



Banc Ceannais na hÉireann
Central Bank of Ireland

Eurosystem

Financial Stability Notes

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The Economics and International Evidence

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Vol. 2020, No. 10

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Central Bank of Ireland

November 2020

Abstract

In broad terms, differential pricing refers to a situation where individual consumers or groups of consumers are charged different prices for similar goods or services. The practice is widely used across a range of markets, and can bring benefits for consumers. For example, it can encourage competition and innovation and it can facilitate market access for consumers who might be unable or unwilling to pay a uniform price. However, differential pricing can also bring costs for consumers, particularly if it affects vulnerable groups or those with a lower ability or willingness to search for better offers. In this *Note*, we provide an overview of the economics of differential pricing and review several international cases where public authorities have investigated the practice.

1 Introduction

Differential pricing refers to the practice of charging individual consumers or groups of consumers different prices for similar goods or services. One manifestation of this is the so-called 'loyalty penalty', where existing customers pay relatively higher prices than new customers simply by virtue of their loyalty to an individual firm.

With enhanced technology and digitalisation, the potential for more sophisticated forms of differential pricing has increased, with the possibility for prices to be tailored to each individual customer (also referred to as personalised pricing: OECD, 2018). In this case, firms can price a good or service for a customer based on their personal characteristics and conduct (e.g. with respect to switching provider or propensity to negotiate).

From a policy perspective, price differentiation can be associated with benefits and costs for consumers, which may require a trade-off between different policy goals (OECD, 2018). For example, it can encourage customers to try new products or providers to avail of lower prices, it can promote new business growth and competition as firms attract customers away from existing providers, it can facilitate expanded market access for consumers who could not afford to pay a single undifferentiated price, and it can promote innovation among firms (CMA, 2018). On the other hand, differential pricing can have an unclear effect on distributional equity (OECD, 2018).

There are many examples of differential pricing in operation across a range of markets. For example, it is not uncommon to observe that prices for new customers are lower than those for existing customers (usually for an introductory period) in telecommunications, credit or energy markets. Other forms of differential pricing include discounted transport or entertainment tickets based on a customer's age or working status (e.g. student or child rates for entry to the cinema). By

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reflecting a customer's willingness to pay, differential pricing can increase the provision of goods and services to otherwise underserved groups.

In practice, however, customers may not always be aware of price differentiation or, even if they are, they may not engage in sufficient search and negotiation to avoid it. This can result in adverse effects for consumers, particularly if the propensity to engage in effective search and negotiation is negatively correlated with characteristics of vulnerability (e.g. age, income or financial capability²) or with behavioural biases that create barriers to customer engagement. In the latter case, for example, some customers will avoid searching for better price offers because they are prone to procrastination, overweighting the potential cost of searching for alternatives or underweighting the potential gains from negotiation. The effect of these biases can be amplified in cases where certain features of markets make it more difficult for customers to shop around or switch, or if firms actively employ strategies that manipulate behavioural biases to reduce the likelihood to search for better offers.

In this *Note*, we explore the issue of differential pricing in further detail. We first examine the issue from a theoretical economics perspective (Section 2), and then provide examples of cross-country case studies in financial and non-financial markets where public authorities have investigated the practice (Section 3). The case studies provide numerous examples of public authorities identifying an instrumental role for behavioural factors as both a driver and a potential remedy for cases where differential pricing is costly for consumers. Section 4, therefore, includes a brief overview of behavioural biases and evidence on the role of these biases in affecting customer search and negotiation. Finally, Section 5 concludes.

This *Note* is separate to the Central Bank's supervisory review of differential pricing in the motor and home insurance markets.³ An Interim Report from this review is expected to be published in December 2020.

2 The economics of differential pricing

Economists typically distinguish between three categories of differential pricing: first-degree, second-degree, and third-degree price discrimination. First-degree (or 'perfect') price discrimination refers to a situation where a seller charges each individual consumer the maximum price that he or she is willing to pay (also known as the 'reservation price'). In second-degree price discrimination, the price at which each unit of a good is sold varies in accordance with the quantity a consumer buys (the familiar scenario whereby bulk-purchases benefit from 'quantity discounts'). Third-degree price discrimination occurs when the seller charges different prices to different customer groups, where groups are defined by a key characteristic, for example, age (e.g. child, student, and adult rates for entry to a theatre or cinema) or customer tenure (e.g. new or existing customers).

