreases thereof. Thus, the literature gives only limited guidance on which business practices increase switching costs and should be considered problematic.
- The literature on switching costs emphasises that high prices result from a commitment problem of firms. If feasible, to attract consumers firms would like to commit to low future prices when all consumers are rational. Once they attracted significant market share, however, firms would like to break this commitment and raise their prices.
- The commitment problem driving much of the theoretical results is based on well-informed forward-looking consumers. While this might suggest that long-term price commitments are desirable, we qualify this conclusion when allowing for less forward-looking (or “behavioural”) consumers in Chapters 4 and 5.
- Existing switching-cost models do not explain price walking for large firms. We intuit, however, that appropriate extensions may generate this pricing pattern.
- Understanding consumer expectations regarding future prices is important for understanding the competitive dynamics in switching-cost models. Through surveys or other tools, regulators should consider collecting direct evidence on consumer expectations in markets with switching costs may drive loyalty penalties.

### 3.5 Consumer Search Costs

The classic literature offers another reason for why consumers may fail to select the best deal - informational frictions due to search costs. When searching for better deals is costly in terms of money, effort, or time, some consumers may not compare offers, while others shop around and get better deals.

Varian (1980) illustrates such a setting. At least two firms sell homogeneous products to consumers.<sup>74</sup> The only friction in the market is that each firm has some inactive consumers who never compare offers. They only observe the price of one firm, which we can interpret in the context of loyalty penalties as their legacy provider. The remaining consumers shop around, observe all prices, and buy the cheapest available product. Firms do not price discriminate and set a uniform price for all consumers. This induces the following trade-off for firms: either set a large price to exploit inactive consumers, or set a low price to compete for shoppers. To balance this trade-off, firms will set a distribution of prices, and these models predict price dispersion. The framework is static, but it partially captures loyalty penalties in the following way: inactive consumers purchase from their legacy provider and pay loyalty penalties, but shoppers self-select the best deal in the market and pay less on average. Since inactive consumers do not compare prices, they are the firms’ profit base, and profits are proportional to the share of inactive

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<sup>74</sup> See also Shilony (1977) for an early model and Rosenthal (1980) for the additional insight that prices can increase in the number of firms.

consumers. Conversely, shoppers have a positive shopping externality on inactive consumers: increasing the number of shoppers increases firms’ incentives to compete and reduces profits. This result strongly relies on the absence of price discrimination: firms can only attract shoppers by reducing the price for all consumers, thereby benefiting also inactive consumers.

Results, however, change when firms can discriminate between inactive consumers and shoppers. Armstrong and Vickers (2019) take a duopoly version of Varian’s framework to explore price-discrimination based on observable signals. Both firms can target different prices to inactive consumers and shoppers. When interpreting inactive consumers as purchasing from their legacy provider, this captures price discrimination based on loyalty.

Armstrong and Vickers find that price discrimination increases consumer surplus when firms are sufficiently asymmetric with respect to the share of inactive consumers. To see why, consider first the case of symmetric firms, in which case price discrimination harms aggregate surplus. Price discrimination enables firms to decrease prices for active shoppers while increasing prices for inactive consumers. Since shoppers always buy from the cheapest firm, the resulting fierce competition induces prices close to zero in this market segment. But firms face no competition for inactive consumers, so they earn the monopoly profits from this market segment. Absent price discrimination, firms can also always ensure these profits by setting the monopoly price to all consumers. Indeed, Varian (1980) already proves that firms cannot earn more. Hence, overall profits and, thus, average consumer payment are unaffected by the ability to price discriminate. With price discrimination, however, prices are more dispersed, which reduces aggregate consumer surplus when consumers have concave utility (i.e. are risk averse).<sup>75</sup> With sufficiently asymmetric firms, price discrimination increases consumer surplus. Intuitively, uniform prices induce a segmentation problem akin to switching costs in Section 3.4.2. The firm with more inactive consumers will focus on exploiting these consumers, turning the firm with less inactive consumers into the monopolist over the shoppers. Price discrimination increases competition for shoppers and thereby increases aggregate consumer surplus. These results indicate that the share of inactive consumers of firms may be a useful indicator for the degree of segmentation and competition in the market: when the share of inactive consumers is very dispersed between firms, banning price discrimination reduces competition by segmenting the market, which can reduce aggregate consumer surplus. As with switching costs, however, this segmentation result seems to depend on the duopoly-type situation: when products are homogeneous and pricing is uniform, the possibility to segment the market disappears with more than two firms.

In Varian’s model, consumers either shop or are locked-in for exogenous reasons. Stahl (1989) extends Varian’s framework by endogenising the search decisions of consumers. Some consumers have zero search cost and will always compare prices. The remaining consumers, however, can observe only one price for free and must pay an additional search cost for each additional price. In the context of loyalty penalties, this captures that some inactive consumers only observe offers from their legacy providers, and it is costly to become active and start comparing offers. Reducing search costs, however, may activate these consumers and induce them to start comparing offers.

Endogenous search decisions induce a key difference to the equilibrium in Varian’s model: the highest price that firms charge is just low enough to make sure that consumers with search costs are indifferent between not searching and searching another price. Intuitively, a firm that would charge a higher price instead would induce consumers with positive search costs to actively search and find a better deal. This is why firms price just low enough such that consumers with search costs do not search. In a related multi-

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<sup>75</sup> They show that when demand elasticities increase in prices, consumer surplus is concave over the range of equilibrium prices.

sector model, De Clippel et al. (2014) coin the term “competition for inattention” to describe such pricing behaviour.

Competition for inattention has some important implications for loyalty penalties. First, even when consumers do not compare prices, their search costs can influence prices. Reducing search costs might not lead to an equilibrium with more searching, but it intensifies competition for inattention and induces lower prices. Consequently, searching may be fundamental for competition, even when we observe very little of it. Second, the results suggest that the fraction of consumers who get the highest prices in the market may be close to indifferent between searching for further offers or not. Thus, for given market prices a reduction in search costs would activate these consumers. In the new equilibrium, however, these consumers might be inactive again and still buy from their legacy provider. But since lower search cost imply fiercer “competition for inattention”, consumers pay lower prices nonetheless.

Models in which consumers can have an endogenous search decision are also useful to illustrate potential drawbacks of simple price regulations. In these models, price difference is what motivates consumers to pay search costs. Paying these search costs and comparing prices increases the competitiveness of the market to the benefit of other consumers. Price caps that reduce price differences in the market can discourage consumers from paying the search cost to become informed and thereby reduce firms’ benefit of setting a low price. As a result, Fershtman and Fishman (1994) and Armstrong, Vickers, and Zhou (2009) demonstrate that such price caps can for some parameter constellations even increase average prices.

We now turn to another issue, which is the pricing pattern over time. Basic classic models such as Shilony (1977), Varian (1980), and the variations discussed above are static in nature. One way to model an industry over time is to think of it as the repetition of the static model. In simple models with pure strategy equilibria, this suggests constant prices. In models such as Shilony (1977) and Varian (1980), firms randomise their prices. Given the mixed-strategy logic of these models, however, firms want their pricing to be unpredictable for rivals. This suggests that prices would have to vary independently over time, and as a result the model would not easily generate the common loyalty pricing patterns of price walking or price jumps. Simple repetition of a static equilibrium, however, need not be a natural candidate for industry dynamics when consumers learn over time. Knowledge acquired in past periods will often be helpful to consumers when looking for a suitable contract today.

There are only relatively few dynamic models with search frictions that address the question of industry dynamics when consumers learn over time explicitly. Most closely related are Burdett and Coles (1997) and Parakhonyak and Rhodes (2020), both of which feature pricing patterns that resemble price walking. In Burdett and Coles (1997), all firms sell homogeneous products and price walking results because searching the previous supplier is cheaper than searching new ones. Younger firms charge lower prices (possibly below marginal cost) to build up a customer base but then increase prices when they have acquired more regular customers. Parakhonyak and Rhodes (2020) suggest an additional mechanism for why firms’ price paths can resemble price walking. In their model, consumers search products to learn prices and their match values. Consumers’ match values for a firm’s product do not change over time, and consumers can return to previously searched firms at a lower search cost to learn its current price. Since consumers return to a firm only if they have a large match value, over time firms face an increasing and better-matched demand. Thus, a firms’ demand gets less elastic over time, and as a result firms gradually increase prices. This mechanism suggests that brand preferences can help to explain price walking, so one may expect less price walking in markets with (mainly) homogenous products such as electricity. If, on the other hand, firms can advertise prices to past consumers and set different price to past and new customers, the authors show that the equilibrium fundamentally changes and may even involve a loyalty bonus.

We conclude by summarising the main lessons with regards to loyalty penalties:

- Because of informational frictions, some consumers may end up paying loyalty penalties. Consumers with higher search costs are typically more likely to face a loyalty penalty. In as much as vulnerable consumers have higher search costs, this should be of special concern.
- Absent price discrimination, successfully “activating” consumers may induce a positive shopping externality. Hence, banning price discrimination could be beneficial for inert consumers. Price discrimination can increase overall consumer surplus with asymmetric firms but in existing models mostly benefits active consumers.
- Due to the competition-for-inattention effect, reducing search cost may not induce more (observable) searching in equilibrium but still reduce prices. Hence, a simple comparison of switching rates can be misleading.
- The classic search literature in oligopolistic markets focuses on firms that set prices only once and thus abstracts from dynamic pricing considerations that are likely important for understanding loyalty penalties. Due to the static nature, these models do not explain price walking or price jumps.
- Thinking of prices over time as the result of a repetition of the mixed equilibria of these static models, prices and loyalty penalties should be uncorrelated over time, or at least have significant unpredictable variation over time. The scarce literature on dynamic competition in which consumers have to search, however, can plausibly generate price walking at least in environments with stable brand preferences over time.
- The classic literature almost exclusively focuses on firms who can set a single price. Thus, loyalty penalties can only arise across firms. Hence, most of the literature does not speak to regulating loyalty penalties within firms. Papers such as Armstrong and Vickers (2019), which allow for price discrimination across customer groups, restrict attention to the case in which firms can charge a single price per customer group. The existing single-price classical literature, thus, gives no guidance on how contract design interacts with search costs.
- While allowing for informational friction, a consumer who paid the search cost in a classic search model fully understands all aspects of the product she considers. Furthermore, any consumer who actively searches is perfectly rational.

## 4 Going Beyond the ‘Classic Literature’

### 4.1 Limitations of the ‘Classic Literature’

The classic theoretical literature misses some elements of the market that are likely to be important in the context of loyalty penalties. This section tries to identify and summarise these potential shortcomings.

Most of the classic literature evaluates market outcomes using “total surplus”. As a consequence, these models put little emphasis on distributional effects or fairness concerns. For example, in Section 3.1 we discuss a possible cross-subsidy from consumers with large switching costs to consumers with lower switching costs. Both consumer groups get an introductory discount, but only consumers with large switching costs stay with the firm when prices increase. Effectively, future profit from consumers with high switching costs reduce introductory prices for all consumers. In that example, these cross-subsidies benefit some consumers to the same extent that they harm others and, as a result thereof, do not directly affect total surplus. But to the extent that consumers with large switching costs could be more vulnerable consumers, one may want to put more emphasis on them. Thus, one should bear the lack of distributional concerns in mind when applying insights from these models.

Most classic models focus on consumers with quasi-linear preferences, i.e. who have money-metric utility. While greatly improving tractability of models and enabling a simple definition of total surplus, this approach abstracts from income effects on demand and imposes that all consumers have the same marginal utility of money. Under the natural assumption that poorer consumers have a higher marginal utility of money, one may want to focus extra on how much this consumer group pays. Similarly, in as much as vulnerable consumers get an extra weight in the welfare function determining policy, it is important to consider not only the aggregate effect on consumer surplus but also on how vulnerable consumers are affected. Given the evidence in Chapter 2, which suggests that in some markets vulnerable consumers are more likely to remain inactive and incur a loyalty penalty, there may be additional reasons to regulate or otherwise interfere in these markets.

In practice, one would like to distinguish between “healthy introductory discounts” that encourage competition and “unhealthy loyalty penalties” to better understand when and where to potentially intervene. But the classic literature provides little guidance on how to distinguish the two. For example, we emphasise in Sections 3.1 and 3.4 that classic switching-cost models often predict price paths with a bargain-then-rip-off structure. In our simple two-period example in Section 3.1, consumers first paid 10 GBP and then, due to switching costs, 90 GBP in the second period. But we can either interpret the early bargain of 10 GBP as a low introductory discount (and the 90 GBP as the “regular price”) or the 90 GBP in the second period as a loyalty penalty (and the early bargain as a “regular price”). Without knowing the firm’s marginal cost, it is difficult to know whether consumers pay a loyalty penalty or get an introductory discount. Thus, in this framework a test to distinguish between “healthy introductory discounts” and “unhealthy loyalty penalties” cannot be based on the price structure alone and needs to include cost information. We discuss potential alternative concepts to distinguish healthy discounts and loyalty penalties more carefully below in Section 4.7.

As discussed in Sections 3.4 and 3.5, existing models with search- and switching-costs can explain price jumps, but existing switching-costs models do not seem to explain price walking - firms increasing prices by small increments over time until prices reach some target level. We intuit about potential explanations for price walking in Section 3.4.1, but careful modelling thereof exists only for dynamic search costs.

Especially, a model that can predict across markets what features induce the different loyalty-penalty-inducing pricing patterns that we discuss in Chapter 2 is lacking.

Much of the search- and switching-cost literature investigates the impact of changing search- or switching costs on market outcomes. These models offer a reduced-form analysis of the firms’ incentives to change search- and switching costs, but they mostly do not investigate explicit business practices of firms to influence these costs. Thus, these models provide little guidance on the impact of specific business practices on loyalty penalties. As we discuss below in Section 5.3, some recent behavioural models take a step in linking loyalty penalties to business practices. They model automatic renewal contracts explicitly and explain how firms might use them to augment and exploit consumer biases.

To develop a realistic understanding of loyalty penalties, it seems important to include some additional features of the markets discussed in Chapter 2 into the literature on price. Many of the dynamic models with price discrimination that we discussed in Sections 3.2, 3.3, and 3.4 focus on commitment problems resulting from consumers’ intricate forward-looking equilibrium inferences. We are unaware of any direct or indirect evidence thereof and think one should be careful regarding results that rely on such sophisticated forward-looking behaviour absent supporting evidence.

Furthermore, the literature on third-degree price discrimination studies mostly simple linear contracts. In practice, however, firms may target consumers also with more complex non-linear contracts, and these contracts may be difficult for some consumers to fully understand (see our discussion in Section 4.3 below). In addition, much of the classic literature studies either exclusively targeted prices by observable signals (third degree price discrimination) or exclusively self-selection of consumers into contracts (i.e. second-degree price discrimination), but rarely investigates both problems together. For example, it might be useful to better understand how self-selection of consumers is affected when firms are able to better identify consumer groups. Finally, the literature on price discrimination does not focus on specific contract terms that seem important in the context of loyalty penalties, such as cancellation fees or automatic contract renewal.

In terms of policy analysis, we already mentioned that the literature on search and switching costs provides only a reduced-form analysis of regulations that affect switching costs but pays little attention to explicit business practices and contract features that, for example, regulators may target. As we discuss below in Chapter 6, CMA (2018) contemplates a variety of different policies that limit price discrimination including, for example, limits on relative prices for loyal and new customers or price caps. But the classic literature on price discrimination focuses almost exclusively on a single policy choice: whether or not to fully ban price discrimination. Other possible policy interventions have not been studied intensively. Also, while the papers of Fershtman and Fishman (1994) and Armstrong et al. (2009) that we discuss in Section 3.5 investigate price caps in the context of consumer search models, these static models cannot be applied to study the wide range of possible policy interventions discussed in CMA (2018).

Finally, we believe that many classic models do not capture some important aspects of consumer behaviour that are potentially important in the context of loyalty penalties like behavioural biases and consumer misperceptions. We discuss these aspects more carefully in the Sections 4.3 to 4.7.

## 4.2 Limited Ability of Classic Effects to Explain Observed Consumer Inertia

From a classical perspective, a natural explanation for the lack of consumer switching are either switching- or search costs. Hence, a natural starting point for the empirical literature on consumer inertia has been to ask what level of switching costs can explain the observed relatively inert consumer

behaviour. Assuming that (pecuniary or psychological) switching costs are the only force hindering a consumer from taking up a better competing offer, the empirical literature can proceed and identify these from observed switching behaviour. In a nutshell, the literature often found surprisingly high (indeed, arguably implausible high) levels of switching costs. At the same time, a large behavioural literature on “default effects” emerged that finds even in absence of any “real switching costs”, whenever a default choice is implemented, unless the subject actively selects another option, consumers are much more likely to select the default option both in the laboratory and in the field. This is true even if the consumer needs to actively confirm the default choice. Together, these observations suggest that behavioural reasons are likely to play a significant role in explaining observed switching behaviour in many market settings.

More specifically, a number of empirical papers have estimated switching costs in different market settings. Regarding the US health insurance market, Handel (2013) suggests that consumers forgo roughly \$2000 annually from not switching to better health insurance plans. In the Israel’s cell-phone market, Shy (2002) estimates switching costs comparable to the price of an average cell phone. In the US market for paid-television services, Shcherbakov (2016) estimates switching costs of approximately \$190 for cable and \$240 for satellite (in 1997 dollars), which amounts to more than half of the annual service cost. Assuming consumers pay full attention, Kiss estimates switching costs of \$373 in the Hungarian auto insurance market. Shum (2004) estimates average implicit switching costs of \$3.43 for breakfast cereals; while perhaps low as a total amount, these switching costs exceed every brand’s price in his sample.

Why are estimates of switching costs often so large? Most aforementioned articles estimate switching costs indirectly via observed switching patterns. This makes it difficult to distinguish whether switching costs drive a lack of switching, or whether search costs or behavioural biases might also play a crucial role. More recent articles like Handel (2013) acknowledge this explicitly. Handel identifies consumer “inertia” without distinguishing if it results from switching costs, search costs, or biases. In US health insurance, his estimate that inertia causes an average employee to forgo approximately \$2000 from not switching to better health insurance plans indeed suggests that behavioural biases are important. Heiss et al. (2016) study consumer inertia in plan choices in Medicare part D in the US. Arguing that ignoring the role of consumer attention leads to large overestimates of switching costs, they try to separately identify the role of inattention and switching costs in plan choices.

Handel’s argument suggests that previous estimates of switching costs are large because they capture consumer inertia that could also result from search costs or behavioural biases. Some recent articles make this more explicit by separately identifying search cost/inattention and switching cost. In US auto insurance, Honka (2014) uses data on consumers’ consideration sets to identify search- and switching costs separately. He estimates that search costs are the main driver of inertia. Studying auto insurance in Hungary, Kiss (2019) finds that inattention is a key driver for low switching rates and that accounting for it reduces estimated switching-cost from \$373 to \$53. This suggests that consumer inertia is at least partially driven by mistakes or inattention.

Similarly, the trials by Ofgem discussed in Section 6.2.1 targets consumer inertia as a whole. It facilitates switching by reducing search costs (i.e. informing consumers about the best offer for them) and switching costs (consumers can use email or the phone to switch easily). These measures significantly reduce search- and switching costs, allowing consumers to switch providers possibly in a couple of minutes. Yet, despite the fact that consumers can save substantial amounts of money through what would seem almost costless switching contracts, even in the most successful treatment at least 70 percent of consumers still

refrain from switching.<sup>76</sup> This suggests that a lack of trust or some type of consumer misperception could, indeed, be crucial for understanding consumer inertia.

Consumer inertia parallels a more general finding discussed in the behavioural economics literature: the power of defaults. In numerous laboratory and field experiments, a given “default” choice gets implemented whenever the subject does not actively override it - including choice situations in which the subject needs to actively confirm the default choice for it to become implemented. These experiments demonstrate that whether a given choice is a default choice or not has a huge impact on the probability that it is chosen. These choice environments include important economic choices such as how much to invest into a retirement account or health-related choices (see, e.g., Madrian and Shea (2001), Johnson and Goldstein (2003), Thaler and Sunstein (2008)). The literature on default effects has proposed many possible economic and psychological mechanisms that can give rise to subjects selecting a particular default including transaction costs (e.g. search and switching costs above), procrastination, limited or distorted attention, cognitive cost of actively taking a decision, status-quo bias and reference-point effects, anchoring, and viewing the default as an informative recommendation or indicating a social norm (see, e.g., the discussion in Online Appendix C of Altmann et al. (2019)). The importance of these various psychological mechanism is likely to vary with the specific context of the (field) experiment studied and - perhaps surprisingly given how ubiquitous default effects are both in the data and the academic discussion - there is little literature that attempts to cleanly identify the different psychological drivers of default effects in different field settings. But the tendency of many to stick with a legacy provider’s undesirable standard energy contract (Hortaçsu et al. (2017), Ito et al. (2016), Ofgem (2018, 2019c)), her own previous health-insurance choice (Handel (2013), Handel and Kolstad (2015)), or a high-interest-rate credit card (Ausubel (1991), Calem and Mester (1995)) is a phenomena that many behavioural economists studying default effects would anticipate.

Summarising, the empirical evidence by academics and regulators alike suggests that consumer inertia can be significant and can result from different sources including switching costs, search costs, or behavioural biases. When acknowledging that consumer inertia can have different underlying causes, it seems useful to investigate what contractual features firms can use to either magnify or overcome these different drivers of consumer inertia. Chapter 5 discusses incentives of firms to influence classical as well as behavioural sources of inertia and summarises the academic literature on business practices that allow firms to do so. But it is important to acknowledge that for most market settings the academic literature has made little progress in identifying what exact psychological or economic mechanism drives default effects, which in turn limits the ability of guiding policy.

We conclude by summarising the main lessons:

- Consumer inertia can be caused by switching costs, search costs, or behavioural reasons such as inattention or procrastination. Empirically, these are often difficult to identify separately. Existing estimates suggest that empirical search- and switching costs need to be implausibly large to explain observed behaviour.

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<sup>76</sup> Average savings or the benefit of switching to customers depended on the trial and was between GBP 150 and GBP 298 for first year of new tariff (Ofgem 2019b, p. 15). Note that savings were highest for those who switched to an external tariff via energyhelpline and lowest to consumers switching tariff but not supplier (Ofgem 2019c, p. 51, Figure 11)). Switching rates depended on the exact intervention and are highest in “Collective switch 3 trial” at 29.5% (Ofgem 2019b, p. 11). For more details, see discussion in Section 6.2.1.

- Evidence on default effects suggests that behavioural reasons are likely to play a significant role in explaining observed switching behaviour in many market settings.
- Despite the ubiquitous finding of default effects in the behavioural economics literature, the different underlying psychological drivers and their importance in different contexts are rarely analysed, limiting the possibility to provide policy guidance.

### 4.3 Allowing Consumers to Make Mistakes – Some General Insights

Consumers in classic models have no biases or systematic misperceptions, so the only reason these consumers may engage in suboptimal purchases is the lack of clear information. Indeed, a common prescription to address consumer protection issues based on such classic models is to provide additional and easy to access information - such as a webpage facilitating comparing alternative offers in the marketplace. At the same time, calibrationally the classic consumer model seems to be unable to account for the widespread consumer inertia, which is likely to be a major driver of loyalty penalties. Hence, we turn next to the quickly developing literature in the field of behavioural industrial organisation that investigates market outcomes when consumers have non-standard preferences or are subject to biases or systematic misperceptions for further insights. Yet, even more so than the classic literature we discuss in Chapter 3, the behavioural industrial organisation literature has not modelled loyalty penalties explicitly. Despite this shortcoming of the literature for our purpose, we look for important general insights from that literature, which will inform our discussion of business practises and policy implications in Chapters 5 and 6.

Despite not always having perfect information, there is a sense in which consumers in classical models are very much industry experts in every market they are active in. They understand the (equilibrium) price distribution in the market, the likelihood of future entry and product developments, price trends in the market, and have the time and cognitive resources to engage in intricate forward-looking strategic reasoning. Similarly, they can correctly evaluate any contract offer including its small print and conditions, and they cannot be caught off guard by surprising novel pricing features. Beyond being industry experts, they are also very much active in every market. When receiving useful information, they costlessly pay attention and optimally act upon this information. When there is an opportunity to act, they never procrastinate. They never forget to cancel a contract. They never worry that they may be overlooking somethings. They are almost infallible.

Most of us, however, are not infallible. We are busy, have limited attention, sometimes forget or procrastinate certain tasks, and most of us are not legal and industry experts at the same time. Hence, we may not know about profitable opportunities and fail to pay attention to some markets. We may also misunderstand the details of some of the many contracts we sign. Indeed, while the classic consumer model abstracts from systematic consumer misunderstanding of the marketplace, a vast amount of evidence collected illustrates what should be perhaps obvious: not all consumers are experts in all markets. Many consumers have serious misperceptions about some products or contracts they purchase. Additionally, in some markets, evidence indicates that consumers misestimate how they will use services in the future, and as a result they underestimate the ultimate cost of selecting certain contracts even when understanding the terms of the contracts themselves.<sup>77</sup> Furthermore, the literature on exploitative

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<sup>77</sup> That either type of misperception is important is well documented in many industries. For example, regarding gym contracts see DellaVigna and Malmendier (2006); regarding the mobile-phone industry see Grubb (2009) as well as Grubb and Osborne (2015); regarding auto insurance and the salience of switching see Kiss (2019); regarding the retail car market see Busse et al. (2013) and

contracting analyses how firms optimally exploit such consumer misperceptions,<sup>78</sup> and - as discussed, e.g. in Grubb (2015b) and Heidhues and Kőszegi (2018) - emerging evidence suggests that real-world contracts in many industries resemble such exploitative contracts.

### A baseline model with consumer misperceptions

A simple reduced-form approach in the spirit of Heidhues and Kőszegi (2017), which in turn builds on earlier work by Gabaix and Laibson (2006), can illustrate some of the findings of the literature. When selling a product to consumers, firms choose a contract consisting out of two price components: an anticipated price  $f$  and an additional price  $a$ . The representative consumer gets some utility  $v$  from the product and when signing the contract anticipates paying  $f$  for it. But in reality the consumer ends up paying both  $f$  and  $a$ , where  $a$  captures the idea that the consumer makes a systematic mistake in evaluating the contract and, as a result, underestimates how expensive the contract is.<sup>79</sup> Importantly, this could either be a price that is literally hidden - in that it is mentioned somewhere in the contract but misunderstood or overlooked by the consumer - or it is a price for a service - such as an unarranged overdraft - that the consumer believes she will not use and hence ignores when selecting the contract.<sup>80</sup> This latter example is one of a “use-pattern mistake”<sup>81</sup> in which because the consumer mispredicts her own future behaviour, she mispredicts how expensive the contract is when signing it even when fully understanding all legal details contained in the contract. In addition, suppose that collecting a high additional price requires the firm to distort the optimal contract away from efficient (marginal-cost-based) pricing and thereby induces some exploitation cost  $k(a)$ , which depending on the application may be borne by either the consumer or the firm. To keep the exposition simple, let us begin by assuming the

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Englmaier et al. (2018); regarding supermarkets and non-indicated taxes see Chetty et al. (2009); regarding online purchases and additional fees and product upgrades see Brown et al. (2010) and Ellison and Ellison (2009); regarding life insurance see Gottlieb and Smetters (2019); regarding mutual fund industry see the discussion in Heidhues et al. (2017); regarding overdrafts in retail banking see Alan et al. (2018), and for a discussion of overdraft in the UK banking industry more generally see Armstrong and Vickers (2012); regarding choice in the privatised Mexican social security market see Duarte and Hastings (2012); and regarding extensive evidence on mistakes in household finance decisions more generally see the detailed discussion in Beshear et al. (2018). In addition to this evidence on consumer mistakes, from a classical perspective much of the evidence on consumer inertia discussed in Section 4.1 requires implausibly high consumer switching and/or search costs, thereby indicating that mistakes or other considerations not modelled in the classic consumer model are crucial for understanding (switching) behaviour in many industries.

<sup>78</sup> For discussion of the exploitative contracting literature and applications thereof to markets, see, for example, the surveys by Grubb (2015a, 2015b), Heidhues and Kőszegi (2018), Kőszegi (2014), and the textbook by Spiegler (2011).

<sup>79</sup> There is a potentially useful check for consumer mistakes: do consumers respond differently to changes that are equivalent to consumers? Many empirical papers (Brown et al. (2010), Einav et al. (2015), Hossain and Morgan (2006)) apply this idea in the context of shipping fees on eBay. Intuitively, if consumers respond differently to changes in base prices or shipping fees, one may conclude that consumers are confused or pay less attention to certain price components. This suggests that it is hard to evaluate contracts for consumers, which may feed back into distrust of rivals. This kind of test may also be useful to investigate the role of consumer confusion or inattention in the context of loyalty penalties. It seems especially useful for homogeneous products like electricity, where consumers may nonetheless be confused by or inattentive to complex pricing features.

<sup>80</sup> Closely related, if the consumer systematically overvalues the product by some given amount, and this overestimation makes it cheaper to provide a utility level gross of price, the setup can be reformulated so that  $a$  captures the consumer overvaluation. For simplicity, we concentrate of the case in which the consumer underestimates the cost.

<sup>81</sup> This term was coined by Bar-Gill and Ferrari (2010).

consumer bears this cost.<sup>82</sup> In addition, we suppose that  $k(a)$  is differentiable and strictly convex and that the optimal level  $a^*$  is interior.

Depending on the application, the additional price  $a$  captures various types of costs that consumers do not fully anticipate. As mentioned above, consumers might not anticipate fees that are hidden or opaque, or consumers might not fully anticipate their future demand for a service like roaming or early cancellation of a contract, leading them to make unanticipated payments. Loosely based on Grubb (2009), consider mobile-phone consumers who underestimate the variation in their monthly mobile phone usage. Despite correct predictions on average about future consumption, the consumer does not fully anticipate all costs when firms offer an optimal exploitative contract.<sup>83</sup>

### Applying the model to the loyalty penalty

Before analysing the reduced-form model and intuitively discussing its implications, we illustrate how it can capture mistake-based loyalty penalties. We think of a simple two-period example with imperfectly-attentive consumers. For simplicity, we set the cost of serving a consumer equal to zero. Firms offer an attractive deal to new customers that expires at the end of the first period. Customers who become active and call their firm to “renegotiate” are offered a deal that covers cost  $c=0$  in the second period to avoid losing them to a competitive second-period market; consumers, however, may forget to renegotiate or may simply become too busy to renegotiate. Customers who fail to renegotiate end up on a more expensive default contract that costs  $d$ , where  $d$  greater or equal to  $0$  is chosen by the firm. Consumers think that they will become too busy or forget to renegotiate with a baseline probability  $q_s$ .<sup>84</sup> They can, however, exert costly effort  $e$  to make sure they will have time to renegotiate and do not forget to do

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<sup>82</sup> For an in-depth discussion of possible cases and how different markets can be mapped into these, see Section 2 of Heidhues and Kőszegi (2018).

<sup>83</sup> In more detail, the reduced-form model captures mobile-phone contracts as in Grubb (2009) in the following way. Think of a mobile phone consumer who correctly anticipates her average amount of monthly phone calls but underestimates the variance thereof and is looking for a mobile phone contract. The firms facing this consumer design optimal contracts in order to maximise their profits; the features of this optimal contract can in this application be illustrated by focusing on three-part tariffs: the optimal contracts set a fixed fee for an allotted amount of minutes that are included “for free” and a high marginal price for any minute of phone calling above the allotted amount. In the extreme case in which the consumer believes there is no variance, the allotted amount can be set to the expected amount of monthly calls and the fixed fee in this case is the anticipated price the consumer pays. Intuitively, because the consumer believes she will always want to make exactly the expected number of phone calls, there is no point charging less than the fixed fee if the consumer turns out to call less as the resulting savings are not anticipated by the consumer at the time of contracting and, hence, do not make the offer look more attractive despite reducing the firm’s revenue. Similarly, at the time of contracting the consumer ignores the price for additional units, and hence these are set simply to earn as much profit from the consumer as possible. In terms of our reduced-form approach, the additional price the firm charges amounts to the extra revenue collected from the fact that in some months the consumer calls more than expected. (To match the example more precisely, one would also need to take account of the fact that the consumer gets less utility than expected in months in which her demand is unexpectedly low and makes an excessive number of phone calls in these. We ignore these issues for simplicity.) Note that - at least if the consumer is aware of the high additional price - this optimal exploitative contract will also lead the consumer to withhold some demand in months in which she calls more than expected because once she signed the contract she is only willing to buy minutes of calling that she values above their marginal price. That is, the high additional price here leads to an inefficiency or exploitation costs  $k(a)$  that is increasing in the price per minute the firm collects for additional phone calls as a greater per minute price leads to more inefficient withholding on part of the consumer.

<sup>84</sup> Below we discuss what happens if some consumers are “sophisticated” in that they correctly foresee their future behaviour and others are “naïve” in that they are overoptimistic regarding memory in this example. The notation in the subscripts foreshadows this distinction.

so. In this case, they will fail to renegotiate with probability  $q_s - e$ .<sup>85</sup> In reality, however, consumers - in line with evidence by Ericson (2011) - are overoptimistic regarding their tendency to remember to renegotiate and do so only with probability  $q_N - e$ . In this example, the additional price is the unanticipated expected extra payment that the overoptimistic consumer ends up paying:  $a = (q_N - q_s)d$ . The distortionary cost  $k(a)$  is the cost of the effort the consumer exerts to ensure that she remembers and has time to renegotiate. The anticipated payment  $f$  is the payment for the first-period deal plus the expected second-period payment  $(q_s - e)d$ .

Importantly, while the level of the fixed fee, which is partially determined by the first-period deal, will depend on the intensity of competition in the market place, even in a perfectly competitive market firms will not offer efficient contracts (in which the second-period price is equal to marginal costs). This is not driven by the fact that consumers may forget to renegotiate but by the fact that they underestimate their likelihood to forget. If  $q_N$  were equal to  $q_s$ , firms would offer an efficient contract where the second-period price was equal to 0. This avoids consumers spending inefficient effort on remembering to renegotiate and thereby maximises the joint surplus (which equals profits  $f + a$  plus consumer surplus  $v - f - a - k(a)$ , i.e. total surplus is equal  $v - k(a)$ ). If the contract would not maximise joint surplus, the firm could offer the consumer the same level of utility with an efficient contract and thereby earn greater profits. But in market equilibrium, when consumers overestimate their probability of remembering to renegotiate, firms design their pricing in such a way that consumers indeed misestimate the price they pay in order to give the consumer a greater perceived utility at the time of contracting. Indeed, a perfectly competitive market maximises the consumers’ perceived utility from signing the contract subject to earning zero profits. As highlighted in the behavioural industrial organisation literature,<sup>86</sup> these features generalise beyond this highly stylised example.

Let us illustrate these features in our reduced-form model. If it costs  $c$  to serve a consumer, we can think of firms as choosing the prices  $f$  and  $a$  to maximise  $f + a - c$  in our model subject to the constraint of giving the consumer a certain level of perceived utility  $v - f - k(a)$  greater than some optimally chosen level that depends on the level of competition in the market place. In case the firm is a monopolist, for example, the firm cannot charge an anticipated price above  $v - k(a)$  as then the consumer prefers not buying, and so this optimally chosen level of the anticipated price is simply  $v - k(a)$ . In a perfectly competitive market, firms using the optimal exploitative contract must break even, which determines the perceived utility that can be offered to the consumer. More generally, this perceived utility level or outside option depends on the intensity of competition in the marketplace very much in the same way as it does in standard (classical) oligopoly models. Independently of the level of competition, however, the firm chooses the optimal additional price  $a^*$ , which satisfies  $1 = k'(a^*)$ .<sup>87</sup> In words, the benefit of raising the additional price by one marginal unit must equal the marginal exploitation cost of doing so. In a perfectly competitive market then  $f + a^* = c$  or  $f = c - a^*$ . Optimally exploiting the consumer’s misperception allows firms to sell to the consumer at an anticipated price below cost but - as in the waterbed discussion above - competition forces the extra profits to be handed back to consumers; in other words, the perfectly competitive market maximises the consumers’ perceived (rather than their actual) utility subject to firms breaking even.

Yet, there is no safety in the market in the sense that the exploitation cost caused by contract offers that are aimed at benefiting from the consumers’ systematic misperceptions are ultimately borne by consumers themselves. Hence, even with a complete waterbed effect, in this model limiting the

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<sup>85</sup> Technically, to ensure a simple interior solution we suppose that the convex cost function of effort satisfies increasing absolute convexity; see Lemma 3 in Heidhues and Köszegi (2017) for a mathematically equivalent model albeit with a different interpretation.

<sup>86</sup> For a detailed discussion of the literature on “hidden prices”, see Heidhues and Köszegi (2018).

<sup>87</sup> Formally, let  $u$  be the utility level the firm wants to offer to the consumer so that  $v - f - k(a) = u$ , or  $f = v - k(a) - u$ . Substituting this constraint into the firm’s profit function gives  $v + a - k(a) - c - u$ . Differentiating with respect to  $k(a)$  gives the result.

additional price - i.e. the firms’ ability to exploit the consumers’ misperceptions - benefits consumers. This highlights that exploitative contracting in itself can have detrimental efficiency properties, and hence regulation limiting consumer misperception can be beneficial even in perfectly competitive markets.

Returning to our two-period example with imperfectly-attentive consumers, our model predicts loyalty penalties even absent switching costs. Despite consumers being fully aware of the existence of the loyalty penalty, because consumers underestimate their probability of incurring the loyalty penalty, it is nevertheless profit-maximising for firms to use such inefficient loyalty penalties. Importantly, these inefficient loyalty penalties arise in a perfectly competitive market in which firms can commit to future prices. In the example, a regulation that reduces these loyalty penalties unambiguously increases total surplus.

### Introducing different types of consumers

So far, we focused on the simple case in which all consumers are identical. But naturally, consumers differ in their ability to navigate the marketplace and in their propensity to make systematic mistakes. One simple way to include this in our consideration is to adapt the model and suppose there are some consumers who perfectly understand the market and all contract offers, while others can potentially be deceived about how much they end-up paying when signing an offer. To use the terminology of the theoretical literature, suppose there are so-called naïve consumers - who make a systematic mistake in evaluating the contract - as well as sophisticated consumers who do not. Again, the term naïve consumers should not be taken literally; in many examples, naïve consumers need not be simple minded but just - for whatever reason - do not fully think through all the consequences of signing the contract or have some misperceptions (as the one regarding the variance in our mobile-phone example above). One possible case considered in the literature is that consumers can pay  $k(a)$  to avoid incurring the additional price and sophisticated consumers will do so, while naïve consumers expect to do so but at the end of the day forget to do so, and as a result end up paying  $a$ . In this example, both sophisticated and naïve consumers expect to get utility  $v-f-k(a)$  from signing the contract, but naïve ones end up getting utility  $v-f-a$ . Let  $\alpha$  be the fraction of naïve consumers in the marketplace; hence  $1-\alpha$  is the share of sophisticated ones. To find the optimal level of exploitation, note the firm chooses  $a$  and  $f$  to maximise  $\alpha(f+a)+(1-\alpha)f-c$  subject to the constraint that the consumer achieves some optimal level of perceived utility  $u$  (which as above depends on the intensity of competition), i.e. subject to the constraint that  $v-f-k(a)=u$ . Substituting the constraint into the maximisation problem and taking the derivative with respect to  $a$ , shows that the optimal additional price satisfies  $\alpha=k'(a^*(\alpha))$ . In words, the benefit of raising the additional price by one marginal unit must equal the marginal exploitation cost of doing so, and the marginal benefit is that the firm collects this increase in the additional price with probability  $\alpha$ . Hence, the more a firm anticipates to attract naïve consumer who make systematic mistakes, the more it will tilt its business model towards generating a high unanticipated additional price even if this comes at the cost of making the offer less efficient.<sup>88</sup> In a perfectly competitive market with a share  $\alpha$  of naïve consumers, firms break even when  $f+\alpha a^*(\alpha)=c$ , so the consumers’ perceived utility when signing an offer is  $v-c+\alpha a^*(\alpha)-k(a^*(\alpha))$ . Thus, again the competitive equilibrium maximises the consumer perceived utility at the time of contracting subject

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<sup>88</sup> This logic extends to the case in which both sophisticated and naïve consumers pay some cost  $k(a)$  that is increasing in  $a$  but can differ across groups. It also extends to the case in which the firm pays these costs when dealing with either type of consumers. In the case in which naïve but not sophisticated consumers pay these costs, or the firm incurs these costs *only* when selling to a naïve consumer but not when selling to a sophisticated consumer is the price independent of the share of naïve consumers. See the discussion in Heidhues and Köszegi (2018) for details.

to firms breaking even.<sup>89</sup> Importantly, the more naïve consumers there are (that is the higher  $\alpha$ ), the greater the consumers’ perceived utility. And because sophisticated consumers perceived utility is equal to the actual one they receive, sophisticated consumers benefit from the presence of naïve consumers. Intuitively, naïve consumers who pay the additional price are more profitable than sophisticated consumers. Because naïve consumers are more profitable, when there are more naïve consumers it becomes more profitable for firms to attract consumers, and hence they compete more vigorously for consumers, leading to better perceived offers. Taking the naïve consumers perspective is more difficult. When there are more naïve consumers, more of the additional revenue that firms generate from naïve consumers are handed back to naïve consumers, which tends to increase their utility. At the same time, when there are more naïve consumers firms focus more on exploiting them, which is bad for naïve consumers. As a result the net effect is ambiguous and depends on details of the model. But, as with switching-cost-reducing regulation in classic switching models, in this model regulation that limits the exploitation of naïve consumers due to waterbed-type effects hurts sophisticated consumers who in market equilibrium are cross-subsidised by more naïve consumers.

In Section 3.1, we have already discussed waterbed effects in the context of classical models. For very much the same reasons in behavioural market models with sophisticated and naïve consumers, waterbed effects can be limited. Among the reasons we discussed there are some that intuition suggests are likely to be important in markets with naïve consumers. If, for example, vulnerable consumers’ behaviour is more likely to be captured by that of naïve consumers in our model, this may be a reason for specific concern. Similarly, intuition suggests that sophisticated consumers who are better at navigating deals are often also better at finding good deals. If this is the case, firms lowering their price will disproportionately attract these less profitable consumers, which as before will reduce firms’ incentive to compete vigorously. In the context of loyalty penalties, for example, one would expect the firm that sets low prices to attract relatively more consumers who are likely to switch in the next period, thereby reducing the incentive to lower the price in the first place. There are also a number of contexts discussed in the literature in which the aim of exploiting consumers’ mistakes limits the anticipated price the firms can charge from below, leading to endogenous price floors on the anticipated price (see Section 2 in Heidhues and Kőszegi (2018) for a detailed discussion thereof). So in many behavioural industrial organisation models, there are additional reasons to presume that waterbed effects can be limited.

Our example allows to illustrate another important effect first discussed in Gabaix and Laibson (2006). Suppose firms in, say, a perfectly competitive market have access to what Heidhues and Kőszegi (2018) term an “education-favouring technology”: they can freely and credibly debias consumers about the existence of additional prices and thereby turn them into sophisticated consumers who avoid these additional prices. One may intuit that then a firm has an incentive to produce and price a product efficiently, educate consumers about it, and gain market share at the expense of firms offering an inferior product. But due to a curse of debiasing, this is not true in this setup. Educating consumers turns profitable naïve consumers into unprofitable sophisticated ones and hence is not beneficial to firms. Furthermore, as originally highlighted by Gabaix and Laibson (2006), these sophisticated consumers prefer to buy the product at cross-subsidised prices offered by competitors rather than at marginal cost. Importantly, thus, even when educating is free and credible, and even if the market is competitive, firms often have no incentive to educate consumers about their propensity to make mistakes.

In the reduced-form model discussion so far, sophisticated consumers can avoid the additional price. In some markets this is infeasible (or prohibitively costly). For example, in the mutual fund industry a consumer who purchases a managed mutual fund has to pay the yearly management fee. Arguably a large

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<sup>89</sup> Formally, choosing the contract terms  $f, a$  to maximise the perceived utility  $v-f-k(a)$  subject to zero profits, i.e.  $f+\alpha a=c$ , yields  $v-c+\alpha a^*(\alpha)-k(a^*(\alpha))$ .

body of evidence suggests that these managed mutual funds cannot generate higher returns than corresponding index funds in the same asset class, which in turn are much cheaper. Heidhues et al. (2016) capture this in a reduced-form model in which - when applied to the fund industry - managed mutual funds can charge an anticipated price (purchase fees) and an additional price (yearly management fees whose importance in reducing net returns investors underestimate). Based on regulations applying to the mutual fund industry that protect existing shares, they furthermore argue that there is a price floor of zero on the anticipated price. They then construct a market equilibrium in which sophisticated consumers who understand the importance of management fees avoid them and buy index funds, which are sold competitively. Naïve investors, however, invest into managed mutual funds and firms earn profits from these fees. Intuitively, when sophisticated consumers foresee but cannot avoid the additional price, they have no incentive to mimic naïve consumers.<sup>90</sup> That is, if the additional price is unavoidable, then in competitive market environments sophisticated and naïve consumers will often self-select.