In theory, a market where perfect price discrimination prevails can be one that is welfare-maximising from a societal perspective (Varian, 1989). **Figure 1** illustrates further. Here, the maximum price that customers would be willing to pay is captured by the downward sloping demand curve. In Panel A, the price of a product is set uniformly for all customers (i.e. no price discrimination) at a level of € x . In this case, output is limited to X_{UP} and societal welfare corresponds to the combined blue and yellow shaded areas. This comprises consumer welfare (the blue area) and producer welfare (the yellow area). Consumer welfare (or surplus) is positive because the group of

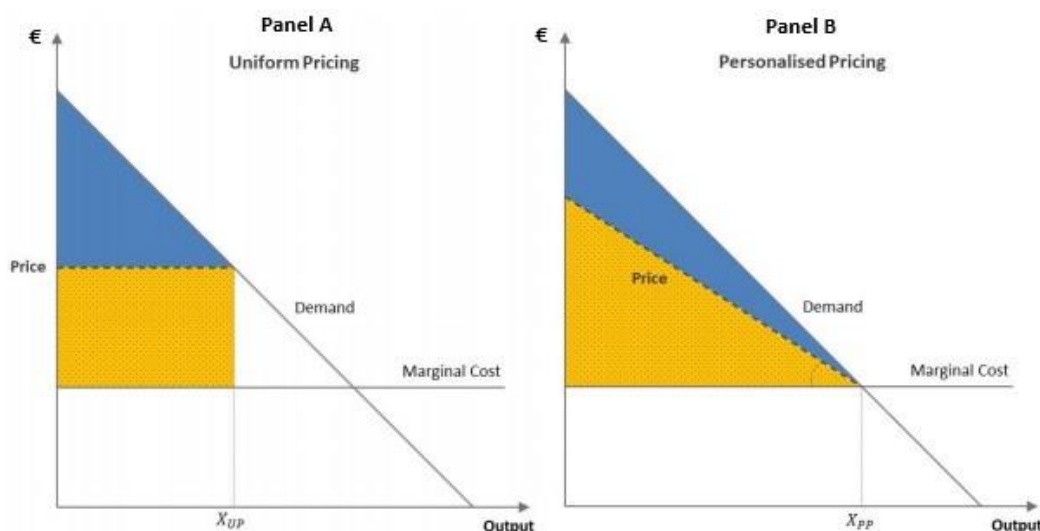
² Low financial capability typically refers to a low knowledge of financial matters or low confidence in managing money (FCA, 2019).

³ The latest update on the Central Bank's review of differential pricing in the insurance sector can be found here: <https://www.centralbank.ie/news/article/press-release-first-phase-review-of-differential-pricing-insurance-9-September-2020>

customers who purchase the product at € x would have been willing to pay a higher price (represented by the demand curve). Producer welfare (or surplus) is positive because the uniform price exceeds the marginal cost of production. However, in Panel A, a portion of customer demand is not served, since the price that these customers would have been willing to pay is lower than the uniform price (and higher than or equal to the marginal cost of production). This “underserved” portion of the market is represented by the white triangle.

Panel B is characterised instead by price discrimination, where the price charged varies for each consumer along the graduated dotted line. In this case, the price charged comes much closer to each consumer’s reservation price (i.e. the demand curve). Total output is higher in Panel B at X_{PP} and total societal welfare is maximised since there is no unmet consumer demand above the marginal cost line. In Panel B, firms reduce prices in a targeted way to consumers at the lower end of the demand curve who would otherwise be underserved in a uniform pricing structure, and increase prices for those with a higher willingness to pay.

Figure 1: Impact of differential pricing on social welfare



Source: Adapted from OECD, 2018.

Although price discrimination may formally facilitate ‘allocative efficiency’, this analysis takes no account of concerns related to distributional equity. One effect of price discrimination is a transfer of welfare from those with high willingness to pay (who incur higher prices) to those with low willingness to pay. This pricing structure can also facilitate a direct transfer of welfare from consumers to producers, which can be masked by focussing on positive outcomes in terms of aggregate societal welfare. Distributional implications and inequitable outcomes may be of concern to public authorities with a consumer protection mandate, particularly when it involves suppliers confusing or misleading customers, exploiting difficulties people have in engaging effectively in markets, when it is present in ‘essential’ markets, or when those who incur higher prices are vulnerable consumers (CMA, 2018).

3 International evidence on differential pricing

The practice of differential pricing is prevalent in many markets and countries. In this section, we examine several examples of cases where public authorities have investigated the issue. Typically the interest of public authorities has been motivated by competition, consumer protection or anti-discrimination concerns, but this varies across case studies.⁴ We illustrate the causes and consequences of differential pricing, the concerns that public authorities identify and the types of responses that have been proposed or taken.

While the case studies discussed below address price differentiation in different markets, and the proposals on potential remedies vary across studies, two common findings are that: (i) differential pricing is facilitated by limited search and negotiation on the part of consumers, and this can be related to behavioural obstacles, and; (ii) enhanced data on price differentials across customer groups may help to empower consumers and facilitate targeted and effective regulatory action when required.

3.1 Financial product markets

i. UK: general insurance market

In October 2018, owing primarily to concerns in relation to differential pricing, the use of non-risk based factors in pricing and its impact on consumers, the UK Financial Conduct Authority (FCA) launched a market study on pricing practices in the home and motor insurance markets. The study sought to identify the reasons for differential pricing, the fairness of such practices, the impact on competition and the potential remedies. The FCA noted that concerns in relation to differential pricing in the insurance market have become more pronounced with greater firm-level capacity to collect increasing volumes of customer data, including data in relation to behavioural characteristics that could affect a customer's propensity to switch provider (FCA, 2018).

In an Interim Report issued in October 2019, the FCA reported evidence of significant dispersion in margins across customers, and a positive relationship between margins and customer tenure (i.e. longer term customers were associated with higher margins). For home-contents only insurance policies, buildings-only policies, combined buildings and contents policies, and motor policies, the FCA estimated that the average margin for renewing customers relative to new customers was respectively 21, 16, 17, and 11 percentage points higher (FCA, 2019).

The Interim Report estimated that in the home insurance market, 4 million customers were paying high or very high margins in 2018 (premiums that were, respectively, 50 per cent above and double the market average premium for their risk), and that 2 million customers were in a similar position in the market for motor insurance. The FCA estimated that, if those customers paying high or very high insurance margins in the home and motor insurance markets were instead to have paid average margins, those customers would have saved a cumulative £1.25bn. Notably, the Interim Report also found that 1 in 3 consumers who paid high prices showed at least one characteristic of vulnerability, such as having low financial resilience or a low knowledge of financial matters or low confidence in managing money (typically referred to as financial capability).⁵

In a Final Report published in September 2020, the FCA additionally found that some firms did engage in 'price walking' by gradually increasing prices for customers who continued to renew

⁴ In this context, it is worth noting that the Central Bank of Ireland has a consumer protection mandate, but not a competition mandate.

⁵ This was based on consumer research covering 18 insurance companies.

policies year after year, and that firms took account when setting prices of the likelihood that a customer would switch provider in future (FCA, 2020).

In response, the FCA outlined several potential remedies to enhance competition within these markets and tackle the concerns documented within the market study.⁶ These included a proposed remedy to require firms to offer a renewal price that is no higher than the equivalent new business price for that customer through the same sales channel; enhanced measures to prompt disengaged customers to consider alternative options;⁷ consistent collection and monitoring of data in relation to price differentials; as well as measures to strengthen product governance rules, transparency, and customer communication. The FCA is currently consulting on the proposed measures and aims to publish a Policy Statement and new rules in 2021.

ii. US: personal lines insurance

In the US, insurance regulators expressed concerns about ‘price optimisation’ in personal lines insurance products (i.e. those offered to individuals and families such as home, motor, and health insurance), whereby data mining and advanced statistical techniques can be used to select prices that differ from indicated rates. The Consumer Federation of America (CFA) regarded the practice as being unfairly discriminatory when consumers with the same underlying risk profile were charged diverging prices.

In November 2015, the National Association of Insurance Commissioners released a White Paper that addressed the practice of price optimisation, and made recommendations to state regulators that:

- Two insurance customers having the same risk profile should be charged the same premium for the same coverage (though some temporary deviations in premiums might exist between new and renewal customers with the same risk profile because of capping or premium transition rules).⁸
- The use of sophisticated data analysis to develop finely tuned methodologies with a multiplicity of possible rating cells is not, in and of itself, a violation of rating laws as long as the rating classes and rating factors are cost-based.
- Insurance rating practices that adjust the current or actuarially indicated rates or premiums, whether included or not included in the insurer’s rating plan, should not be allowed when the practice cannot be shown to be cost-based or comply with the state’s rating law. Such practices include price elasticity of demand; propensity to shop for insurance; retention adjustment at an individual level; a policyholder’s propensity to ask questions or file complaints.

Between October 2014 and January 2017, twenty US States issued independent bulletins, notices, and memorandums prohibiting the use of price optimisation techniques in insurance pricing on the grounds that the systematic use of factors unrelated to cost and risk resulted in consumer outcomes that were unfairly discriminatory.⁹

⁶ Importantly, as noted above, the FCA has a mandate to promote effective competition in the interests of consumers.

⁷ In this regard, the FCA launched a Call for Input on an ‘Open Finance’ strategy which aims to expand the principles of open banking to insurance and other markets, empowering consumers with more control over their financial data and harness the benefits of digital innovation and competition (FCA, 2019b).