Furthermore, due to the regulatory price floor, the management fees which managed mutual funds collect cannot be handed back to consumers in terms of a lower anticipated price, so there is no waterbed effect for naïve consumer even with many mutual funds competing for business. In addition, because the market for index funds is competitive, margins are low (indeed zero in the model), so index funds have little (or in the model no) incentives to engage in advertising to educate consumers. Managed mutual funds, despite selling an inferior product, on the other hand, earn a positive margin and hence have incentives to engage in advertising, paying commissions, etc. to steer consumers in their direction. At the same time, they will avoid educating consumers about the role of management fees because this will induce consumers to buy index funds, for which it is impossible to earn positive markups. As before, firms in the marketplace have little or no incentive to educate consumers. Indeed, the authors illustrate more generally that in the presence of price floors on the anticipated price it will be typically the inferior products that are sold profitably: roughly speaking, if a product sold with a deceptive feature were superior, then in a competitive market a firm could educate consumers about the deceptive feature and still profitably sell the product. The large gain in market share when doing so makes this attractive to a firm who has only a small market share, and with many firms some firm must have such a small market share. Again, firms selling the efficient product need not have an incentive to educate consumers because fierce competition in that market segment erodes profit margins. Furthermore, firms earning money by deceiving consumers can have considerable incentives to spend money on advertising or commissions in order to expand their market share.

We have not seen models of unavoidable additional prices being applied to the problem of loyalty penalties. But if switching in the second period is very costly for (most or) all consumers, yet some consumers when initially signing the contract do not realise that switching is prohibitively costly, such a type of model could be appropriate. One would then expect some consumers to sign efficient long-term contracts, while others, in the wrong presumption that they will be able to switch anyhow, choose contracts that entail a loyalty penalty. The extent to which such separation occurs is both theoretically and empirically interesting.

### **Firms confusing consumers**

Above we discussed firms' incentive - or lack thereof - to educate consumers. The flip side of this argument is that firms may try to confuse consumers, for example, by making it difficult for consumers to compare prices. Indeed, the observation that obfuscation can generate oligopoly power goes back to

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<sup>90</sup> Technically, the market equilibrium screens consumers according to their beliefs regarding future behaviour, leading naïve and sophisticated consumers to select different contracts in equilibrium. Such screening contracts are analysed in Eliaz and Spiegler (2006) as well as in Eliaz and Spiegler (2008).

at least Scitovsky (1950). Recall that when firms sell homogenous products, their margins in a transparent market are zero. If some consumers can be confused, however, they can be charged more than the best possible deal in the marketplace: so in the presence of confused consumers some profits can be earned. Extending this simple intuition, a series of papers document that as markets become more competitive, they can often become more obscure (see, e.g., Carlin (2009) and Chioveanu and Zhou (2013)). At the heart of these models is the observation that, absent confusion, as the market becomes competitive profit margins erode. As a reaction, to maintain margins firms have a greater incentive to make price comparisons difficult and focus on earning profits from the resulting inability of consumers to locate the best deal.<sup>91</sup> In such models, increasing transparency can increase competition for well-informed sophisticated consumers at the potential expense of more firms redirecting their business activity to exploit naïve consumers that can be confused. This is perhaps best illustrated in Gamp and Krämer (2018) in which firms can offer inefficiently low- or high-quality products in a market in which sophisticated and naïve consumers search for suitable products. Naïve consumers erroneously believe all firms offer high-quality products, and in the equilibrium of the model sophisticated consumers search until they find such a high-quality product, while naïve ones buy immediately. As search costs decrease, firms can earn less from offering a high-quality product, so margins of high-quality products erode. As a result, more firms start offering low-quality products to earn profits from exploiting naïve consumers.

Closely related, a common insight in this literature is that firms’ incentives to obfuscate in order to confuse consumers are greatest when offering a bad deal, and incentives to educate are greatest when offering an attractive one. The intuition is obvious: with a bad deal a firm must hope to find a confused consumer while a firm offering a great deal hopes that as many consumers as possible can identify it.

### Intermediaries

In many markets with loyalty penalties, consumers who are not experts may look for advice either in person or even online. A consumer looking to renew her mortgage may approach a mortgage broker, a household looking to invest for retirement a financial advisor, an individual that needs insurance an insurance broker or an online price comparison website. And a person looking to renew her energy contract may use an online platform to navigate the marketplace. These intermediaries are much more likely to be experts and, hence, potentially have the ability to steer the consumer to better products and better choices.

The academic literature on the topic, however, highlights that one should not take for granted that intermediaries or online platforms will induce consumers to take better decisions. First, firms may respond in their business model to the presence of the intermediary or platform. For example, evidence discussed in Ellison and Ellison (2009) suggests that sellers on an online website try to be ranked high by quoting low prices and then add high surcharges. Indeed, firms can respond to an increase in comparability by increasing their efforts to obfuscate prices (see, for example, the models in Carlin and Manso (2011) and Piccione and Spiegler (2012)). Second, as we discuss in Section 6.3.4, competition authorities and regulators found that price-comparison websites can mislead consumers. Third, papers in behavioural industrial organisation such as Murroka (2015) suggest that the presence of intermediaries - even when having the ability to educate or steer consumers in the right direction - may well lead to less rather than more transparency in the market and ultimately can hurt naïve consumers.

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<sup>91</sup> A countervailing effect is illustrated in Carlin and Manso (2011). They assume that firms have to pay a fixed cost to confuse consumers, and as more competition reduces a firm’s market share among confused consumers, it lowers the benefits a firm receives from confusing them.

More specifically, Heidhues and Kőszegi (2018) suggest that one can conceptionally think of intermediaries as offering different types of advice. The first type is identifying products that fit a person’s need - e.g. which asset class to invest in. If the consumer cannot identify this herself, such advice is potentially helpful, and while advisers may have little incentive to find the correct product, they also need not have strong incentive per se to mislead the consumer. The second type of advice is what product out of a given product class - e.g. which mutual fund out of those investing into the UK stock market - to select. Here, there will often be a direct conflict of interest. Advisers will have an incentive to direct consumers to that product, which pays them the highest commission. Investors, on the other hand, ultimately pay these commissions via fees or higher prices, and hence, as long as products in a given product class generate (basically) the same value otherwise, would like to find the product with the lowest commission. Versions of this logic are formalised in Murooka (2015) and Armstrong and Zhou (2011). In the latter paper, firms sell a homogenous product to consumers who may be influenced by intermediaries. Consumers are either sophisticated and well-informed or naïve in that they are uninformed and follow any advice given by an intermediary. Firms set both prices and commission rates for promoting their product that intermediaries (who do so) collect. Intermediaries, who cannot influence sophisticated consumers, focus on steering naïve consumers to the highest-commission-rate firm. In the resulting mixed strategy equilibrium, a high-price firm only attracts consumers via intermediaries and hence focuses on paying high commission rates. A low-commission firm, on the other hand, attracts informed consumers only, and hence prices aggressively to do so. As a result, commission rates are positively correlated with prices and intermediaries steer consumers towards from their perspective less desirable purchases.<sup>92</sup> In Murooka (2015) a transparent firm and a deceptive firm compete selling to consumers through intermediaries. The deceptive firm in his model sets an anticipated price  $f$  and an additional price  $a$  that naïve consumers ignore when not educated by intermediaries. Perversely, Murooka establishes that a deceptive equilibrium exists whenever the additional price is large, i.e. the scope for education by intermediaries to help consumers is sufficiently high. Whenever the additional price is high enough, a deceptive firm can pay a large commission to the intermediary for promoting its product who in that case prefers to sell a deceptive product to a smaller group of consumers rather than educating consumers to attract more demand. In essence, deceptive firms pay intermediaries to sell their “inferior” product. The resulting intermediary profits cannot be competed away since otherwise an intermediary would lose its incentive to mis-steer consumers. As a result, intermediaries do not just fail to debias consumers, but their ability to do so makes such payments for mis-steering necessary and thereby lowers consumer surplus.

Many online intermediaries like price-comparison websites are two-sided platforms. These platforms provide a marketplace where buyers and sellers can interact. Buyers usually benefit from more sellers on the platform and vice versa, and - as is well-known from the classic literature on platform markets<sup>93</sup> - two-sided platforms try to manage these cross-group network effects. By designing the marketplace appropriately, platforms could play an important role in helping buyers to get transparent information about the products they are looking for. For example, platforms could limit drip pricing<sup>94</sup> and insist that certain fees, like fees for shipping or check-in luggage are transparently disclosed, or use their search

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<sup>92</sup> If consumers would pay intermediaries a fixed fee, intermediaries would not have an incentive to offer biased advice. This raises the question why consumers do not select fixed-fee-based advice. In line with the evidence that fixed fee-based advice is rare, Inderst and Ottaviani (2012b) formally show that if naïve consumers fail to foresee that commissions influence intermediaries’ advice, market equilibrium does not give rise to a fixed-fee-based business model. See Inderst and Ottaviani (2012a, 2012b) for a more detailed analysis of financial advice.

<sup>93</sup> See Armstrong (2006), Caillaud and Jullien (2003), and Rochet and Tirole (2003) for seminal articles.

<sup>94</sup> Drip pricing is the practice of disclosing fees over the booking process. Buyers see a basic price when comparing products and learn about additional fees, like shipping fees or prices for add-ons and upgrades, later in the booking process. Johnen and Somogyi (2019) discuss a wide range of empirical evidence suggesting that drip pricing induces consumers to underestimate the total purchase price. Huck and Wallace (2015) study drip pricing in an economic experiment and find that it reduces consumer surplus by 22%.

algorithm to favour transparent sellers. But, as we discuss below in Section 6.3, policymakers seem to be increasingly concerned that platforms hide additional fees. Surprisingly, the extensive literature on two-sided platforms, however, does not explore the incentives of two-sided platforms to educate consumers about additional fees or investigate consumer deception more broadly. Indeed, we are unaware of any published paper discussing the issue. In recent work, however, Johnen and Somogyi (2019) take a first step towards investigating this issue. They study the incentive of two-sided platforms to hide additional fees that sellers set. This includes fees for shipping, product upgrades to a higher-quality product like a better concert seat, room service in hotels, or fees for check-in luggage. They show that the presence of two-sided platforms can lead to a less transparent marketplace. Intuitively, by designing the marketplace the platform can coordinate whether sellers’ additional fees are hidden or not. Without a platform, however, sellers can decide themselves whether to hide additional fees, allowing them to compete in transparency. For example, when all rivals hide fees, an individual seller can debias consumers and make them aware of these additional fees to attract extra consumers. The platform, in contrast, can hide sellers’ fees, e.g. by using drip pricing, to prevent this competition in transparency, and it can indeed have an incentive to do so. Hiding some seller fees makes the platform appear cheap to naïve buyers, which attracts more buyers to the platform, and more buyers - due to cross-group network effects - attract more sellers as well, increasing the platform’s revenue from fees.

For the context of loyalty penalties, this suggests that even though platforms have the potential to activate consumers by facilitating price comparison and by transparently disclosing information to consumers, they - depending on market circumstances - may have an incentive to do the opposite. As a result, despite the fact that price-comparison platforms have reduced search costs and enabled switching in many markets, one cannot rely on unregulated platforms to always induce transparency and activate consumers.

In the context of loyalty penalties, an important limitation of the current literature in behavioural industrial organisation is that existing models almost exclusively focus on situations in which consumers and firms contract at most once. Given that loyalty penalties arise from different behaviour over time, this severely limits the insights these models can give policymakers. We return to these issues in Section 4.5 and discuss exceptions to the once-and-for-all contracting assumption.

We conclude by summarising the main lessons with regards to loyalty penalties:

- The literature on behavioural industrial organisation has not analysed loyalty penalties explicitly.
- When some consumers make systematic mistakes, perfectly competitive markets typically maximise the consumers’ perceived (rather than their actual) utility subject to firms breaking even. As a result, regulation that limits consumers’ misperception can be beneficial even in perfectly competitive markets.
- If sophisticated consumers can avoid the additional price, they pay less than naïve consumers, and naïve consumers cross-subsidise sophisticated ones. Regulation that limits the exploitation of naïve consumers may, due to waterbed-type effects, hurt sophisticated consumers who in market equilibrium are cross-subsidised by more naïve consumers. There are, however, additional reasons (to those discussed in Section 3.1) to presume that waterbed effects are often limited when some consumers make systematic mistakes. In addition, if the behaviour of vulnerable consumers is more likely to be captured by that of naïve consumers in the model, the resulting cross-subsidisation is undesirable.

- If the additional price is unavoidable, then in competitive market environments sophisticated and naïve consumers will often self-select. If, as is reasonable in some markets, there is a price-floor for the anticipated price, firms may earn positive profits through selling inferior products to naïve consumers, while earning competitive profits from sophisticated consumers. In this case, firms earning money by deceiving consumers can have considerable incentives to spend money on advertising or commissions in order to expand their market share.
- Even when educating is free and credible and markets competitive, firms often have no incentive to educate consumers about their propensity to make mistakes.
- The ability to confuse consumers through obfuscation may often be a source of profits. Increasing transparency can increase competition for well-informed sophisticated consumers at the potential expense of more firms redirecting their business activity to exploit naïve consumers.
- Literature on how market transparency depends on intermediaries and especially platforms is still scarce. But existing theoretical results suggest that intermediaries or price-comparison platforms need not reduce the incentives to sell products deceptively and at high prices.
- Literature on market transparency mostly allows for firms and consumers to contract only once. Dynamic issues that are likely to be important in the context of loyalty penalties have thus not been fully addressed.

#### 4.4 Consumer Types: Characterisation in the Literature and by Regulators

The last section illustrates that consumer misperceptions are generally important for understanding market outcomes. While the literature, which to date typically ignores recontracting, has not explicitly analysed loyalty penalties, we already illustrated that richer models of consumer behaviour can give natural novel explanations for loyalty penalties in a simple example. More generally, one may wonder whether abstracting from a richer model of consumer behaviour leads researchers to miss important reasons for loyalty-based pricing.

Indeed, especially in the context of loyalty penalties, UK regulators are well aware that consumer behaviour may differ from the classical model. As a result, various richer characterisations of consumer behaviour have been developed by regulators in order to better understand market outcomes. While regulators think of these behavioural types as coexisting in the marketplace, the theoretical behavioural industrial organisation literature typically focuses on one behavioural aspect at a time. The reason is presumably that at this early stage of the literature, theoretical models are meant to give insights on some crucial behavioural aspects in the market rather than fully modelling a particular market. One would hope and perhaps even expect that these two different views come together in the future as more applied behavioural industrial organisation papers emerge. Nevertheless, we think it is useful to compare how these different aspects of consumer behaviour discussed in the literature and by regulators relate to each other.

As an example, Ofgem (2018) characterises energy consumers into six categories as illustrated in Figure 3, which is based on Ofgem’s Consumer Engagement Survey 2018 covering a (representative) sample of 4,064 energy consumers. Broadly speaking, consumers are differentiated by whether they actively “engaged” with the market by at least comparing offers. In addition, consumers are distinguished through how confident they are in their ability to navigate the marketplace and how much they trust suppliers

and/or price comparison websites, as well their expectation regarding how easy and beneficial the switching process is.

Figure 3: Energy customer characterisation

Segment name	Segment size % of population in 2018	% engaging with energy market in Past 12 Months	Segment summary
<b>Happy Shoppers</b>	19%	61%	They enjoy shopping around in all markets, motivated by finding ways to save money. They are confident, trusting, engaged with the energy market and positive about switching.
<b>Savvy Searchers</b>	13%	62%	They are highly confident and engaged across all markets, and broadly positive about energy switching. However, they are skeptical about the role of PCWs, often using more than one site to compare. Ultimately they are confident they are on the right deal.
<b>Market Sceptics</b>	11%	42%	They have very low levels of trust in energy companies, and a lack of confidence engaging with the energy market. This contrasts with their relatively high levels of engagement in other markets, and average levels of general confidence and self-efficacy.
<b>Hassle Haters</b>	21%	29%	They are confident in their ability to engage in the market, and broadly trusting of suppliers. They are deterred, however, by the perceived time, hassle and risks involved. They feel they are on a good deal despite their lack of engagement, but might be tempted by added-value services.
<b>Anxious Avoiders</b>	16%	34%	They have very low self-efficacy and lack confidence in shopping around generally and specifically in energy: reflected in low levels of engagement across all markets. They are far less likely to spend time researching purchases or finding ways to save money.
<b>Contented Conformers</b>	20%	23%	They are broadly happy with the status quo, trusting their supplier. They are nervous of change, worried by the risks of switching, unknown suppliers and overwhelmed by choice. They are the least confident engaging with the energy market and least motivated by saving money or added-value services.

Source: Consumer engagement in the energy market 2018, Ofgem (2018), p. 7. © Crown Copyright, 2018. Contains public sector information licensed under the Open Government Licence v3.0. To view this licence, visit <http://www.nationalarchives.gov.uk/doc/open-government-licence/>

Ofgem (2018) complements the categorisation above with a discussion of what negative consequences of switching consumers are concerned with, which we return to in Section 4.6. Importantly, however, consumers differ in what negative consequence they anticipate, and many of these are hard to capture with a classic model.

Similarly, in conversations with the CMA, the following grouping of consumer types emerged, which also goes beyond features captured in classic models. To allow us to compare the concerns of regulators resulting from non-classical consumer behaviour with those analysed in the behavioural literature, we list also this “CMA grouping”.

1. Consumers who are inactive because they cannot or would not effectively engage with this market even if “negative” practices were removed through regulation.
2. Consumers who are inactive due to “negative” practices in the market but would engage if these were removed.
3. Consumers who are active but are not sure they are getting a good deal because of the “negative” features of the market.
4. Consumers who are active and are confident they are getting a good deal despite the “negative” features of the market.

Much of the classic literature on behaviour-based price discrimination and switching costs abstracts from informational frictions. This also means that consumers do not have scarce cognitive capacity and, in every market, are perfectly attentive to their market environment. These articles mostly capture group four of active consumers who understand markets and products perfectly.<sup>95</sup> Almost by definition, deceptive practices of firms are no concern in those papers because consumers cannot, by assumption, be systematically misled.

Much of the classic literature on consumer search, as introduced briefly in Section 3.5, considers informational frictions. In early articles like Varian (1980), consumers are either inactive (which resembles the anxious avoiders and contented conformers in Ofgem’s categorisation and group 1 in the listing above) or active (which best resembles happy shoppers and savvy searchers<sup>96</sup> in Ofgem’s categorisation and group 4 in the listing above). At least since Stahl (1989), a number of papers include consumers that choose to search (become active) or not (be inactive) in an optimal way. As we discuss in Section 3.5, a key implication of such consumer behaviour is that firms may “compete for inattention”, i.e. set prices just low enough to prevent consumers from becoming active. Thus, many articles on consumer search consider active and inactive consumers and model how consumers choose optimally to become active as a response to firms’ prices. Since most articles consider exclusively fully rational consumers, however, they do not naturally capture the notion that some actual consumers lack confidence or are unsure or confused about what deals they can get. These search articles, thus, do not seem to capture important aspects of consumer groups 2 and 3 from the listing above, who may be completely inactive or avoid some sellers because they are either confused by or suspicious about the deals firms are offering. Similarly, hassle haters and market sceptics can be thought of as not being active because the search costs are too high. At the same time evidence indicating that consumers worry about the deal they may find (see Section 4.6) suggests that important aspects are missing from the classic literature.

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<sup>95</sup> An exception is, for example, Chen and Zhang (2009) which we discussed above. They study behaviour-based price discrimination in a duopoly model and include consumers that only value one firm’s product. These consumers would rather not buy at all than buy from a rival. Effectively, these consumers only consider one product, so we could also interpret them as inactive consumers as in group one.

<sup>96</sup> Admittedly, classic models do not capture why some consumers trust price comparison websites while others do not. But independently of the way the consumers search, both are actively engaged in the marketplace.

We conclude that classic models mostly focus on (fully rational) active or completely inactive consumers (groups 1 and 4). Going slightly beyond the grouping above, models of consumer search also investigate a choice of whether to become active (which may be considered a novel group but is partly captured by the Ofgem characterisation). An immediate implication of the understanding assumed in these models is that they cannot inform the discussion of whether firms actively contribute to consumer misunderstandings by purposefully providing confusing or misleading information and how such behaviour of firms can lead actual consumers to remain inactive or induce them to make suboptimal choices.

We next discuss how existing behavioural models capture these groups.

A class of behavioural models seem to capture important aspects of consumer group 3, i.e. a consumer type who is active but possibly misperceives features of the deals available. These models allow explicitly for multi-dimensional prices and consumers who focus too much on some price components but not on others. Examples are Gabaix and Laibson (2006) and Johnen (forthcoming) that we discuss in Sections 4.3 and 4.5. In these models consumers may misunderstand the deal they get and underestimate the total price they pay.<sup>97</sup> This captures systematic consumer misperceptions, which seems an important aspect of consumer groups 2 and 3. Most articles, however, focus on “naïve” but active consumers and rather apply to groups 3 and 4.<sup>98</sup> In addition, there is a literature that discusses consumer confusion and how it interacts with firms’ behaviour, discussed in Sections 4.3 and 4.5. Again, confusion leads these consumer types to make suboptimal choices in line with consumers of type 3 above (see, e.g., Carlin (2009), Carlin and Manso (2011), Chioveanu and Zhou (2013), and Piccione and Spiegler (2012)).

Based on this summary of the literature, also consumers of group 2 received little attention in classic models, i.e. consumers who are discouraged by mistrust or confusion about adverse business practices. Some behavioural models, however, take a first step towards studying such inactive consumers. First, some articles investigate the incentives of firms to use price frames that confuse consumers and thereby induce consumers to become inactive (Bachi and Spiegler (2018)). Second, some articles study behavioural biases that lead consumers to remain inactive in some market environments. For example, consumers may be inactive because they do not pay attention to the opportunity to switch to another service provider or because they procrastinate switching. These behavioural models (see, e.g., DellaVigna and Malmendier (2004), Johnen (2019), and Murooka and Schwartz (2018)) study how firms use automatic renewal contracts, rollovers, and switching costs to exploit these biases. We discuss them in more detail in Section 5.3. Karle and Schumacher (2020) provide an alternative, loss-aversion-based account for why consumers stay inactive even when knowing that there are better deals provided by competitors.<sup>99</sup>

Most existing work does not capture notions of mistrust, i.e. that consumers misunderstand some product aspects, but they are at least partially aware of it, and how mistrust may influence how active or inactive

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<sup>97</sup> These behavioural types naturally match into contented conformers who trust they get a good deal even though better offers are available. But they may also end up as hassle haters or market sceptics in Ofgem’s categorisation, despite making incorrect choices.

<sup>98</sup> In the context of consumer search, Armstrong and Chen (2009) and Gamp and Krämer (2018) study markets where some consumers shop based on price alone, while others can also distinguish qualities offered by firms. Also these models mostly capture groups 3 and 4.

<sup>99</sup> Karle and Schumacher (2020) investigate an oligopolistic market in which consumers’ search behaviour is derived from expectation-based loss preferences (Kőszegi and Rabin (2006)). They illustrate that such consumers - despite rationally foreseeing the outcomes of their decisions - can have an incentive to avoid searching even when knowing that searching will result in finding a deal that is better in some dimension and no worse in all dimensions for sure. The reason is that upon becoming active, the consumer feels a loss in those dimensions in which the searched deal turns out to be worse than other they could have been finding, and merely a gain in dimensions in which the deal is better than others. Remaining inactive, on the other hand, allows consumers to commit to anticipating to receive the deal they expect and hence avoid the feeling of losses.

consumers are (feature of group 2 above). A first step in this direction is Heidhues et al. (forthcoming). Among other things, they discuss the notion of asymmetric shrouding, i.e. that consumers may know what they get from their legacy provider, but even when looking at a new rival’s contract offer, the details of that offer remain unclear to them. Consumers do not buy from rivals because they cannot grasp negative product aspects when products are too complex to be fully understood and fear that rivals may take advantage of this fact. As a result, consumers may stick to their legacy provider, because they better understand what they get. We discuss this article in more detail in Section 4.6.

We conclude by summarising the main lessons:

- Classic models mostly focus on active or inactive consumers that are rational in that they have correct expectations about what they can get in the market.
- Some behavioural models capture important aspects of groups 2 and 3 in the suggested characterisation above. Models, however, tend to focus on at most two groups of consumers in the marketplace.
- Most existing work does not capture notions of mistrust that some regulators discuss, i.e. that consumers misunderstand some product aspects, but they are at least partially aware of it, and how mistrust may influence how active or inactive consumers are.

## 4.5 Allowing Products to be Complex

A major challenge for studying simple versus complex products is that “simple” is not clearly defined in models. This might also be a reason why theory makes few predictions about choice tools that simplify choices or the effects of simplified contracts, products, or price structures.

Yet much of the classic literature considers products that appear simple in at least two ways. First, products have only one price, and consumers are never confused about the actual price they pay or the value they get. Second, products in a consumer’s consideration set are easy to compare.

### Complex product features

We begin discussing the first limitation. Many classic models feature products with one price. They do not capture more complex products with multiple fees like cell-phone contracts, insurance contracts, or financial products that may also have loyalty penalties. A key implication of products with a single price is that conditional on purchase and absent price discrimination, consumers are equally profitable to the firm in any given period.

Some articles like Ellison (2005) study more-complex products where some consumers buy an add-on, while others only consume a base product and are less profitable to the firm. But this complexity does not confuse consumers in the sense that in equilibrium consumers make no mistakes and correctly expect the costs of each product.

Products for which loyalty penalties have been observed like cell phones, insurance contracts, or financial products are complex and may be difficult to fully understand. Consumers may be confused about the actual price they pay as well as the exact benefits they get. Thus, understanding the role of consumer misperceptions and confusion seems important in the context of loyalty penalties. Indeed, one potential difference between healthy discounts and loyalty penalties seems to be consumer ‘confusion’ in the sense

that consumers can be unaware of or underestimate the loyalty penalty they pay. For example, consumers may underestimate loyalty penalties or overestimate the prices of alternative offers and not compare enough as a result, or they may simply mistrust other offers of complex products that are difficult to fully understand. In practice, consumers’ misperception about loyalty penalties may be exacerbated through false or misleading statements by firms. For example, CMA (2018) finds that some firms misrepresent the extent of a price increase or incorrectly tell consumers a given deal is the best one possible, even when willing to renegotiate once the consumer refuses it. Similarly, firms may “misstate the process needed to exit a contract” (CMA (2018), p. 111). Such practices can increase the tendency of consumers to refrain from switching. Similarly, as in our simple example in Section 4.3, consumers may overestimate their future tendency to switch, which firms then optimally exploit in market equilibrium. Arguably, classic models, by abstracting from these types of effects, mostly capture healthy introductory discounts that consumers correctly understand and anticipate.

One could explore the extent of consumer confusion about loyalty penalties empirically by asking consumers for what price difference they would be willing to switch and compare this with the price premium they actually pay (current price - best equivalent deal). Although more involved, as we discuss in Section 4.7, one may also try to compare consumers’ selection among contract with different future price increases to see whether consumers correctly forecast their future switching behaviour.

As discussed in Section 4.3, some behavioural models assume types of consumers who do not fully understand all product or contract features.<sup>100</sup> These consumers might make costly mistakes and underestimate the total product price. Many models have the following aspects in common: products have a base price and an additional fee. Sophisticated consumers pay the base price and take precautions not to pay the additional fee. Naïve consumers are misled about the existence of additional fees, capturing that some consumers do not fully understand all product features. These so-called naïve consumers underestimate either the add-on fee or their own future demand for add-ons. Consider cell-phone contracts as an example. Sophisticated consumers in the model take precautions and optimally use a contract. They anticipate large roaming fees and buy an extra package or sim card for cheap calls abroad, and they make sure not to buy extra data after their monthly data-allowance is used up. Naïve consumers in the model do not take these precautions, either because they believe that roaming or extra data are cheaper than they actually are, or because they underestimate their future demand for these services. As a result, naïve consumers are more profitable for the firm, but underestimate their expenses for a product. Alternatively, in line with our example in Section 4.3, naïve consumers in the model may overestimate their tendency to switch after the initial contract - whose monthly fee covers the cost of a new phone - runs out, and continue to pay high monthly fees while sophisticated consumers are not mistaken about their probability to cancel the contract.

The literature starting with Gabaix and Laibson (2006) focuses mostly on situations in which consumers sign a contract at most once and thus cannot fully capture loyalty penalties. An exception is Johnen (forthcoming). He studies behaviour-based price discrimination in a market in which firms learn over time which of their past customers are more profitable (i.e. naïve types). This allows firms to target previously naïve- and sophisticated customers with different contract offers.<sup>101</sup> By having more information about their past customers, legacy providers have an informational advantage in predicting their profitability.

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<sup>100</sup> See Heidhues and Koszegi (2018) for a survey of related articles.

<sup>101</sup> In contrast, as we discuss in Section 3.3, the classic literature on behaviour-based price discrimination focuses on price discrimination between previous and new customers but not on price discrimination between different types of existing or previous customers.

Indeed, a key feature of this article is that it explores behaviour-based price discrimination when, conditional on purchase and price, some customers are more profitable than others.

Even though firms sell homogeneous products, targeting prices to previously naïve customers increases equilibrium profits. The reason is that retention discounts to more-profitable naïve customers mitigate competition. More precisely, firms target retention discounts to the more-profitable naïve consumers but not to sophisticated ones, making sophisticated consumers more prone to switch to rivals. These rivals, however, anticipate that they are more likely to attract less-profitable sophisticated consumers and respond by competing less fiercely. Retention discounts to more-profitable naïve consumers reduces competition and increases profits.

Retention discounts make products appear cheap to naïve consumers, but only because they ignore the additional fees they pay. Naïve consumers incorrectly “believe” to get a good deal. But they make suboptimal choices and do not recognise advantageous offers with lower additional fees. Such a market will not only exhibit loyalty penalties for naïve consumers but will also be characterised by a lack of competition overall, leading to a poor outcome for customers.

Why are these results important to understand the impact of price discrimination for loyalty penalties? As we discussed in Sections 3.2, 3.3, and 3.4 on behaviour-based price discrimination with switching costs or brand loyalty, price discrimination reduces profits when cross-price elasticities are large. Johnen shows that even with homogeneous and highly substitutable products, behaviour-based price discrimination can raise profits when i) some naïve consumers are more profitable than sophisticated ones conditional on purchase, and ii) firms have an informational advantage in targeting offers to their previous customers.<sup>102</sup> In these cases, price discrimination reduces competition despite large cross-price elasticities.

Policies can take at least two paths in this context: consumer education or influencing price discrimination:

- Helping naïve consumers to better understand products allows them recognise better offers and encourages competition in the model. Education, however, can have unintended consequences in the model if it induces a more balanced customer base for firms and thereby increases the value of information about consumers. Intuitively, when almost all consumers are either naïve or sophisticated, the firm has only a small informational advantage relative to its competitors. If the customer base is more balanced, competitors are highly uncertain as to what type of consumer they are facing.
- In terms of price discrimination, both regulation that induces either more or less price discrimination than in the unregulated benchmark encourages competition in the model. Recall that legacy providers have an informational advantage over their previous customers and can therefore better target customers. Policies can level the playing field by inducing a more symmetric ability to target consumers. First, banning price discrimination mitigates the informational advantage of the legacy provider and thereby induces fiercer competition. Second, enforcing information sharing about previous behaviour allows rivals to also price discriminate and thereby induces fiercer competition in the model.<sup>103</sup> As we discuss in Section 6.2.1, Ofgem trialled a potential policy that implicitly affects firms’ ability to target different types of consumers. Their intervention informs consumers about the

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<sup>102</sup> Firms’ ability to collect and process large amounts of data in the future may enable them to even better predict the future profitability of past customers. In principle, the competition-limiting informational advantage could also derive from other data sources that only one firm can assess.

<sup>103</sup> See also our discussion on data sharing in the context of enabling price comparison websites in Section 6.3.4.

best offer available to them, based on their own individual characteristics. In as much as all consumers follow the advice given - or stepping outside of the formal framework naïve and sophisticated consumers follow the advice to the same degree -, this allows each firm to target consumers based on the same set of characteristics only (we discuss these Ofgem trials in detail in Section 6.2.1.) Johnen’s results suggest that such a policy may reduce the risk of firms to adversely attract less-profitable consumers, which encourages competition.

### Limited comparability of products

We now turn to the second limitation, namely in many classic models the products in a consumer’s consideration set are easy to compare.<sup>104</sup> Some relatively recent articles (Carlin (2009), Chioveanu and Zhou (2013), and Piccione and Spiegler (2012)) study competition when firms can choose price frames to influence price comparability. Firms choose price frames, i.e. how to depict prices, to facilitate comparisons or make them harder. For example, firms may vary the packaging size (pint cans versus half liters) or choose complex add-on prices or contract descriptions to make price comparison more difficult. Piccione and Spiegler (2012) work out a potential caveat of interventions like choice tools aimed at facilitating price comparisons. Increasing comparability in one market segment may encourage competition in this segment but induces firms to focus more on other more-profitable market segments. For example, interventions that facilitate comparison between fixed-rate mortgages induce competition for fixed-rate mortgages but may induce firms to offer and advertise more variable-rate mortgages instead, which are even harder to compare but whose profit-margin is less affected by the policy change. In as much as consumers can be convinced to switch to variable-rate mortgages by the fact that they are more often sold and advertised, the overall effect could be detrimental for consumer surplus.

This caveat applies more generally in behavioural market models as well as some others with switching costs: making one market segment more competitive, reduces the profits firms can obtain in that segment, thereby inducing firms to focus on other market segments. For example, facilitating price comparisons intensifies competition for switchers able to identify the best deal and thus reduces the profit-margin in this market segment. As a result, more firms focus on exploiting those consumers who make suboptimal switching decisions (or for whom switching is very costly) and thus do not find the lowest-cost deal. As more firms do so, these types of consumers are more likely to select a suboptimal deal and this can worsen the outcome for such consumers.<sup>105</sup> Going beyond existing results, having not benefited from switching in the past or in other markets may discourage such consumers from switching altogether, increasing margins from loyal consumers.

We conclude by summarising main lessons with regards to loyalty penalties:

- What makes products “simple” to understand is often not clearly defined in models. Classic models consider products that are simple in two ways: they have a single price that consumers fully understand, and products in a consumer’s choice set are easy to compare. This often does not reflect

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<sup>104</sup> In a lab experiment, Kalayci and Potters (2011) and Kalayci (2011, 2015) find that adding product attributes or add-on prices to products confuses consumers and can lead to suboptimal choices.

<sup>105</sup> These predictions are in line with pricing of drug-patent holders whose patents run out as well as the consumer in that market place. After patents run out and generic-drugs become available on the market, former patent holders often increase prices (see, for example, Caves et al. (1991), Frank and Salkever (1997), Hurwitz and Caves (1988), Ito et al. (forthcoming) for evidence). Furthermore, Ito et al. (forthcoming) provide evidence that the slow adoption of generic drugs is mostly driven by consumer inertia and consumers with strong brand preferences.

the ‘reality’ of many markets in which loyalty penalties arise, as for example those for essential services in which pricing is non-linear.

- Behaviour-based price discrimination between more profitable naïve and less profitable sophisticated consumers can reduce competition, even when firms sell homogeneous products. Such a market features loyalty penalties and a lack of overall competition. A key issue is that firms have an informational advantage over their previous customers. Banning price discrimination or facilitating rivals to target prices mitigates this advantage and encourages competition.
- In the presence of consumer ‘mistakes’, even firms without market power can price discriminate.
- Making one market segment more competitive reduces the profits firms can obtain in that segment, inducing firms to focus on other market segments. As a result, increasing transparency can hurt inert consumers.
- Regulation that facilitates comparison may induce firms to focus on offering even more complex price frames to avoid the increased competition. The literature, however, provides only stylised examples (with exogenous search protocols) in which endogenous response dominates, so increasing transparency induces less comparability and competition when taking the firms’ response to the policy into account.

## 4.6 Allowing Mistrust in Firms (and Their Offers)

*“Consumers rightly feel ripped off, let down and frustrated. They should not have to be constantly ‘on guard’ or spend hours negotiating to get a good deal. This erodes peoples trust in markets ...” (CMA (2018, p. 5) in response to the super-complaint.)*

We emphasised in Section 4.2 that empirical measures of consumer inertia can be driven by literal cost of changing suppliers or various behavioural mechanisms. While some estimates in the academic literature highlight the potential role of limited attention, our understanding of what keeps consumers from taking what seem like extremely favourable switching opportunities is still very much limited. But it is likely to be at least partly driven by factors other than classical switching or search costs.

One approach, taken for example by Ofgem, is to ask consumers about what drives their switching behaviour. Regarding the question of why consumers do not switch away from their legacy electricity provider, Ofgem (2018) finds that 65% of consumers in a representative sample of energy consumers mentioned “any risks” in switching suppliers.<sup>106</sup> The most common concerns of consumers is that “Costs might go up” or that they “Might not save as much as they thought”. Somewhat less frequent concerns are that a switching consumer may get billed twice, the consumer’s service is interrupted, or that the new supplier goes bust. Consumers worry that they may be caught up in a bad deal and as a result are likely to be willing to incur a loyalty penalty.

What then drives consumers’ distrust regarding that costs may go up? Economists are well aware that economic exchange requires some trust (see, e.g., Arrow (1972)), but classical industrial organisation

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<sup>106</sup> Question: “What, if anything, do you think might be the risks associated with switching energy supplier?” Representative sample of 4064 consumers, see Ofgem (2018, p. 28).

models of distrust in markets focus mainly on firms offering unobservable low quality products.<sup>107</sup> Yet, the Ofgem study focuses on the electricity market in which all firms sell a (basically) identical product. In practice consumers, furthermore, may worry about the price they end up paying. Given that contracts are enforceable in courts, this is surprising when considering consumers with unbounded rationality who studied an alternative offer and understand its price. In such models, consumers could of course be discouraged from paying search costs when many alternative offers are worse and so expected savings are low, or search and switching costs are very high; but in a market in which the legacy deal is worse than most alternative offers, and savings can be substantial, this sounds like an unlikely explanation. Consumers with correct beliefs should not be dissuaded from searching, and they should not be worried about an alternative deal that they are assumed to understand upon finding it.

When consumers cannot easily understand contract offers and have only limited time or attention available to study these, on the other hand, these worries consumers have in practice make perfect sense. Heidhues, et al. (forthcoming) develop a simple search model to capture limited attention of consumers and investigate the resulting implication for competition and regulation. The main premise of their paper is that because consumers’ attention is limited, consumers need to choose what to pay attention to. In particular, when facing complex or complexly-priced products, they need to decide how much attention to spend on understanding the deal they are being offered. This introduces a novel tradeoff: consumers can either look at many products more superficially or understand fewer products more carefully.

Formally, in the simplest setting they consider, firms with constant and identical marginal cost of production offer a homogenous product to identical consumers. The firms can split their price into two components, a headline price consumers observe as soon as they become aware of the contract and an additional price that consumers learn only if they choose to study a firm’s contract offer in detail. Consumers can observe exactly two prices: that is, either two headline prices or the headline price and the additional price of one firm. Given this attentional constraint, however, consumers search optimally. In this simple example, absent regulation bounding the additional price, firms in equilibrium charge monopoly prices. If consumers would not study, firms could always raise the additional price to exploit consumers. Consumers, hence, must spend their cognitive resources studying, which keeps them from looking up an alternative offer. And a consumer who studies is willing to buy as long as the total price does not exceed her valuation, that is, if the price is weakly below the monopoly price.

They then illustrate the power of regulation by considering what happens if the maximal additional price firms can charge becomes regulated.<sup>108</sup> In the presence of this regulation (under weak equilibrium selection assumptions) the market outcome is the perfectly competitive one. Regulation induces competition in the example for two reasons: given a regulatory upper bound on the additional price, a consumer can trust that the deal she is being offered must be good when the headline price is sufficiently low. Second, regulation allows consumers to redirect their attention from studying to protect themselves from undesirable surprises post purchase to comparing offers from different firms (“browsing”), which induces competition.<sup>109</sup>

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<sup>107</sup> See, for example, the literature in credence goods summarised in Dulleck and Kerschbamer (2006) or the literature on reputation in markets (for a textbook treatment, see Triole (1988)).

<sup>108</sup> Indeed, in this stylised example regulators could impose a maximal additional price that is greater than that in the unregulated equilibrium. Despite the fact that the regulation is neither binding at the pre-regulation equilibrium nor restricts total prices firms can set at all, it induces the perfectly competitive outcome. In more realistic settings, however, the regulation of the additional price needs to be sufficiently tight.

<sup>109</sup> The authors also highlight that regulating the additional price does not have the search-incentive-reducing effect that regulation of the total price has (see our discussion of Armstrong et al. (2009) in Section 3.5).

As the authors argue, the upper bound on the additional price can be thought of as any type of regulation that protects consumers against unanticipated prices post purchase. They discuss a number of applications including (food) safety regulations, strict liability, as well as EU regulation of unfair contract terms, all of which can be interpreted as limiting unpleasant surprises post purchase and thereby facilitating competition.

For the context of loyalty penalties, a variant of the example the authors refer to as “asymmetric unshrouding” is also instructive. In that example, the authors suppose that the consumers can observe the headline price as well as the additional price of one firm - for example, consumers know the terms of their existing contract - but due to limited attention (which could be alternatively interpreted as limited ability to fully comprehend complex alternative offers) can only observe the headline prices but not additional prices of alternative offers. The authors then illustrate that there is a natural equilibrium in which, due to a rational lack of trust, competition fails: because consumers cannot observe the total price of alternative offers, firms can trick them with large additional prices. Consumers realising this, prefer to continue buying from the firm whose price they observe. Hence, when consumers lack trust in their understanding of alternative offers, competition can completely break down in this example. Going beyond the basic example, especially consumers who cannot afford paying a surprisingly high price, may be reluctant to shop around absent regulations that ensure they cannot be exploited.

While their model focuses on a single market, limited attention becomes even more important if consumers have busy lives that involve sometimes complicated choices in many markets. But it also makes regulation more difficult: if consumers need to carefully study regulation in each market they are active in, little attention is saved. Consumers, ideally, would know they can trust offers and are safe to browse in many markets, allowing them to focus attention on few markets in which studying may be necessary. On the other hand, broad regulation across many markets can have beneficial effects not only in the regulated market but - by freeing attention - can also generate a positive externality in other markets. A formal model investigating these issues in more detail, we believe, would be helpful.

Similarly, speculating beyond existing results, it seems natural that a consumer who has a particularly bad experience in one market following the decision to switch - say the large upfront payment in the selected contract just to find that the firm goes bankrupt<sup>110</sup> - will become more reluctant to look for alternative offers in other markets. Even if regulation eliminates such business models, non-expert consumers may not become aware of this fact and remain reluctant to switch given their own bad experiences or stories from friends of how switching went wrong. On the other hand, if consumers associate their bad experiences with a given firm, and this firm gets known for delivering bad service, there is the possibility that firms want to invest into a good reputation that they are trustworthy (see, e.g., Klein and Leffler (1981) or Tirole (1988) for textbook treatment).

Finally, going well beyond the simple example, consumers’ trust in the functioning of markets is important more generally. If consumers feel that they are constantly getting a bad deal, they may lose faith in market-based allocations.

We conclude by summarising the key lessons with regards to loyalty penalties:

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<sup>110</sup> This example is based on the personal experience of one of the authors in the German gas market. The author - being a naïve consumers - simply did not consider the possibility of bankruptcy when trying to find the best deal.

- In homogenous goods markets, the classic literature does not easily capture the observed consumer mistrust in competing offers. Limited attention or ability to read complex contracts, however, can explain this phenomenon.
- Regulation that limits how much consumers can be exploited post purchase can increase trust in the market and foster competition.
- Consumers with limited attention, however, may not benefit much from market-specific regulations they need to study.

## 4.7 Healthy Discounts vs Unhealthy Loyalty Penalties?

We argue in Section 4.1 that classic models provide little guidance on how to distinguish between healthy discounts and unhealthy loyalty penalties. For example, classic switching cost models can predict price paths with price jumps (i.e. a bargain-then-rip-off price structure), but do not conceptually distinguish between “healthy” introductory discounts and “unhealthy” loyalty penalties. We now discuss some possible conceptual differences between healthy discounts and loyalty penalties.

The starting point of this discussion is that loyalty penalties might be considered especially unhealthy if products are designed in a way such that consumers easily misperceive the loyalty penalty. Following our discussion in Section 4.3, consumers might misperceive some prices or price components or their own future behaviour. We now discuss how both perspectives might be useful to identify when loyalty penalties are unhealthy in the aforementioned way.

First, consumers may misperceive some prices. Following our discussion in Section 4.3, they might be confused by complex contract design, unaware of some price components, or they may be unaware of the best alternative offers in the market. Especially if consumers are unaware of better offers in the market and believe they get a good deal, they may not shop around and will not find out about better offers (this idea is closely related to the concept of self-confirming equilibrium in game theory).

To explore empirically if consumers underestimate the loyalty penalty they pay, one could ask consumers for what price difference they would be willing to switch and calculate the actual price premium they pay (current price - best equivalent deal). Alternatively, one could ask consumers what loyalty penalty they think they are paying relative to the best offer or given a number of random offers.

Second, even if consumers correctly understand all products’ price components, they might overestimate their future tendency to switch or renegotiate. Effectively, consumers might underestimate how long they will pay the loyalty penalty. As we discuss below in Section 5.3, firms can optimally exploit and magnify such misperceptions via well-designed automatic renewal contracts.

In principle, this second type of misperception can also be empirically uncovered by comparing consumers’ contract choice with their actual behaviour after choosing a contract. DellaVigna and Malmendier (2006), which we discuss in more detail in Section 5.3, exploit this observation when investigating gym contracts in the US. Especially related to loyalty penalties, they compare monthly contracts in which consumers pay more but can cancel every month with annual contracts that are cheaper but do not allow cancelling within the first year. They find that consumers in monthly contracts are 17% more likely to stay enrolled beyond the first year than consumers with an annual contract and indeed stay enrolled for an extended period of time after quitting going to the gym. As another example related to loyalty pricing, Shui and Ausubel (2004) compare the take-up rate of credit card offers that

differ in their teaser rate as well as the post-introductory interest rate. Given how much they borrow and their future switching behaviour, consumers overreact to the introductory teaser rate relative to post-introductory interest rate suggesting that they overestimate the tendency to pay their debt or that to switch. A similar study may be feasible in other markets.

Both empirical tests are based on the idea that loyalty penalties are especially unhealthy if they result from firms designing offers to exploit consumer misperceptions. Exploring these tests could also be useful to better understand if such misperceptions are more common for vulnerable consumers.

We conclude by summarising the key lessons with regards to loyalty penalties:

- If consumers misperceive how much loyalty penalties they end up paying, they may be especially detrimental.
- Empirical test that identify whether consumers underestimate the loyalty penalty seem feasible. Such tests would help to inform the policy discussion.

## 5 Business Practices to Influence Inertia

### 5.1 Influencing Switching Costs

We emphasised that most of the existing classical literature does not analyse firms' business practices explicitly but focuses on firms' incentives to increase or decrease either search or switching costs. In their influential survey of the literature, Farrell and Klemperer (2007) summarise several motives for firms to influence the level of switching costs.

- **To reduce inefficiencies from consumers' inefficient switching behaviour.** With a downward-sloping demand curve, whenever two firms' relative prices do not reflect their relative marginal costs, there is an inefficient amount of switching. Individual firms might raise or lower their future switching costs, in order to reduce this inefficiency and then charge a higher price for the more efficient contract up front. These models, however, generally require that consumers are forward looking and can correctly observe (and understand) their future switching costs. Thus, influencing switching costs to reduce inefficiencies might in practice be unprofitable if consumers cannot ex ante observe their ex post switching costs.
- **To enhance market power.** We discussed in Section 3.4 that switching costs often increase firms' profits.<sup>111</sup> This finding holds independently of whether or not firms can price discriminate between old and new customers. Thus if possible, before competing, firms would like to jointly increase switching costs. A countervailing force to this logic - although rarely formally modelled - is that firms would like consumers to incur high switching costs when switching away from their product but not necessarily when consumers switch to buy their own product. For example, each firm wants to make it easy to sign a new contract with itself but at the same time difficult to leave it. As the discussion in Section 3.4 suggests, firms will refrain from making cancelling hard only if they can commit to do so, and consumers observe and consider the ease of cancellation when looking for a new contract.<sup>112</sup>
- **To deter new entry or to extract returns from a new entrant.** Switching costs can make entry more difficult because they make it more costly for entrants to attract sufficiently many customers from incumbents. This problem is exacerbated when incumbents have economies of scale.

Farrell and Klemperer (2007) argue that if firms increase switching cost, they likely do so to increase market power. The above arguments as well as our discussion in Section 3.4 largely supports this view. As we emphasised in that section, firms will often want to make switching to themselves easy while switching to a competitor hard. As a practical example, Farrell and Klemperer discuss how Gillette tried to make its own razor blades compatible with the razors of rivals but still keep their own razors incompatible with the blades of rivals. In the context of loyalty penalties, firms may try to make it difficult for consumers to cancel their contract (e.g. by requiring a phone call to cancel) in order switch

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<sup>111</sup> Switching costs may, however, also reduce profits. Rhodes (2014) explores an overlapping-generations model and illustrates that if firms are more impatient than consumers, switching costs can reduce profits. He does not, however, allow for price discrimination. Cabral (2016) obtains a similar findings in a context with price discrimination.

<sup>112</sup> Firms may also reduce switching costs to raise market power. This can occur in markets in which different firms produce complementary products. Lower switching costs allow consumers to mix-and-match products of different suppliers, and these suppliers can benefit from the generated complementarities through larger prices. In the context of the loyalty penalties discussed in Chapter 2, this seems a less relevant force.

to their rival even when allowing customers to sign a contract by simply sending an email. Yet, we are unaware of a formal model thereof.

Most of the theoretical switching cost literature, however, does not specify which practices firms can use to influence switching costs nor investigates how policies such as choice tools affect switching costs. One exception is the model of a firm's choice of contract duration by Fudenberg and Tirole (2000), which we discussed in Section 3.3. In their model, firms can offer long-term or short-term contracts to consumers or choose to offer both. Long-term contracts induce an infinitely high switching cost in the sense that consumers cannot cancel them prematurely but at the same time allow firms to commit to future prices. Because firms cannot reprice the long-term contract, consumers with large brand preferences benefit from signing these since they allow firms to commit to not exploiting their future knowledge about these consumers' large brand preferences.

Another exception is Bedre-Defolie and Biglaiser (2017) who explore a two-period model in which there is a monopolist incumbent in a first period who faces potential competition from a more efficient entrant in the second period. Consumers who bought in period one incur switching costs when purchasing from the entrant in period two. The incumbent strategically offers contracts that include exit fees as well as the promise to its customers that they can freely switch to the incumbent's cheapest tariff in period two (so called most-favoured-nation clauses). These contracts end up influencing the benefit that consumers anticipate receiving in period two when refusing to sign a long-term contract initially. The intuition has two parts. First, with most-favoured-nation clauses, the incumbent promises consumers in a long-term contract that they always get the incumbent's most-favourable offer in period two. As a result, the incumbent does not want to compete as forcefully for new customers in the second period, since any price reduction must now also be offered to its long-term contract customer base. Second, because exit fees make switching sufficiently costly, the entrant cannot profitably compete for consumers who signed the incumbent's long-term contract. Together, these clauses therefore segment the market in period two: the incumbent focuses on earning profits from its long-term contract customer base, while the entrant focuses on attracting consumers who refrained from signing a contract earlier. Crucially, segmentation implies that both firms will charge higher prices in the second period. Hence, consumers who do not sign the long-term contract in the first period get offered a worse deal from the entrant in the second period. This increases forward-looking consumers' willingness to sign long-term contracts and thus the first-period consumers overall prices. Banning exit fees, on the other hand, induces the entrant to offer better deals to attract consumers that signed a long-term contract, increasing competition and consumer surplus. Furthermore, due to the entrant's efficiency advantage whenever switching costs are not too high, total surplus in the model increases when exit fees are banned.<sup>113</sup>

Turning to the empirical literature, the vast majority of papers estimate switching costs indirectly via observed switching patterns and do not focus on identifying specific business practices or how specific regulations affect switching costs. One noteworthy exception are papers on the introduction of wireless number portability including Shi et al. (2006) and Park (2011). They find that wireless number portability - which amounts to lowering non-pecuniary costs of switching - decreased average monthly prices. Another exception is Kiss (2019), who separately identifies switching costs and inattention in the Hungarian car insurance market. Hungarian car insurers were allowed to sell new insurance only once a year, creating a lot of advertisement and consumer attention around this period. The policy was phased out in 2010 for new cars, after which consumers needed to buy insurance for an entire year from the date of purchase. As a result, an increasing number of new insurances are spread out over the year. Comparing

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<sup>113</sup> Going back to Aghion and Bolton (1987), there is a literature that studies exit fees as a barrier to entry. These articles, however, focus on pivotal buyers like retail chains with bargaining power, whose logic does not naturally extend to consumer markets. Bedre-Defolie and Biglaiser (2017) is the first article we are aware of that studies break-up fees with non-pivotal buyers.

customers renewing their insurance at different times, Kiss finds that the concentrated media campaign increased switching rates from 20% to 36% and that ignoring consumer inattention leads to implausibly high switching cost estimates.

We conclude by summarising key lessons from the classic switching cost literature:

- Firms may want to influence switching costs to reduce inefficient switching, increase market power, or deter or accommodate entry. There is, however, little theoretical or empirical literature on how firms exactly influence switching costs and market competition.
- In consumer markets, incumbents can use exit fees together with other contractual clauses to deter future market entry by more efficient rivals. Banning exit fees in these situations can benefit consumers. Overall, in contrast to business to business markets, the literature has only rarely studied cancellation terms and their impact on consumer markets.
- While not formally modelled, economic intuition highlights that individual firms want to make switching away from them hard but (often) facilitate switching to them. Firms will refrain from making cancelling hard only if they can commit to do so, and consumers observe and consider the ease of cancellation when looking for a new contract.

## 5.2 Influencing Consumer Attention

Firms may also influence consumer search and attention to increase loyalty penalties. If consumers do not pay attention to alternative offers, it is easier for firms to charge large loyalty penalties.

A general shortcoming of the theoretical search cost literature is that it rarely models specific practices of firms to influence search costs. Similarly to the switching cost literature, the search cost literature does, however, investigate the incentives of firms to increase or reduce search costs. Due to the competition for inattention effect discussed in Section 3.5, larger search cost in many classical search models leads to larger prices without affecting the amount of search in equilibrium. In this case, firms jointly increasing their search cost raises prices and profits and therefore reduces consumer surplus.

In the classic search model of Varian (1980), for example, firms' profits increase with the share of inattentive consumers, suggesting that firms might want to jointly increase search costs. Before setting prices, firms would like to be in a marketplace with many inattentive customers who do not pay attention to their rival's prices. But it is less clear if firms would like to unilaterally increase consumers' costs to search for them. For example, firms would like to encourage the inattentive consumers of rivals to search more. Indeed, once a firm decides to price aggressively, in classic search models it would like consumers to be aware of their great offer. One would, therefore, expect firms to use cheap advertising opportunities to reach consumers if feasible.

Ellison and Wolitzky (2012) characterise when an individual firm has an incentive to increase consumers' search costs. They study a model based on Stahl (1989) where some consumers choose sequentially whether to visit another firm, while others are perfectly informed and need not search. Upon visiting a firm, searchers pay a search cost that firms can influence but consumers learn only when visiting the firm. They find that when consumers' search costs are convex in the number of firms they search, firms have a unilateral incentive to increase search cost.<sup>114</sup> Intuitively, a firm that increases its own search

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<sup>114</sup> Heidhues et al. (forthcoming) discuss empirical evidence suggesting that search costs are convex in many markets.

costs exhausts consumers, reducing the number of firms the consumer visits overall. Applied to the context of loyalty penalties, this result suggests that firms may want to make it hard for consumers to study their own products in order exhaust consumers and discourage further price comparisons. Regulating search costs can in this case encourage competition and increase consumer surplus.

The previous results also highlight the potential benefits of reducing search costs that we discuss in Chapter 6. Alternatively, regulators could influence firms' business practices directly by choosing to regulate prices, for example by inducing price caps. As we argue in Section 3.5, existing results (Fershtman and Fishman (1994) and Armstrong, Vickers and Zhou (2009)) suggest that price caps can actually lead to increased average prices. Intuitively, if price caps reduce price differences in the market, consumers have less incentives to become informed. Especially when price caps are rather loose, this can, but by no means must, increase average prices.

As highlighted by Heidhues et al. (forthcoming) and discussed in Section 4.6, this anti-competitive effect of price regulation does not occur when regulating complex secondary features of products. Consumers need to study these features in detail to understand them, e.g. possible costs related to cancelling a contract. Standardisation or regulation limiting the cost induced through these secondary features allows consumers to ignore them. This liberates consumers' attention and allows them to do more comparison shopping instead, which in turn increases competition.

We conclude by summarising main lessons from the literature:

- In many search models, firms jointly would like to have more inattentive consumers in the market. Indeed, if consumers have convex search costs, even an individual firm may want to make it hard for consumers to find out its own price. In this case, reducing search costs encourages competition.
- The theoretical literature studies incentives to increase or reduce search costs but is not explicit on how firms can influence search costs. It gives little guidance of how certain business practices influence search costs.
- Price caps on the total price can reduce search incentives and lead to higher prices. This does not apply to price caps on secondary features.

### 5.3 Effects of Automatic Renewals and Rollovers

The empirical literature discussed in Section 4.2 suggests that consumer inertia can be significant and can result from different sources like switching costs, search costs, or behavioural biases. When consumer inertia has different reasons, it is likely useful to investigate what contractual features firms can use to magnify or overcome these different drivers of consumer inertia. The behavioural literature takes a first step in this direction for the context of automatic renewals and rollovers, which we discuss in this section.

The classic literature pays little explicit attention to automatic renewal contracts. This may not be surprising: rational consumers who always make active decisions are not very affected by default choices like automatic renewal or automatic cancellation. Automatic renewal only affects choices of rational consumers to the extent that it affects transaction or switching costs.

In recent years, a small literature has developed that explores automatic renewal contracts more explicitly. This literature studies automatic renewal as a tool to exploit consumers' behavioural biases or inattention. The literature investigates in particular present-bias-induced procrastination (introduced

below) and how it can be influenced through monetary or non-monetary cancellation costs, as well as forgetting to cancel the contract.

The first article investigating consumer biases and automatic renewal is DellaVigna and Malmendier (2004). They study optimal contract design of firms when consumers are present-biased. Present-biased consumers procrastinate immediate burdens, like saving for retirements or cancelling contracts, into the future. The authors model consumers who are naïve about their future present bias. Naïvely present-biased consumers underestimate their future tendency to procrastinate. For example, a naïvely present-biased consumer who buys a product with switching cost will underestimate her future tendency to procrastinate switching. Consequently, naïvely present-biased consumers overestimate their future probability to switch to an alternative product.

DellaVigna and Malmendier (2004) show that when consumers overestimate their future probability to switch products, firms use automatic renewal and larger switching costs to exploit this bias. When consumers overestimate their future probability to switch, they underestimate how often they end up paying increased prices in the future. This makes these consumers less responsive to future price increases and in relative terms more responsive to immediate discounts. As a response, firms offer immediate introductory discounts and larger future prices after renewal. Thus, to exploit consumer biases, firms offer pricing patterns that closely resemble loyalty penalties: introductory discounts and larger renewal prices akin to price jumps when contracts renew. Making things worse, firms want to introduce switching costs and automatic contract renewal to further increase the bias about renewal.

DellaVigna and Malmendier (2004) establish this pattern under competition for homogeneous products and with monopoly firms. In both settings, firms exploit naïvely present-biased consumers by introducing automatic renewal and by raising switching costs. This raises renewal prices, closely resembling price jumps in the context of loyalty penalties.

Their theoretical results have some important implications. First, they establish that firms want to use automatic renewal and raise switching costs even though firms can commit to future prices. This is in sharp contrast to the classic literature on switching costs where firms would like to commit to not exploiting switching costs in the future because this would harm consumers and reduce demand. Classic switching cost models can hardly explain that we observe pre-announced steep price increases (e.g. teaser rates and one-year introductory offers) in many applications. This suggests that firms likely face some biased consumers and that these firms have strong incentives to use automatic renewal and raise switching costs. Second, firms introduce switching costs to exploit consumer naïvety, and consumer naïvety magnifies the impact of switching costs in the model. This induces inefficiencies and suggests that regulating switching costs increases welfare. Conversely, switching cost reducing policies might activate consumers in two ways: directly through lower switching costs but also by reducing consumers' biases about switching. Third, in these models, even a minimal amount of naïvety is enough to induce these price patterns, i.e. price jumps at the renewal stage.

A key feature for the previous results is that consumers overestimate their future probability to cancel a contract. In complementary work, DellaVigna and Malmendier (2006) provide empirical support for this assumption. Investigating gym contracts in the US, they find that consumers with a monthly contract (i.e. they can cancel each month) are 17% more likely to stay enrolled beyond the first year than consumers with an annual contract. Since monthly members pay higher fees for the option to cancel each month, this suggests that consumers indeed overestimate their future probability to cancel the contract.

Johnen (2019) extends the setting of DellaVigna and Malmendier (2004) in two important ways. First, instead of present bias, he considers inattentive consumers who might forget to make an active decision

about switching and follow the renewing contracts by default. Much like naïve procrastinators, the naïvely inattentive consumers overestimate their future switching probability, which is why many key results of DellaVigna and Malmendier (2004) also hold in this setting. Second, he allows for heterogeneously biased consumers. In addition to naïvely inattentive consumers, there are rational consumers who always make active decisions and never renew by default. This also captures that attentive consumers are more aware of outside options than inattentive ones. Just like DellaVigna and Malmendier (2004), Johnen (2019) derives his main results when firms can commit to future prices.

His first important result is that as in DellaVigna and Malmendier (2004), firms want to use automatic renewal contracts to increase prices at the renewal stage. The key observation is that in the model both naïvely present-biased and naïvely-inattentive consumers overestimate their future switching probabilities, making them less responsive to future renewal prices, and more responsive to immediate discounts. As a response, firms increase renewal prices and lower introductory prices for both types of naïve consumers.

This result implies that if firms can price discriminate between more and less biased consumers, e.g. when loyal consumers are more likely to be inattentive to alternative offers, they will target larger renewal prices to loyal consumers and might use immediate discounts to make them look more attractive. Less-loyal consumers, however, are likely to be more attentive, and would be targeted with smaller renewal prices.

The second key result is that when firms cannot price discriminate in this way, they focus less on exploiting inattentive consumers. The reason is that exploiting inattentive consumers adversely attracts attentive consumers in the model: firms would like to charge the aforementioned offers with lower introductory prices and larger renewal prices for inattentive consumers. But attentive ones can take advantage thereof. They would enjoy the introductory discount, but switch more actively and pay the large renewal price less often. In short, introductory discounts overproportionally attract less-profitable attentive consumers. To reduce losses from these attentive consumers, firms reduce renewal prices and increase the initial price, which reduces the price jumps. Hence, the adverse selection of less-profitable attentive consumers induces firms to increase initial and reduce renewal prices.

If firms can identify and target attentive and inattentive consumers separately, the different groups get different types of contracts. This can be the case, for example, when past loyalty is a signal of inattention and allows firms to target offers accordingly. Banning this type of price discrimination has two effects. First, firms reduce renewal and increase introductory prices for inattentive consumers. By reducing renewal prices for inattentive consumers, the ban reduces the focus on exploiting consumer biases, benefiting inattentive consumers. But second, the ban induces a cross-subsidy from inattentive to more attentive consumers: attentive consumers are now free to choose the offer of inattentive ones, and since they are more likely to cancel before prices increase, attracting consumers becomes less profitable and introductory prices increase. Furthermore, attentive consumers who are more likely to cancel benefit more from these offers with low-introductory prices and high renewal prices. As a result, attentive consumers always benefit from a ban of this type of price discrimination as this allows them in equilibrium to receive a cross-subsidy. Thus, banning price discrimination can increase consumer surplus but also distributes consumer surplus from inattentive to attentive consumers.<sup>115</sup>

Finally, Johnen (2019) considers implications of policies that activate consumers. Policymakers can raise awareness about automatic renewal at two points: by warning consumers about automatic renewal when

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<sup>115</sup> With sufficiently many attentive consumers, however, firms might prefer to refrain from selling to inattentive consumers, and in that case banning price discrimination might reduce consumer surplus.

they sign a contract or by reminding consumers to make an active choice just before contracts renew. Johnen (2019) argues that later interventions just before renewal more robustly reduce renewal prices. Intervening when consumers sign a contract does not eliminate consumers' overconfidence about future switching and can even backfire. It backfires, for example, if informing consumers about autorenewal makes it salient that they can leave the contract and thereby induces consumers to incorrectly think they will do so. Reminders just before renewal, however, target consumers' actual probability to switch and in the model more directly reduce forecasting errors.<sup>116</sup>

Murooka and Schwartz (2018) also study automatic renewal contracts and ask at which stage policymakers should reduce switching costs. In their setup, some consumers are naïvely present biased and the others are rational consumers. As in DellaVigna and Malmendier (2004), naïvely present-biased consumers overestimate their future probability to cancel a contract, while rational consumers have correct expectations.

In their framework switching costs affect consumers when they sign a new contract for a base product in period one or when a contract renews in period two. For example in the cell-phone market, consumers may sign a new contract either with a legacy provider or an alternative firm. Once the consumer signed the contract with a new phone as initial bonus, it renews automatically at a later stage unless the consumer switches. Here, consumers may face switching costs at both stages.

The main question they ask is whether policymakers should focus on reducing switching costs when consumers sign a new contract with a legacy provider or when contracts with legacy providers renew automatically.<sup>117</sup> They argue that reducing switching costs at the renewal stage more robustly increases consumer surplus. Intuitively, reducing switching costs when consumers sign a contract in the first period disproportionately induces rational consumers to switch in this period because present-biased consumers overestimate their future switching probability and due to their present-bias dislike switching today. In the second period, as the remaining customers are more likely to be present bias, customers are less likely to switch away, inducing firms to set high second or post-autorenewal prices. Firms nevertheless do not lower first period prices as much because this disproportionately induces less profitable rational consumers to sign up and switch in the first period. Thus, reducing switching costs when consumers sign a contract can reduce consumer surplus.

On the other hand, reducing switching costs at the renewal stage affects actual switching of both consumers to a similar extent and does not induce firms to refocus on exploiting present-biased consumers. This increases consumer surplus more robustly.

One caveat is that all of the above models with a single cancellation period cannot distinguish between price walking and price jumps.

Ericson (2017) explores the interaction of limited memory and procrastination. He argues that individuals may procrastinate setting up reminders, which is why consumers with limited memory may be bad in reminding themselves to pay attention to contract renewal. He also argues that unanticipated reminders are most successful in inducing action. Both arguments suggest that reminders may be best set by regulation and not by consumers themselves.

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<sup>116</sup> Additionally, when firms cannot commit to future prices, prices are distorted by the actual level of attention at the switching stage, in which case policymakers should focus on activating consumers just before contracts renew.

<sup>117</sup> Murooka and Schwartz (2019) do not allow for price discrimination, and their results shed little insight on the implication of banning price discrimination.

We conclude by summarising the main lessons from the literature:

- Automatic renewal only affects choices of rational consumers to the extent that it affects transaction or switching costs. Furthermore, classic switching cost models do not predict price jumps when firms can commit to future prices. But we observe announced price increases (e.g. teaser rates and one-year introductory offers).
- Evidence suggests some consumers overestimate their future probability to cancel contracts. When consumers overestimate their probability to cancel, firms use automatic renewal contracts to exploit this bias. In competitive markets, this induces price increases at automatic renewal despite firms' ability to commit to prices. Policies lowering switching costs can reduce consumer mistakes about future cancellation and thereby increase efficiency.
- Low-introductory offers can over-proportionally attract attentive consumers who avoid paying high renewal price. In that case, being able to third-degree price discriminate allows the firm to avoid attracting such less profitable customers. As a result, in the model price discrimination can induce lower introductory and larger renewal prices for inattentive consumers, distorting their renewal decision more.
- Existing models argue that policies aimed at activating consumers should focus on the renewal stage.
- The literature considers consumers who are either biased or unbiased for exogenous reasons. This rules out, for example, that consumers' attentiveness is influenced through the firms' business practices. As such, these models cannot give guidance on how to raise consumer attentiveness.

## 6 Policy Implications

In this chapter, we turn to the policy implication of the theoretical mechanisms discussed earlier. We already highlighted that much (but by no means all) of the literature focuses on one policy question only: whether or not to allow price discrimination. Regulators, in contrast, have considered a much wider array of possible market interventions. For many of these interventions, we emphasised that either no explicit theoretical analysis is available or the analysis focuses exclusively on one aspect of consumer inertia. Nevertheless, we believe the theoretical literature does provide some useful intuition to guide policy, which we discuss in this chapter. Absent a full formal analysis, however, one needs to be very cautious when using (parts of) these intuitions to guide regulations in a specific market. As always, it is important to carefully consider the empirical facts in the market to be regulated and check whether important aspects are missing from our discussion below.

Given the lack of a wider policy discussion in the theoretical literature, we organise this chapter around the potential remedies discussed by CMA in their response to the super complaint of Citizens Advice (2018), which seems to us a natural starting point. We begin by what perhaps seems the most obvious type of policies to address loyalty penalties: directly regulating prices. We then turn to another seemingly natural idea: increasing competition through increasing consumer engagement in the marketplace. Finally, we discuss intervening to address specific harmful business practices directly. Our discussion will also highlight that in some cases a policy mix of approaches may be necessary and that there might be a drawback to making regulations too market-specific.

### 6.1 Regulating Prices

#### 6.1.1 Regulating Price Differences

Thinking of the loyalty penalty as the price difference between old “loyal” and new customers, the first question is whether regulators should be concerned about this price difference at all. One reason that such a price difference may be of little concern is the waterbed argument discussed in Section 3.1: old customers’ high prices may be handed back to consumers through low introductory offers. But as we emphasised, for many classical and behavioural reasons given in the literature (see Sections 3.1 and 4.3), waterbed effects are often likely to be incomplete, so regulators should not rely heavily on them. In addition, when waterbed effects are incomplete they can induce follow-on distortions (see Section 3.1). Furthermore, as discussed in Section 3.1, even in markets with a complete waterbed effect, high loyalty penalties can have a detrimental impact on total surplus (e.g. because demand is downward-sloping, consumers have brand preference, or due to switching costs). And as our discussion in Section 2.3 emphasises, existing evidence suggests that vulnerable consumers may be (for example due to additional barriers they can face) more likely to incur loyalty penalties. Similarly, going beyond the total-surplus standard in the literature, societally large interpersonal price differences may simply be considered unfair, and regulators may be concerned when citizens judge markets as performing poorly, which could also damage trust in markets more generally.

On the other hand, absent price (or quality) differences, consumers have little incentive to look for good offers in the marketplace. Regulators, thus, face the difficult challenge to differentiate between healthy discounts that spur businesses to compete through activating consumers and loyalty penalties that exploit consumers. We highlighted in Section 4.1 that the classic literature gives no guidance for how to do so as

in these models they are just “two sides of the same coin”, although classic models can be used to investigate under what conditions vulnerable consumers disproportionately face higher prices. We very cautiously suggest in Section 4.7 that loyalty penalties may be especially concerning when consumers do not anticipate paying them. We also suggest possible empirical approaches to identify whether consumers misperceive the loyalty penalty. But more research is needed to address the question of when loyalty pricing induces unhealthy loyalty penalties versus healthy introductory discounts.

Existing classic and behavioural models, in addition, can also be used to investigate when the price difference per se leads to distortions as discussed below. If regulators deem existing price differences between loyal and new customers as undesirable, the perhaps most straightforward seeming approach to regulate these would be to limit the extent of these price differences. While perhaps sounding straightforward, note that the practical implementation still faces conceptual questions. Many contracts do not have a single price, in which case the price difference needs to be carefully defined. What is the price difference between two complexly-priced mortgage or insurance contracts? Indeed, what is the appropriate measure of price difference even for relatively simple three-part tariffs that are commonly used in many energy or mobile-phone markets? Can the respective definitions be circumvented by firms?

Furthermore, as becomes apparent from CMA (2018)’s response to the super complaint, there are different conceptual price differences that such regulation could target.<sup>118</sup> Regulators could constrain the ability of suppliers to charge higher prices either over time (say compared to some introductory offer) or compared to other customers of the same supplier. Reflecting the different forms of loyalty penalties we discussed in Section 2.1, CMA points out that such a regulation could aim at:

1. “Restricting price walking”: Price differentials in this case are measured in relation to the individual own past price and the regulation limits the allowed price increases over time.
2. “Limiting the spread of legacy deals”: This type of regulation limits the spread across comparable groups of longstanding customers who receive an otherwise similar product or level of service.
3. “Limiting price jumps”: In this case one-off price increases are limited. Such price increases may be due to the end of some introductory deal a customer has signed-up for.
4. “Requiring suppliers to move customers to their best available deal”: This regulation would require suppliers to charge longstanding customers the same price as new customers for the same product.

Regarding these restrictions various insights can be drawn from literature:

- **All Approaches:** While differing in the exact approach, all of the above regulations restrict price differences within a firm. The theoretical results on banning price discrimination, which are most closely related to approach 2 above, suggest that such regulation can have an anti-competitive effect. Roughly speaking, a firm wanting to attract new customers with low prices is required to also lower prices for its existing customers if the regulation is in place, making it less profitable to charge low prices to new customers and thereby reducing competition. This effect is present in basic oligopolistic price discrimination models (see Section 3.2), behaviour-based price discrimination models (see Section 3.3) as well as switching cost models (see Section 3.4).<sup>119</sup> Thus, the theoretical literature strongly cautions against the use of such regulation even if the anti-competitive effect need not

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<sup>118</sup> See CMA (2018) p. 120 f.

<sup>119</sup> While not extensively analysed in search models, Armstrong and Vickers (2019) find a similar result with asymmetric firms in their search model. See Section 3.5.

always dominate. These theoretical findings are in line with the reservations given by CMA (2018) that such a regulation can have unintended ‘tying effects’ because suppliers have weaker incentives to cut prices to attract or retain customers.

- **Approaches 1,3, and 4:** These approaches focus on regulating **intertemporal price differences** and have not been extensively analysed in the literature. Basic waterbed results discussed in Section 3.1, however, highlight that restricting future price increases will also affect current prices and the incentive of firms to compete for customers. In as much as waterbed effects in the market are incomplete (see Sections 3.1 for classical and 4.3 for behavioural reasons) or the intertemporal price variation leads to inefficient switching or product matches (see Sections 3.3 and 3.4), regulating this price difference may be beneficial. Furthermore, in as much as vulnerable consumers already pay high prices and are inert, such regulation restricting price increases may only have a limited effect on them.
- **Approaches 1 and 3:** One further problem regarding the approaches 1 and 3 above is that if firms’ costs change, future price increases may be necessary to break even. Similarly, as CMA points out, if firms reclassify consumers - e.g. due to changing risk in insurance or mortgage contracts - regulators need to make sure that such classification is not used to circumvent the regulation while at the same time acknowledging that there are good economic reasons to adjust prices to changes in risk profiles. Finally, if the product itself differs over time - e.g. due to a new phone bundled to a mobile contract - it is unclear how to implement this regulation (see also CMA (2018)). In addition, CMA notes that approach 3 above could induce suppliers to switch from a price-jumping to a price-walking model in which inert consumers eventually face similarly high prices.
- **Approach 4:** As a regulation, requiring firms to move customers to their best available deal has received little attention in the academic literature so far. But commitment by firms themselves to do so - which the literature refers to as most-favoured-nation clauses - has been investigated and the literature often emphasises anti-competitive concerns. Very roughly speaking, a prominent concern is that such a most-favoured-nation clause requires a firm that attempts to acquire new customers with a good deal to also offer better deals to its existing customers, making it less profitable to make aggressive offers and thereby reducing competition.<sup>120</sup> When in addition firms can introduce exit fees or there are sufficient switching costs, our discussion in Section 5.1 illustrates how such most-favoured-nation clauses can be used to segment future markets and deter entry in customer markets.<sup>121</sup> If commitment to such most-favoured-nation clauses is difficult,<sup>122</sup> introducing such a “best-deal requirement” in the presence of exit fees may have competition-reducing effects by allowing market segmentation. Whether this remains a concern in markets with more firms is unclear, and in general more research on such best-deal requirements would be useful.

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<sup>120</sup> Among other things, the literature emphasises that most-favoured-nation clauses can help a monopolist to avoid competing with itself over time (the Coase problem), may alter the ability of firms to collude (through both making deviations from a collusive scheme as well as punishments harder), and in combination with other clauses may enable firms to soften competition (e.g. Holt and Scheffman 1987). They may also be pro-competitive by facilitating consumer search and could allow more flexibility in long-term contracts by reducing consumers’ fear to be exploited in the future. See Motta (2004) for a textbook treatment.

<sup>121</sup> See the discussion of Bedre-Defolie and Biglaiser (2017).

<sup>122</sup> Otherwise, the fact that firms do not choose to incorporate most-favoured-nation clauses is informative in itself. It may suggest that there is no profitable anti-competitive effect. A careful analysis of the benefits of such “best-deal requirements” would need to take this into account.

Presumably for the many reasons above, regulations limiting price differences have been used only rarely to address loyalty penalties. In the UK energy market, however, a prohibition on regional price discrimination (with exemptions for temporary promotional discounts on the SVT) has been implemented as a license condition in 2009 but was not extended in 2012<sup>123</sup>, as there was a weakening of competition and decline in switching rates observed.<sup>124</sup> Later an absolute price cap (on standard variable tariffs) was introduced. That limits in the price differential reduced consumers incentives to search is in line with existing theoretical results discussed in Section 3.5, and these models highlight why such regulation can backfire.

The literature suggests that the above price difference regulations can have anti-competitive effects. Of course, even when raising average prices it may still benefit vulnerable consumers if these are more likely to be inert. As discussed in Section 3.2, an alternative approach to regulating the price of a given firm (while still avoiding a full cost-based regulatory approach) would be to tie the price it charges to loyal customers to rivals' prices for new customers rather than its own prices. A firm charging a low price for new customers in this case need not reduce its price for existing ones, and hence it makes charging such low prices more attractive, potentially strengthening competition. While such a yard-stick-type approach faces its own problems and has not been theoretically analysed, it may be an alternative to circumvent some of the anti-competitive effects. For example, because rivals are active in the same market, such a regulation does not avoid feedback from price cuts for new customers altogether. But especially if there are many rivals competing vigorously for new customers, this may be a much more limited concern. A problem such yard-stick-based regulation faces, though, is that it requires regulators to take into account that prices for new customers may be set in anticipation of earning profits from future consumer inertia. But especially if new customers are likely to be active also in the future, i.e. likely to switch, theory suggests that firms will not price overly aggressively to attract these. In sum, a thorough analysis of the consequence of this type of regulation and how it depends on the market structure would be useful.

### 6.1.2 Absolute Price Caps

Given that regulating price differences can have anti-competitive effects as well as practical problems, one may also consider directly regulating prices through setting a price cap. Mirroring our discussion in the last section, there can be considerable practical difficulties regarding how to calculate the capped price if contracts have multiple price components. This is most easily done in a homogenous-good market in which regulators have reliable information on costs. Indeed, as is clear from the CMA (2018), UK regulators do use such absolute price caps in a number of markets. For example, the Domestic Gas and Electricity (Tariff Cap) Act 2018 imposes a price cap for all retail energy customers on a standard variable tariff. FCA has also applied price caps on payday loans, and Ofcom has imposed a price cap on 118 directory enquiry numbers. The regulatory challenge here, of course, includes finding the right level for the cap.

If the cap is too low, suppliers cannot recover their costs and will have an incentive to reduce quality or stop offering the service or acquiring customers. This risk that the firm stops offering the service

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<sup>123</sup> CMA (2016), p. 360.

<sup>124</sup> Waddams et al. (2013) find evidence for reduced competition between regional incumbents and competitors following the introduction of the non-discrimination clause. See also CMA (2018, p. 121 f.). CMA (2016, p. 360) mentions also anecdotal evidence by one provider of "reduced competition in incumbents' in-area regions and focused competition on the active customer, further segmenting the markets."

altogether, however, is lower if the price cap only applies to a specific customer group.<sup>125</sup> This is consistent with the argument by CMA (2018) that targeted price caps, which only apply to a subset of consumers, are likely to be less distortionary. Note, however, that the incentive to offer low quality to such a targeted group of consumers remains high if the targeted consumers tend to be inert or the price cap is too low. Indeed, such price caps targeted at vulnerable consumers have to the best of our knowledge not been analysed in the academic literature so far and call for future research.

If the regulatory price cap is too high, it is ineffective or worse could act as a focal point for collusion (see Knittel and Stango (2003)) or may just reduce consumers' incentives to search lowering competition in the marketplace (see the discussion of search markets in Section 3.5). If the price cap applies only to a consumer subgroup, it may still act as a focal point for collusion, and it is unclear how the search incentives of other consumers are exactly affected in equilibrium, which again calls for more research on the topic of price caps targeted at a subpopulation only.

While regulating the total price seems hard, regulators can also use price caps only on parts of the total price or regulate contracts so that these cannot include any hidden charges or traps. This does not address the loyalty penalties directly, but it can be beneficial in simplifying the consumer's search problem, reducing confusion, and increasing trust in the marketplace (see Sections 3.5, 4.3, and 4.6), thereby increasing competition and improving consumer choices. Such improved choice may - but need not to - reduce loyalty penalties (see our example in Section 4.3).

## 6.2 Engagement Remedies

### 6.2.1 Ofgem Trials

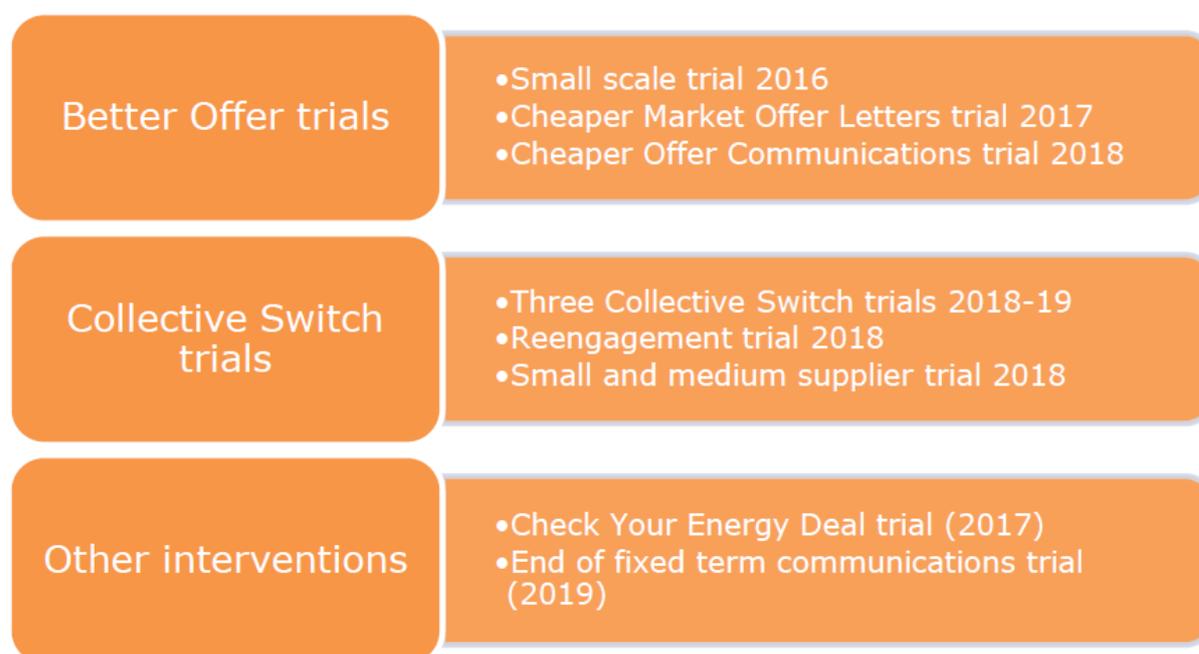
Loyalty penalties tend to arise when consumers do not actively search for and find a better deal (which can be down to different factors including firms engaging in practices that make this much more difficult). Hence, another possible approach to address the loyalty penalty, which circumvents having to regulate prices directly, is to lower customers' barriers to search and switching. Perhaps the best available evidence on regulators' ability to induce consumer switching comes from the UK energy market. After CMA's energy market investigation in 2016, Ofgem introduced a new licence condition which requires providers to participate in trials. Following this, Ofgem conducted an in-house research programme to better understand consumer engagement in the market. The overall structure of these trials is depicted in Figure 4, and we summarise some key findings below.<sup>126</sup>

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<sup>125</sup> An example of such an intervention targeted only at a vulnerable group of consumers is the Warm Home Discount, BT Basic tariff (CMA 2018, p. 125).

<sup>126</sup> See Ofgem (2019a). For a full list of all ten trials, see p. 12.

Figure 4: Overview of Ofgem’s trials



Source: Insights from Ofgem’s consumer engagement trials: What works in increasing engagement in energy tariff choices?, Ofgem (2019a), p. 23. © Crown Copyright, 2019. Contains public sector information licensed under the Open Government Licence v3.0. To view this licence, visit <http://www.nationalarchives.gov.uk/doc/open-government-licence/>

As Figure 4 illustrates, these trials can conceptually be classified into three broad groups: “Better Offer trials”, “Collective Switch trials”, and “Other interventions”. The main features and results of these interventions are:

- **“Better Offer trials”** consist of a series of three trials in which consumers were informed about cheaper tariffs and potential savings but still needed to switch supplier themselves. In that sense, the trials reduced search but not switching costs. The first trial (“Small scale trial”) started in 2016 and tested two possible interventions.<sup>127</sup> One, proposed by CMA (the database remedy approach), involved sending customers a number of marketing letters from competitors. The other, proposed by Ofgem, involved sending customers a “Best Offers Letter” that contained three cheaper tariffs from other suppliers. Both interventions had a positive impact on switching: whereas in the control group just 7% of customers switched, this increased to 13% of customers receiving marketing letters and 12% receiving a best offer letter. The next trial (“Cheaper Market Offers Letter”) was carried out in 2017 and tested the effectiveness of the “Best Offers Letter” in a larger group of consumers (as well as the impact of different branding of the letters). It covered 150,000 customers on a default tariff for over one year. Interestingly, the results showed that the branding of the letter had impact on the outcome: while the Ofgem-branded letter increased switching from 1% in the control group to 2.4%, the supplier-branded letter proved to be more impactful increasing switching to 3.4%.<sup>128</sup> Finally, the “Cheaper Market Offers Communication trial” trial in 2018 extended the previous trial to a more diverse and larger group of customers.<sup>129</sup> This new trial also included variations in communication,

<sup>127</sup> The trial is referred to as “Small scale trail” as it was limited to 2,400 customers on default tariff for over three years.

<sup>128</sup> See Ofgem (2019a).

<sup>129</sup> Around 600,000 customers from five different energy suppliers took part. Customers had been on default tariffs for three months, on prepayment meters or in debt. Ofgem (2019a), p. 27.

such as the alternative offers included, whether it was sent by letter or email, and whether there was a follow-up reminder. The results show that switching increased substantially from 2.9% in the control group to an average of 6.8% for all customers subject to treatment.<sup>130</sup>

- **“Collective Switch trials”** consists of five trials conducted between 2018 and 2019 in which letters were sent to consumers informing them about personalised savings from switching and referring them to a third party switching service (energyhelpline), which already collected the past usage data of customers (who had not previously opted out). To increase consumer switching, the trials in essence offered the help of a third party switching intermediary and also tested the effectiveness of an exclusive tariff negotiated by Ofgem that was not available on the market.<sup>131</sup> The first trial increased switching from 3% in the control group to 27% for consumers subject to the collective switch intervention (sample size of the trial was 55,000). Similarly, substantial increases in switching were also found for the second and third trial (4% to 24% and 5% to 30%) with 105,000 participants each.<sup>132</sup> Interestingly, even if some customers were not offered the exclusively negotiated tariff but the cheapest tariff on offer by energyhelpline (“Open market intervention”), switching still increased albeit less so than with the exclusive tariff (“Collective switch”) on offer (4% in control group to 18% with “Open market” vs. 24% in “Collective switch” in the second trial; 5% in control group to 25% with “Open market” vs. 30% in “Collective switch” in the third trial.<sup>133</sup>
- **“Other interventions”** included a digital switching platform (“Check your Energy deal”) and prompting customers to switch at the end of a fixed tariff (“End of Fixed Term Communication”). The “Check your Energy deal” intervention invited customers to check online for an alternative tariff.<sup>134</sup> While in a (retrospectively formed) control group switching was 3%, “Check your Energy deal” increased switching to 5%, though there were only few customers using the digital switching service. The “End of Fixed Term Communication” trial included sending a reminder to customers shortly after the end of their fixed term tariff. As a result of the intervention, switching increased from 19% in the control group to around 28%.

While Ofgem (2019a) cautions against comparing trials and switching rates directly and drawing conclusions for practice, they nevertheless find the trend that “Collective Switch trials” show the highest switching rates.<sup>135</sup>

Notably, however, even the most “far-reaching” intervention to increase consumer engagement and hence switching induced a switching rate (among customers selected for the trial) of no more than roughly

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<sup>130</sup> The most effective treatment (inclusion of the supplier’s own cheapest tariff and a reminder) increased the switching rate to 7.5%.

<sup>131</sup> Note that there were usually cheaper alternative tariffs available on the market in most trials that consumers could have found when searching, see Ofgem (2019c, p. 49). As customers were provided with personalised “projected savings”, we assume switching would have been beneficial for customers involved but have not found details on average potential savings.

<sup>132</sup> Due to variation in the experimental design, percentage figures for different trials are not directly comparable across. See Ofgem (2019a), p. 31 for details.

<sup>133</sup> Two smaller trials tested reengaging with consumers who did not switch in the first trial (“Reengagement”) and the impact of supplier brand of the exclusive tariff on switching (“Small and medium supplier”).

<sup>134</sup> The trial was not designed as randomised control trial. Around 10,000 customers were sent invitations and the service was advertised in social media. Ofgem (2019a), p. 33.

<sup>135</sup> A well-known limitations of such trials with a small subgroup of the overall market is that they cannot provide evidence on how firms will respond in their pricing and business decisions once the intervention is in place more broadly. We discuss possible responses by firms throughout the remainder of Chapter 6.

30% - despite there being no thinking costs and switching made almost as easy as possible. It is hard to imagine facilitating switching much more, and in as much as consumers do not react to such a prompt it is questionable whether their “loyalty penalty” can be overcome by activating consumers alone. Hence, a substantial fraction of inert consumers seem to be resistant to any unsubsidised attempt to activate them.<sup>136</sup>

The energy market is special in another aspect that facilitates activating consumers. Energy is essentially a homogenous good, so it is easy for regulators to determine the optimal offer in the marketplace for a given consumer. Whenever this is the case, however, one may argue that there is little economic purpose to consumer choice. If Ofgem can determine the optimal choice for each customer, why have customers go through this apparently difficult or annoying procedure themselves? Ofgem in a different market design could buy energy from the cheapest supplier and simply pass it on at average cost to customers, thereby keeping competition among energy suppliers alive while circumventing the retail market.

Of course, companies can differ in their customer service, and hence a competitive retail market can be desirable. But the billing service is relatively minor and not very visible to customers when switching to a new supplier, so models with hidden information (or behavioural models with hidden prices) suggest that competition along this aspect is limited if not non-existent.<sup>137</sup> And if they matter a lot, it is unclear whether one would want to activate customers in the first place.

More generally, regulators should contemplate the role of customer choice in their respective markets.<sup>138</sup>

### 6.2.2 Activating & Regulating

Our discussion of the Ofgem trials shows that while there is scope for consumer activation, a significant proportion of consumers is difficult to activate. This is in line with the general observation we made in Section 4.2 on consumer inertia and default effects. While it may be possible to use appropriate psychological principles to increase consumer activation, the behavioural literature’s limited understanding of what drives default effects in various contexts makes this difficult. Indeed, in market settings it is often difficult to distinguish between different behavioural reasons for inaction such as inattention or procrastination.

With regards to activation (of which switching may be a result), the following general lessons can be drawn:

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<sup>136</sup> Ito et al. (2016) uses subsidies in a field experiment to increase the incentives to switch between contracts offered by the same energy supplier in a local Japanese market and finds that switching increase in the subsidy.

<sup>137</sup> Loss averse consumers may also prefer contracts with less variation in payments than marginal- or average-cost based pricing induces, resulting in different preferences of consumers over fee structures (see, e.g., Herweg and Mierendorff (2013)).

<sup>138</sup> One could also argue that to cover costs, firms cannot be selling electricity at marginal cost because in that case suppliers could not cover their fixed cost. Consumer confusion and suboptimal choices, as our discussion in Section 4.3 emphasises, is one source of oligopoly profits and Ramsey pricing suggests that from a total surplus perspective it is efficient to charge high prices whenever demand is inelastic. Of course, as is well known from the classical taxation literature, if inelastic consumers have a higher welfare weight (say because they are vulnerable), higher prices for more inelastic goods need not be desirable. A study of the optimal market design in electricity markets is beyond the scope of our literature survey.

- **Switching is costly:** In general switching is costly, which reduces total surplus. Ideally, therefore the threat of switching would suffice to induce competition.<sup>139</sup> If low prices can only be implemented with sufficient switching, this may benefit consumers less than it seems especially in non-homogenous markets in which consumers may end up consuming a product they like less (see Section 3.3) or when waterbed effects are strong and the inefficient switching reduces the introductory discounts (see Section 3.4).
- **Switching rates:** Caution must be used when using switching rates to measure consumer engagement or activation more generally. Due to competition-for-inattention effect we discussed in Section 3.5,<sup>140</sup> search models often predict that equilibrium prices adjust to the lower switching cost, and as a result equilibrium switching rates need not increase. Focusing only on switching rates in such cases may provide poor guidance. In general, switching rates should be interpreted carefully together with information on the price dispersion in the marketplace.

As more consumers become active, in classic search models discussed in Section 3.5 average prices decrease. Since in these models firms cannot price discriminate, inert consumers also benefit from their fellow consumers' searches - "activating" consumers induces a positive shopping externality. Hence, if price differences are regulated or banned activating consumers can benefit inert consumers also. If firms can price discriminate between old and new customers, however, this is much less clear. Indeed, our discussions in Sections 3.1 and 4.3 illustrates that increasing switching rates can hurt consumers that remain inert. As a result, if inert consumers are more likely to be or become vulnerable, activating some consumers can harm vulnerable ones.

Given that the evidence indicates a significant fraction of robustly inert consumers, relying on activation only is unlikely to suffice. Rather activation and regulation may be complements in that activating consumers should go hand-in-hand with protecting those most likely not to switch. Indeed, in many markets for essential services some price-cap-type regulation is in place.

Such regulation, however, needs to be well-designed, as the following discussion highlights:

- **Reward for searching:** A cap on the total price lowers the reward for searching - as discussed in more detail in Section 3.5 - and as a result may (but not need to) lead to higher average prices. Importantly, this argument does not carry over to price caps on secondary product features. More generally, regulating excessively high secondary prices or other forms of firms' (mis-)conduct can help activating consumers.
- **Consumer trust:** As discussed in Section 4.6, one reason consumers may be reluctant to switch is for the fear that they will be exploited through some hidden contract or product features. If regulation of secondary features and contract terms ensures that such bad business practices are not

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<sup>139</sup> Inducing consumers to switch is not the same as activating consumers. For example, Ito et al. (2016) use different policies to induce electricity consumers in Japan to switch from fixed tariffs to variable tariffs. Variable tariffs have larger prices during peak hours to encourage consumers to consume less electricity, but this only benefits price-elastic consumers. They find that informing consumers about their expected savings induces price-elastic consumers to switch, but information together with an upfront incentive to switch also attracts consumers who do not adjust their demand in the variable tariff and whose surplus decreases.

<sup>140</sup> As mentioned in Section 3.5, some caution is appropriate when interpreting market data based on the classical search models in which firms set prices only once. Thinking of prices over time as the result of a repetition of the mixed equilibria of these static models, strictly speaking prices and loyalty penalties should be uncorrelated over time or at least have significant unpredictable variation over time. This may not be the case in many markets.

tolerated,<sup>141</sup> consumers are likely to be more willing to switch. In that sense, regulation that facilitates search and generates trust that the products offered in the marketplace are reasonable may support activation of consumers.<sup>142</sup>

- **Consumer trust in regulatory safeguards:** Designing such a regulation that creates trust and safeguards consumers when exercising choice, however, raises another issue: how can a consumer know that a given market is well-regulated without studying the regulation first (in which case she could perhaps also study the offered products themselves)? To generate consumer trust that it is safe to search for alternative offers in a given market, a general legal principle that ensures that consumers are not exploited in any market may be called for. From a theoretical perspective, such a legal principle should in essence ensure that the consequence of a wrong choice in a given market cannot be too large and make it difficult to incorporate hidden contract terms that are surprising and serve no obvious and important economic purpose. The extent to which current contract law and consumer protection policy already ensures this is the case is an interesting question for future research.
- **Unified regulatory framework:** As mentioned in Section 4.6, there is a risk of overwhelming consumers who have limited attention with a “regulatory patchwork” in which every market is regulated differently. This calls for some coordination among the many UK regulators on common guiding principles that consumers can rely on. It also cautions about repeatedly making significant changes to regulations that consumers need to be aware of. For example, in 2011 Ofcom banned automatic renewal of landline and broadband contracts for consumers and small businesses.<sup>143</sup> This may be desirable for the market in question but raises the question whether doing it in one market only may give consumers the wrong perception that it is safe to ignore this aspect also in other markets<sup>144</sup> or - along the lines of the above argument - may not activate consumers who fear to fall into such traps as they do not know what markets fall under this regulation. In summary, when consumers are inattentive towards the different regulatory frameworks, they may easily get confused about which regulation applies in which context, possibly even reinforcing mistrust towards offers they do not fully understand. On the other hand, of course, different problems may have different, market-specific solutions. So while coordination may be desirable, it may often be infeasible or come at high efficiency cost. Again, studying this trade-off could be fruitful for future research.

### 6.2.3 Information and Transparency Remedies

One reason why consumers may not switch in the classic model is search costs. Easily accessible information, through reducing these search costs, should tend to activate consumers. With more consumers searching, average prices in many search models (see Section 3.5) decrease, benefiting consumers. Similarly, increasing transparency should make it easier for consumers to find the best deal and - at least when ignoring firms’ response - benefit consumers.

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<sup>141</sup> Of course, in practise it can be difficult to decide what a secondary feature is.

<sup>142</sup> We are, however, unaware of any empirical research that documents the possibility to activate consumers through such type of regulations. Thus, absent future research the ultimate importance of this effect remains unclear.

<sup>143</sup> See <https://www.ofcom.org.uk/about-ofcom/latest/media/media-releases/2011/removing-barriers-to-switching-ofcom-bans-rollover-contracts>, accessed on: 19.08.2020.

<sup>144</sup> Similarly, based on their experience in landline or broadband markets, consumers may assume the same regulation applies across other telecoms markets.

Providing information is one - often uncontroversial - possibility for regulators to intervene in the marketplace and has historically been one of the main forms of regulatory intervention.<sup>145</sup> CMA (2018) highlights that regulators should consider how consumers decide in practice. To activate more consumers, they suggest that it is important to keep the various priorities competing for consumer attention in mind, and ideally the intervention increases the relevance of the decision in consumers' minds.<sup>146</sup> While these are difficult behavioural problems, the Ofgem trials discussed above highlight that activating some consumers through providing information is feasible. Another option may be to provide choice tools that facilitate comparing prices, which we discuss in Section 6.3.4.

The academic literature, however, emphasises that information and transparency remedies may be ineffective or even backfire:

- **Consumer misperception:** One reason why consumers may ignore or not look for alternative offers is that they may misperceive the potential savings of doing so. Most classical (and behavioural) models rule this out through some form of equilibrium knowledge. Yet, as mentioned in Section 3.4.3, consumer expectations may be incorrect, and a consumer who incorrectly believes that loyalty does not harm herself much may not search for alternative offers and as a result need not learn about her mistake. More generally, regulators may want to use surveys and other tools to learn more about consumers' price expectation about currently available offers in the marketplace as well as how prices of these offers will change after autorenewal or future price negotiations. Another tool at regulator's disposal is to publish data on the size of loyalty penalties, which - especially if discussed in the press - could raise consumer awareness or may even pressure firms afraid of bad press indirectly.
- **Provision of information:** While usually seen as uncontroversial, even providing information can have detrimental effects. Intuitively, think of two types of consumers: sophisticated consumers, who have search costs, and naïve consumers, who when switching select a product randomly. Increasing transparency allows sophisticated consumers to compare more offers, which under reasonable conditions will lower expected margins of firms that compete for sophisticated consumers. As a result, the relative profits of charging high prices targeted at naïvely confused consumers increases. Hence, more firms will tend to do so, which can make naïve consumers worse off (see the discussion in Section 4.5). On the other hand, while not emphasised in the academic literature, this suggests another possible complementarity between price cap regulation and activating consumers. If the price firms can charge naïvely confused consumers is lower, targeting these through high prices rather than competing for sophisticated consumers becomes less attractive. As a result, in equilibrium more firms should focus on competing for sophisticated consumers. Naïve consumers who choose randomly are thus more likely to find a lower price, and as a result benefit.
- **Facilitating comparability:** The academic literature emphasises that increasing the comparability of simple offers can have another detrimental side effect. As we discuss in Section 4.5 based on Piccione and Spiegler (2012), regulation that facilitates comparison may induce firms to focus on offering even more complex price frames to avoid the increased competition. The existing literature provides stylised theoretical examples (with exogenous search protocols) in which the endogenous response dominates, and as a result the exogenous increase in transparency leads to less comparability and higher prices. Existing papers, however, give little guidance beyond these stylized theoretical

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<sup>145</sup> As emphasised in the previous chapters, information provision is unlikely to activate all consumers, so regulators will face markets with some inert consumers.

<sup>146</sup> In this regard, behavioural economists tend to prefer an evidence-based approach, which the Ofgem randomised-control trials nicely followed.

examples and thus it is unclear in which markets we may expect worse deals due to firms making offers less comparable.

- **Perceived vs. actual utility:** Additionally, we argued in Section 4.3 that in more complex markets in which some consumers make systematic mistakes, perfectly competitive markets typically maximise the consumers' perceived (rather than their actual) utility subject to firms breaking even. If the information provision does not help consumers avoiding these mistakes, it may lead to lower anticipated prices but at the same time keep inefficient business practices in place.
- **Offering simplified information:** A cautionary tale on the attempts to activate consumers through offering simplified information is Duarte and Hastings (2012). They study Mexico's privatised social security system in which firms offer a heavily regulated and thus almost homogenous product to workers. Nevertheless, despite many active firms in the market, financial service providers offered these products at very high fees. Given that workers seem to respond too little to some fees, to facilitate the workers' choice problem, the government introduced a single index combining the different price components. Workers, indeed, respond by taking this index into account when selecting a firm. Because the importance of these different fees depends on consumer characteristics, however, the index can be misleading for any given individual consumer. Indeed, Duarte and Hastings show that firms responded to the regulation by adjusting their pricing to lower the index and at the same time increase revenues from workers. Boosting the evidence for how difficult it can be to regulate a market in which consumers have problems finding the best deals, Hastings et al. (2017) illustrate that workers respond strongly to the size of a firm's sales force while being relatively price insensitive. As the authors discuss, this evidence indicates that persuasion rather than information may drive workers' choices.

For the context of loyalty penalties, these theoretical and empirical findings suggest that one should be cautious when relying on information provision that facilitates price comparisons as the sole regulatory tool. Additional regulation that limits hidden fees or price caps on the total price may still be necessary to achieve desirable outcomes, especially if inert customers are more likely to be vulnerable consumers.

#### 6.2.4 Defaults and Nudge Principles to Facilitate Consumer Choice

Evidence on default effects discussed in Section 4.2 suggests that behavioural reasons are likely to play a significant role in explaining observed switching behaviour in many market settings. As such, behavioural insights may be important to overcome these. In general, we would expect consumers to be more likely to become active if they think they can become well-informed within a reasonable amount of time and be able to act on this information. This relates to our earlier discussion that activating consumers and regulating may be complements: if regulation makes choices easier and safer, consumers are more likely to trust that they will be able to take good decisions.

Similar to the intuition on switching costs, one may intuit that activating consumers will tend to lower prices. While almost obvious when ignoring equilibrium effects, our discussion in the preceding sections highlights that this need not be the case. In addition, the behavioural literature so far gives little guidance on what drives consumer inertia and default effects in different settings (see Section 4.2), suggesting that attempts to activate consumers should employ a careful evidence-based approach and be alert to possible negative equilibrium feedback effects.

Much as in the classic debate on choice architecture (see Thaler and Sunstein (2008)), if a significant fraction of consumers stick to their default option, it can be important for the market outcome how these

are chosen. Especially when goods are not homogenous and consumers cannot be presumed to be interested in minimising expenditure only, this is a difficult conceptual problem. Certainly, however, there can be no presumption that firms always have the consumers' best interest in mind when choosing default options, an issue we discuss more carefully in the context of automatic renewals (see Section 6.3.3).

## 6.3 Stopping Harmful Business Practices

### 6.3.1 Making it Hard to Switch or Cancel

The classical theoretical literature studies the incentives of firms to increase or decrease switching costs. Firms may want to influence switching costs to reduce inefficient switching, increase market power, or deter or accommodate entry.

There is, however, little theoretical or empirical work on which cancellation terms exactly influence switching costs and to what extent. Therefore, the existing literature gives little guidance on how certain business practices affect switching costs (see Section 5.1). Nevertheless, Farrell and Klemperer (2007) argue that if firms increase switching cost, they likely do so to increase market power. Despite some important caveats, our discussion of the literature in Sections 3.4 and 5.1 largely supports this view.<sup>147</sup> While not formally modelled, economic intuition suggests firms will typically refrain from making cancelling hard only if they can commit to do so, and consumers observe and consider the ease of cancellation when looking for a new contract (see Section 5.1).

In line with these theoretical results, CMA (2018) argues that consumers face difficulties when switching or cancelling a contract. Ofcom (2016) found that 10% of switchers reported major difficulties, while another 25% of switchers reported minor difficulties when "cancelling your previous service".<sup>148</sup> Reasons cited for this can be grouped into "customer service difficulties", "old provider attempts to retain the customer", "unhelpful previous provider", and "hidden/exit charges".<sup>149</sup> Fear of loss of supply, monetary costs, or inconvenience may lead consumers to remain with their existing supplier. The CMA (2018) voices concern that businesses sometimes make switching hard by requiring consumers to cancel by phone, to contact the provider repeatedly, by having to chase the provider, and by having to wait a long time before calls and requests are answered. Additionally, switching may be more difficult when consumers may not have access to phone or broadband services for a period of time or lose their phone number or email address when trying to switch. Finally, the CMA (2018) worries that unfair and disproportionate exit fees might inhibit consumers from taking action, even if their deal has changed in some detrimental way.

As this discussion suggests, one possibility to activate consumers might be to facilitate contract cancelling and thereby reducing switching costs. Regulators could insist that cancelling is as easy as signing up for a new contract. For example, by clicking on a single well-placed button on the bill website. Regulators may

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<sup>147</sup> Exit or cancellation fees are also a crucial ingredient into an incumbent's ability to induce market segmentation and deter future entry in the paper of Bedre-Defolie and Biglaiser (2017), which we discussed in more detail Section 5.1. In their formal model, banning cancellation fees encourages competition through inducing consumers otherwise stuck in long-term contracts to consider switching to a new entrant.

<sup>148</sup> Ofcom (2016), p. 22.

<sup>149</sup> Ofcom (2016), p. 35.

even consider regulating how to find such a button across markets. To prevent disproportionate exit fees, regulators could insist that consumers only compensate firms for the damage they cause by switching.

Our discussion in Section 4.4 presents evidence of mistrust towards firms by some consumers, and mistrust might induce consumers to hesitate to switch to an unknown supplier. To install trust and reduce uncertainty for consumers in the cancellation process, regulators could require an immediate automatic confirmation of cancellation. In addition, as discussed in Section 6.2.2, regulating secondary product features and contract terms may increase trust by consumers through limiting negative surprises from hidden contract or quality features upon a consumer's decision to switch. Similarly, appropriate safeguards that ensure that consumers do not lose access to essential services - such as the promise "you cannot lose access to energy even when switching goes wrong" - provided by regulators may increase the willingness to switch if consumers are aware of<sup>150</sup> and trust these announcements.

### 6.3.2 Making Information Hard to Get

The theoretical literature studies incentives to increase or reduce search costs, but is not explicit on how firms can influence search costs. It, thus, gives little guidance of how certain business practices influence search costs (see Section 5.2). Furthermore, the behavioural literature emphasises that firms often have incentive to aggravate and exploit consumer misperceptions rather than educating them about undesirable pricing features (see Section 4.3). In line with these theoretical findings, CMA (2018) argues that some firms make it unnecessarily hard for consumers to access the information they need in order to make good choices and indeed attempt to mislead consumers. They may misrepresent prices or price increases, provide the wrong impression that consumers receive a 'good deal' for being loyal, or that they are on 'the best deal'. In addition, sometimes firms provide wrong or not easily understandable information on how to cancel their contract. CMA (2018) argues this is more frequent in case of direct selling through phone.<sup>151</sup> This is very much in line with the arguments in Section 4.3 that even in competitive markets, firms can profitably engage in deceiving consumers and hence regulatory oversight is needed.

Note that while a regulator can always provide information, busy consumers may often not have time to pay attention to such information. One possibility to increase attention would be to synchronise consumer choices so that, for example, all consumers must change their car insurance at the same time. This will make it more likely that firms with a good offer want to advertise and perhaps even that information about good deals is discussed in printed press. Indeed, Kiss (2019) provides evidence that such a synchronisation increased switching rates from 20% to 26% in the Hungarian auto insurance market. Another possibility to increase attention may be reminders (which we discuss in Section 6.3.3) or data-driven services by intermediaries (which we discuss in Section 6.3.4).

### 6.3.3 Automatic Renewals and Rollovers

The CMA (2018) states that practices around automatic renewals and rollovers are a recurrent theme in a number of markets. Automatic renewal might be beneficial for consumers who want to continue

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<sup>150</sup> Intermediaries that facilitate switching or firms that make poaching offers would have incentives to notify consumers of such regulatory promises.

<sup>151</sup> Similarly, CMA (2018) finds that firms sometimes justify price increases with increased costs, which could give consumers the impression that they get the best available offer from the supplier, even though the offer could be negotiated. CMA (2018) argues that these sales tactics are also used to convince vulnerable consumers.

receiving a service or product without repeatedly buying. But the CMA also expresses concerns about non-transparency related to automatic renewal, constant or unexpected price increases, consumers being locked into a new minimum term, and renewal being difficult to prevent.

Indeed, inspired by Prof. Richard Thaler, CMA developed some broad principles for assessing autorenewal terms, which can be thought of as “nudging” the consumer onto a default contract. The CMA states that “[a] nudge is an influencing or behavioural strategy that firms should follow to generate good outcomes to customers”. Based on this idea, CMA states three principles that nudges, and hence autorenewal terms, should satisfy: (i) “[a]ll nudging should be transparent and never misleading”; (ii) “[i]t should be as easy as possible to opt out of the nudge; preferably with as little as one mouse click”; and (iii) “[t]here should be good reason to believe that the behaviour being encouraged will improve the welfare of those being nudged”.<sup>152</sup>

Our review of academic literature indicates a few recurrent themes with regard to autorenewals. We begin our discussion by emphasising a potential benefit of autorenewal highlighted in the classic literature in which consumers are rational and perfectly forward-looking and for whom nudging is typically thought of as being inconsequential. We then turn to lessons from behavioural models and connect these to CMA’s nudge principles:

- **Commitment to future prices:** We discuss in Section 5.3 that automatic renewal only directly affects choices of classical consumers to the extent that it affects transaction or switching costs. With classical consumers, however, automatic renewal may also affect the ability to write long-term contracts and thereby help firms to avoid issues that arise when they cannot commit to future prices. If autorenewal is restricted, for example, to the case in which the contract terms do not change, it can provide commitment to the consumer that these terms remain unaltered. And the literature on switching costs emphasises that high prices at renewal result from a commitment problem of firms. To attract consumers in these models, firms would like to commit to low future prices when all consumers are rational and forward looking (see Section 3.4). Similarly, the literature on behaviour-based price discrimination emphasises that firms would like to commit to rational and forward-looking consumers with large brand preferences not to raise prices in the future (see Section 3.3). In both cases, however, once a firm attracts consumers, it would like to break this commitment and raise prices. The commitment problem suggests that automatic renewal can be good if it makes it easier for firms to offer long-term contracts. Importantly, however, such commitment requires that firms cannot freely change the terms of the contract at the renewal stage. In addition, consumers in these models would place high value on such autorenewal terms and hence always freely select them when given the choice. Furthermore, a key driver of this benefit of autorenewal is that consumers are rational and forward looking, and we strongly qualify the pro-competitive effect of being able to commit to future contract terms when allowing for less rational and forward-looking (or “behavioural”) consumers in Chapters 4 and 5. And absent an increased ability to commit, the benefits of autorenewal with rational classical consumers are restricted to a reduction in transaction costs.
- **Exploiting default effects:** In Section 4.2 we discuss evidence on default effects, indicating that behavioural reasons are likely to play a significant role in explaining observed switching behaviour in many market settings. This suggests it is helpful to look beyond the classical consumer model to investigate the impact of autorenewal terms, in line with the above-mentioned approach of the CMA who thinks of these autorenewal terms as an “influencing strategy”. By defaulting the consumer into these terms, autorenewal clauses can have a significant impact on consumers’ choices, which goes

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<sup>152</sup> See CMA (2019b), p. 6.

beyond the impact of direct monetary switching costs. Profit-maximising firms, however, have an incentive to move consumers into high-priced contracts if this does not induce additional switching; economic incentives hence suggest that unregulated autorenewal terms may often violate CMA's third nudge principle, at least if consumers are not taking future default effects perfectly into account.

- **Exploitation of consumer mispredictions:** As we discuss in Section 5.3, consumer mispredictions - such as overestimating one's likelihood to switch later - may increase firms' incentives to use automatic renewal and increase switching costs. While classic switching-cost models with rational and perfectly forward-looking consumers typically do not predict price jumps when firms can commit to future prices, in practice we observe contractually announced price increases, e.g. teaser rates and one-year introductory offers followed by more expensive prices. Following existing evidence (discussed in Section 5.3) that some consumers overestimate their future probability to cancel contracts, behavioural models suggest that firms use automatic renewal contracts to exploit this bias. In competitive markets, this induces price jumps at automatic renewal and therefore substantially deviates from the typical result in classic switching-cost models in which firms are able to commit to future prices. According to these theories, policies lowering switching costs can also reduce consumer mistakes about future cancellation, and thereby increase efficiency. These models thus support the idea that it should be easy to opt out of the contract as stated in CMA's second nudge principle above.
- **Trigger points:** Existing behavioural models argue that policies aimed at activating consumers should focus on the renewal stage (see Section 5.3). Indeed, CMA (2018) also argues that interventions should be targeted at trigger points like the end of the minimum contract period to increase consumer engagement.<sup>153</sup> Reminding consumers at such trigger points in a sense facilitates switching in line with the CMA's second nudge principle.
- **Opt-out of autorenewal:** The CMA (2018) expressed concern that consumers may not have a clear option against automatic renewal when entering a contract. In some cases, like motor insurance, this automatic renewal may help consumers to fulfil legal requirements; but automatic renewal may also be convenient for consumers, e.g. of magazine subscriptions. In regulated markets for essential services like energy and telecoms, continued service is important and suppliers should make very clear that supply will continue at the end of the initial period. The behavioural models discussed in Section 5.3, however, indicate that more transparency and choice about automatic renewal is unlikely to be a full solution. Indeed, consumers in these models do not choose automatic renewal contracts because they are unaware of alternative offers. Consumers in these models are aware of automatic renewal and firms design automatic renewal contracts to cater to consumers' misperceptions about their future switching behaviour. Automatic renewal contracts appear to be the best contracts for biased consumers in these models who select them over contracts without automatic renewal. Thus, transparency about automatic renewal or insisting that consumers can choose a contract without automatic renewal may not improve outcomes for biased consumers.

At the same time, the misprediction-based models we discussed in Section 5.3 do not suggest that giving consumers' choice about autorenewal lowers their surplus - it is just not targeted at this

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<sup>153</sup> As an example of trigger point effects, FCA (2015, p. 17) finds that including last year's premium in a letter to customers led to an increase of 3.2 percentage points in switching or negotiating for combined home insurance at a provider ("Firm A") with increasing effects for larger price changes. In contrast, for a motor insurance provider (with already high switching rates and average prices not increasing at renewal, "Firm B"), including last year's premium had no statistically significant effect on customers switching and negotiating decisions. For another motor insurance provider, "Firm C", including last year's premium led to an increase in switching by 4.5 percentage points in the group of customer most affected by a price increase which, however, is not statistically significant.

particular bias. If some consumers - due to limited attention, search costs, or misunderstanding the contract terms - are unaware of the renewal features of the contract, requiring explicit consent may increase awareness and effective choice regarding automatic renewal. In this case, however, the effect may be greater if an explicit opt-in to the renewal clause is required. A possible cost of such a policy is that consumers who are overconfident regarding their future tendency to pay attention may not opt-in and when failing to pay attention in the future forgo the benefits of receiving the service. Especially regarding essential services, it is hence important that regulators carefully select an alternative default that allows such consumers to continue receiving the service.

- **Interaction with price discrimination:** Behavioural models also explore the interaction of automatic renewal and price discrimination. Low-introductory offers can over-proportionally attract attentive consumers who avoid paying high renewal prices. Being able to price discriminate avoids attracting the “wrong”, i.e. attentive, customers. As a result, price discrimination can induce lower introductory and larger renewal prices for inattentive consumers, distorting their renewal decision more (see Section 5.3). This result suggests that banning price discrimination makes it difficult for firms to target exploitative automatic renewal contracts to inattentive consumers, which may induce firms to design less-exploitative automatic renewal contracts for their whole customer base.

The behavioural literature on automatic renewals considers consumers who are either biased or unbiased for exogenous reasons. This rules out, for example, that consumers’ attentiveness is influenced through the firms’ business practices. As such, these models cannot give guidance to regulators on how to raise consumer attentiveness (see Section 5.3). Furthermore, the literature offers little theoretical or empirical work on trade-offs related to banning automatic renewal and even less on how to optimally regulate autorenewal clauses.

CMA (2018) makes further concrete recommendations to stop negative practices regarding autorenewal, like making it easy for consumers to stop renewal or insisting that firms make consumers aware of any changes in the conditions. In essence, the first requirement amounts to regulating cancellation or endogenously chosen switching costs (which we discussed in Section 6.3.1), and the second ensures that potential consumers’ misperceptions about the loyalty penalty they face are reduced. Another interesting idea put forward by CMA (2018) has to the best of our knowledge also not been analysed in the literature: when consumers are not using a product, CMA (2018) suggests that firms should not be allowed to automatically renew their contract. In general, we think it is very likely that a consumer must be inattentive when paying for a service she is not using, and hence think this is a promising proposal.<sup>154</sup>

#### 6.3.4 Encouraging Firms and Intermediaries to Debias Consumers?

Firms interact with consumers when these focus on a given market and, hence, may be best suited to debias consumers at the moment consumers consider purchasing. Our discussion in Section 4.3, however, already emphasised that when some consumers systematically misperceive the deals being offered, perfectly competitive markets typically maximise the consumers’ perceived (rather than their actual) utility subject to firms breaking even. Hence, even in the presence of vigorous competition, regulation that limits firms’ ability to exploit consumer misperceptions may benefit consumers. In addition, the literature on firms’ incentives to educate consumers discussed in Section 4.3 generally finds that firms

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<sup>154</sup> This is not to say that we cannot imagine a situation in which a consumer could be hurt by such a regulation. For example, a consumer who has travelled for extended periods of time and does not want to engage in an active new contract choice may prefer an automatic renewal contract even if it happens that she did not use the service for some extended period of time before renewal.

want to debias consumers only if there are sufficiently many consumers who already perfectly understand the firms' offers, or there is sufficiently tight regulation limiting how much money firms can earn from misleading product attributes.<sup>155</sup> In the existing static models of Section 4.3, small firms that offer attractive products do have an incentive to debias consumers and gain market share. In the context of loyalty penalties, however, these firms face consumers repeatedly. Debiasing them early on can thus reduce the profits the firm may earn from their mistakes at a future point in time, reducing the incentives to debias.<sup>156</sup> More generally, our literature discussion suggests that firms often have an incentive to actively confuse consumers and obfuscate prices rather than to debias them. These theoretical findings suggest that one will often need to set explicit incentives to induce firms to debias consumers.

Often consumers use intermediaries - such as price comparison websites or financial advisors - to help them navigate the marketplace and find good deals. Indeed, in many markets - including travel booking or electricity markets - active consumers are aided through price-comparison websites in their search for desirable offers. Given the economic purpose of intermediaries to aid consumers that have to make difficult choices, a natural question is to what extent regulators can rely on these intermediaries to help consumers and whether they make regulation superfluous.

This question raises a number of conceptually distinct issues. First, can such intermediaries (at reasonable cost) assess the relevant information necessary to help consumers to find good deals? Second, will consumers be active and use intermediaries to locate better deals? Third, when will such intermediaries charge a reasonable price for their service of matching consumers to appropriate suppliers? Fourth, do these intermediaries have incentives to actually find good deals on behalf of the consumer or will they - very much like the suppliers themselves - have incentives to offer misleading deals? Based on our earlier literature review, we briefly discuss each of these issues.

- **Can such intermediaries (at reasonable cost) assess the relevant information necessary to help consumers to find good deals?** In contrast to a single consumer, a specialist intermediary that carefully studies the market it is active in is likely to be able to develop a much more detailed understanding of the contracts and products being offered and how important various price components are. Indeed, this is the classic advantage human intermediaries have, for example, in insurance and financial markets. Modern technology, in addition, allows intermediaries to enable consumers to find and perhaps even compare many offers at the same time. A prerequisite, of course, is that such intermediaries get access to suppliers' data in an easy-to-read form that enables them to develop novel tools with which consumers can compare offers. Price-comparison websites, for example, can give a quick overview about the prices and product features of many offers in the marketplace, and good interfaces allow consumers to search for aspects they deem particularly important. As the CMA (2018) highlights, in the future data-driven technologies and services may aid consumers even more by enabling more sophisticated comparisons. As a result, one may expect data-driven intermediaries to lead to stiffer competition among suppliers to the benefit of consumers. In

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<sup>155</sup> Strictly speaking, this applies mainly to models with avoidable additional prices. As discussed in Section 4.3, however, if the additional price firms' hide from consumers is unavoidable, then in competitive market environments consumers who are aware and those who are unaware of the additional price will often self-select. If, as is reasonable in some markets, there is a price-floor for the anticipated price, firms may earn positive profits through selling inferior products to consumers that are unaware of the additional price, while earning competitive profits from consumers who are aware of it. In this case, firms earning money by deceiving consumers can have considerable incentives to spend money on advertising or commissions in order to expend their market share. Such deceiving firms may then be strongly favoured by intermediaries receiving kickbacks.

<sup>156</sup> As mentioned in Section 4.3, models with consumer misperceptions in which firms and consumers contract repeatedly are lacking, calling for future research.

particular, with searching and selecting offers becoming easier, more consumers may use these tools and avoid ending up with loyalty penalties.<sup>157</sup>

Importantly, however, intermediaries need to be able to assess the different supplier deals in a way that enables a comparison between them. While the benefit of reaching consumers may induce especially suppliers with good offers to cooperate with price-comparison websites, firms offering worse deals have incentives to make price comparisons hard - be it by not allowing them to access their data or by quoting prices in such a way that simple comparisons become misleading (see especially our discussion on obfuscation in Sections 4.3 and 4.5). One concrete example being firms that bait consumers with good deals on the price comparison website just to induce consumers into more expensive upgrades once they visit the merchant's website.<sup>158</sup>

That firms may be reluctant to share data in a way that enables intermediaries to develop tools that facilitate customers to switch to better deals is illustrated by CMA's work on Open Banking in the retail banking sector. Following CMA's market investigation, the leading UK banks were forced to "adopt common and open application programming interface (APIs), data and security standards". The aim thereof was to enable private customers and small businesses to share their transaction history and other relevant data with third party providers in order for these to be able to develop choice tools that help customers actively manage their finances. Such information may enable third-party providers to develop concierge services that switch automatically on behalf of the customer, and - in line with evidence from the mobile phone industry discussed in Genakos et al. (2018)<sup>159</sup> - help customers to avoid loyalty penalties or to choose the cheapest bank for a particular service. Note that with this data, third-party intermediaries can also enable meaningful comparisons when transaction and usage is highly differentiated among customers.<sup>160</sup> One, hence, may imagine that similar regulations could also be applied in other markets.<sup>161</sup> Importantly, similar in spirit to our discussion in Section 4.6 and in line with arguments by CMA (2018, p. 80), consumers must be sufficiently sure that engaging such services will not lead to detrimental outcomes that are difficult to foresee. Hence, regulation ensuring data safety, privacy, and other aspects that help consumers trust such services again can help in enabling a functioning market.

- **Will consumers be active and use intermediaries to locate better deals?** To what extent consumers actively use intermediaries such as price comparison websites will depend on a number of factors. As we just discussed, they must trust that any private data they provide is safe. Furthermore, consumers must become active themselves in the first place. Especially consumers who have no easy internet access may face barriers when trying to use such services and thus fail to benefit from their

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<sup>157</sup> As discussed in Sections 4.5 and 6.2.2, the intensified competition for consumers who now easily compare offers may induce more firms to focus their business model on exploiting those consumers who do not use this services in order to earn a non-trivial margin.

<sup>158</sup> For an empirical example concerning computer hardware, see Ellison and Ellison (2009).

<sup>159</sup> Genakos et al. (2018) discuss a UK price-comparison website that sends automatic reminders to registered consumers who share their past billing information with the comparison website. The website then sends personalised reminders that include an estimate of the consumer's possible savings from switching plans. They find that these reminders encourage switching, especially when consumers just received an unusually high bill.

<sup>160</sup> Indeed, the extent to which smart data can help consumers find better deals and what data sharing requirements may be needed is currently being considered by UK regulators in various markets. See, for example, the Open Communications initiative regarding the retail telecoms and pay TV markets (see the ongoing consultation by Ofcom (2020)) as well as the call for input regarding Open Finance by FCA (2019c).

<sup>161</sup> Regarding automated switching and possible new business models see Department for Business, Energy & Industrial Strategy (2018), p. 23.

development. In as much as this is the case, CMA (2018) points out that human intermediaries - perhaps from Citizens Advice - can play an important role in helping such customers, who tend to be among the more vulnerable, to avoid ending up with loyalty penalties.

Similarly, consumers that are very busy, or may procrastinate for other reasons, can fail to become active (in line with our observations in Section 6.2 of how difficult it is to activate consumers). In addition, how widespread the use of such services will become is likely to depend on their price as well as how user-friendly they will become. In as much as the advertised offers are not those that consumers end up selecting when visiting the supplier, the use of these websites or other tools may also be limited. And in as much as consumers remain inactive or are reluctant to use the service, entering the price comparison market in the first place is unprofitable, so such services need not even develop.

- **When will such intermediaries charge a reasonable price for their service of matching consumers to suppliers?** There is widespread discussion among practitioners and academics alike regarding when platform markets have a tendency to monopolise due to network and scale effects. In as much as they do, firms and consumers may be “forced” to use such a platform despite it collecting disproportionate (monetary or non-monetary) fees for its services. A meaningful discussion of this issue is beyond the scope of this literature review.
- **Do these intermediaries have incentives to actually find good deals on behalf of the consumer?** As our discussion of theoretical literature in Section 4.3 emphasised - see especially Armstrong and Zhou (2011) and Murooka (2015) -, intermediaries may have the same or even bigger incentives to steer consumers towards high-fee or otherwise undesirable products than the suppliers themselves.<sup>162</sup>

Many intermediaries - such as price comparison websites<sup>163</sup> - are (online) platforms, i.e. marketplaces where buyers and sellers interact. These two-sided platforms also may not induce transparency on their own. Indeed, that intermediaries often have an incentive to mislead consumers is not just an academic concern. Regulators in many countries are increasingly solicitous that online intermediaries obfuscate fees that sellers charge on these marketplaces and started to actively regulate them. The EU put pressure on Airbnb to be more transparent about hosts’ fees, requesting that service fees and cleaning charges are added to the initially-displayed total price.<sup>164</sup> In the USA, a report for the Federal Trade Commission (Sullivan (2017)) points out that online travel agents seem to insufficiently warn consumers about hotels’ resort fees. Also in the context of online travel agents, the US Department of Transport decided they must display total ticket prices more prominently than the separate price components.<sup>165</sup> Canada’s Competition Bureau put pressure on Ticketmaster to be more transparent about additional fees. Ticket-buyers end up paying 20%, and sometimes up to 65%, more than stated on the initial price tag.<sup>166</sup> Several regulators in the UK also voice concerns: the CMA encourages Viagogo to be more upfront about delivery charges for tickets sold on the marketplace,<sup>167</sup> and the Office of Fair Trading (2012) worries about online retailers’ non-transparent payment surcharges.

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<sup>162</sup> Regarding the interaction between consumers and vertically integrated or otherwise biased intermediaries see also Inderst and Ottaviani (2012a, 2012b) as well as Taylor and de Cornière (2019).

<sup>163</sup> In their study of price comparison websites, CMA (2017) finds that price comparison websites are overall helpful to consumers but that, nevertheless, there can be room for regulation to increase consumer benefits.

<sup>164</sup> See <https://www.euronews.com/2018/09/20/airbnb-complies-with-eu-consumer-regulation-demands>, accessed on: 28.05.2020.

<sup>165</sup> See <https://www.transportation.gov/individuals/aviation-consumer-protection/buying-ticket>, accessed on: 22.04.2020.

<sup>166</sup> See <https://www.digitalmusicnews.com/2018/01/26/canada-competition-bureau-ticketmaster/>, accessed on: 22.04.2020.

<sup>167</sup> See <https://www.theguardian.com/money/2018/aug/01/viagogo-ticket-prices-fees-delivery-costs>, accessed on: 22.04.2020.

Similarly, the UK Regulators Network (2016) is concerned about unanticipated additional fees of sellers on price-comparison websites. Relatedly, evidence of misleading statements, for example, was the basis of the enforcement of CMA regarding major hotel booking sites (including Expedia, Booking.com, Agoda, Hotels.com, ebookers, and trivago) that led to a recent agreement restricting the websites' sales practises as well as the court case bought by the Australian Competition and Consumer Commission against trivago.<sup>168</sup> And to address related concerns about comparison sites in different markets, the EU developed its “key principles for comparison tools” to ensure better compliance with EU regulation, such as the unfair commercial practices directive.<sup>169</sup>

Despite these growing concerns, the academic literature barely studied the incentives of two-sided intermediaries to distort obfuscate merchants' fees. An early step in this direction is Johnen and Somogyi (2019), who find that two-sided platforms may design a marketplace with more non-transparent fees than would prevail in the marketplace without the platform's interference. Both the existing casework as well as existing results in the theoretical literature suggest that these types of intermediaries need active regulation in order to develop their full potential to benefit consumers. In addition, a small classical literature studies the incentives of platform intermediaries to distort consumer search (Hagiu and Jullien (2011), Wang and Wright (2020)).<sup>170</sup>

At the same time, the relatively sparse theoretical and empirical literature on the topic, however, does not yet allow strong guidance regarding many policy questions. Important open questions relate to whether the incentives to mislead consumers are stronger for monopolistic or competitive intermediaries, how to best regulate deceiving practises, and how the ability to deceive customers interacts with standard competition concerns such as those arising from network effects.

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<sup>168</sup> See <https://www.gov.uk/government/news/hotel-booking-sites-to-make-major-changes-after-cma-probe> and <https://www.accc.gov.au/media-release/accc-takes-action-against-trivago-over-hotel-price-advertisements> for details. Both accessed on: 27.05.2020.

<sup>169</sup> See [https://ec.europa.eu/info/sites/info/files/key\\_principles\\_for\\_comparison\\_tools\\_en.pdf](https://ec.europa.eu/info/sites/info/files/key_principles_for_comparison_tools_en.pdf) . Accessed on: 27.05.2020.

<sup>170</sup> Hagiu and Jullien (2011) investigate incentives of intermediaries to divert search of consumers, i.e. to make consumers visit more websites of sellers than consumers would like. Since sellers pay the intermediary per visit of a consumer, diverting search allows the intermediary to increase revenues from sellers. Additionally, diverting search increases price competition between sellers, attracting more consumers to the intermediary. Wang and Wright (2020) analyse the interaction of showrooming (i.e. consumers searching via a platform intermediary but then buying directly from sellers) and price-parity clauses (PPCs). Without PPC, platforms charge low fees to sellers to ensure the direct sales channel is not cheaper, preventing showrooming. When PPCs are allowed, the platform uses the PPC to prevent showrooming, allowing it to charge larger fees to sellers. This way, PPC's may increase prices for consumers and reduce their surplus.

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## Appendix 2 List of Abbreviations and Terms

<b>Term</b>	<b>Meaning</b>
Citizens Advice	A network of charities providing advice and support to consumers
CMA	Competition and Markets Authority
FCA	Financial Conduct Authority; UK regulator for financial services firms and financial markets
Ofcom	UK regulator for communications
Ofgem	UK regulator for gas and electricities
PSR	Priority Services Register
SVT	Standard Variable Tariffs
WHD	Warm home discount

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