⁸ The purpose of “capping” or “transition” rules is to provide stability to the insurer’s book of business when large premium changes are possible. With “capping” the change in premium from the current to the renewing rate (increase or decrease) is reduced. Capping impacts the premium change at renewal on a policy-by-policy basis and is usually in effect for a short period of time. Transition rules are similar, and can occur when overhauling a company’s rating plan or when merging books of business from different rating plans (NAIC White Paper, 2015).

⁹ In chronological order, these are Maryland, Ohio, California, New York, Florida, Vermont, Washington, Indiana, Pennsylvania, Maine, Rhode Island, Montana, Delaware, Colorado, Minnesota, Connecticut, Alaska, Missouri, Virginia, and Nevada. The District of Columbia has also banned the practice. (https://consumerfed.org/press_release/consumer-groups-applaud-nevada-insurance-commissioner-banning-price-optimization-closing-underwriting-loophole/).

iii. Australia: various financial products

In an Inquiry Report on competition in financial products in Australia (including credit cards, savings accounts and home loans), the Australian Competition and Consumer Commission (ACCC) drew attention to the dulling effect on price competition of limited consumer switching or price negotiation.

The Inquiry drew out at least three important reasons why demand-side competitive pressure can be subdued, leading to uncompetitive and disparate outcomes for consumers:

- Since consumers cannot opt-out of consuming certain financial products, it is not possible for them to express dissatisfaction in the normal way, i.e. by refusing the price.
- Behavioural barriers combine in such a way to manifest as consumer inertia, “reducing consumers’ desires to review or take action in relation to their financial affairs”.¹⁰
- Effective market segmentation and price differentiation on the part of financial providers allows them to confine the benefits of competitive pressure to those groups of consumers that are most active, “with high financial literacy and those who are strong self-advocates”, while penalising more passive consumers.¹¹

The Reserve Bank of Australia described the situation of price differentiation between new and existing customers as one where “established and less mobile customers are subsidising low margins (or loss leaders) for new customers”. The Australian Consumer and Competition Commission estimated the loyalty penalty incurred by existing inactive mortgage borrowers relative to new borrowers, and found that existing borrowers lose out to the tune of 32 basis points on average when compared against new borrowers (based on data in June 2018). This penalty translates to up to AUS\$850 a year in additional interest payments, and up to tens of thousands of dollars over the full term of the mortgage, in net present value (ACCC, 2018).¹²

Addressing remedial reforms adopted in an effort to prompt greater engagement on the part of consumers, the Productivity Commission’s Inquiry noted that the impact of these had been modest, in part because they had paid insufficient attention to behavioural barriers. Reflecting a pattern of recommendations adopted in other jurisdictions, the Productivity Commission recommended that, in the case of home loans, greater transparency on the distribution of contracted interest rates should be facilitated by comprehensive data collection that would be made available in a timely manner to consumers via an online tool. The tool would facilitate real price comparison by consumers between price offers that they receive, and those contracted by similar consumers for similar products.

Building on this report, the Australian government directed the ACCC in 2019 to undertake an inquiry to examine, inter alia, differences in the prices paid by new and existing customers, and investigate barriers for consumers in switching lenders. In an Interim Report, the ACCC found that new customers pay on average 26 basis points less than existing customers on owner occupied loans, a gap which widens to 40 basis points between new loans and those that are five years old or more (ACCC, 2020). Notably, the Report points to the importance of Australia’s new Consumer Data Right in empowering consumers to access their own banking data, securely share that data

¹⁰ ACCC, 2018: p.162.

¹¹ Notably, the Inquiry observed that the ability of financial providers to discriminate amongst consumers and offer differential prices is derived from the large volume of information that providers hold about individual consumers.

¹² Recent Central Bank of Ireland research illustrated the cost of inaction by existing mortgage holders in the Irish market with respect to beneficial refinancing opportunities, showing that 62% of eligible mortgages could save over €1,000 within 12 months of switching to lower available interest rates, and 61% could save over €10,000 in the remaining term, despite only 2.9% of mortgages switching provider in H2 2019 (Byrne et al, 2020).

with accredited third parties, and more easily compare and switch between home loan products and lenders. A final report is due for publication at the end of 2020.

3.2 Non-financial product markets

i. UK: energy market

In a 2016 investigation of UK energy markets, the Competition and Markets Authority (CMA) found that weakness in customer responsiveness and engagement in the retail energy market “gives suppliers a position of unilateral market power concerning their inactive customer base” and that “suppliers have the ability to exploit such a position through their pricing policies” (CMA, 2016). The investigation found that 70 per cent of domestic customers of the six largest energy suppliers were on expensive ‘default’ standard variable tariffs (SVT) and could potentially save over £300 by switching to a cheaper deal.

The CMA proposed a series of remedies to address differential pricing in the domestic retail energy market, which broadly included: (i) the creation of a framework for effective competition; (ii) helping customers to engage to exploit the benefits of competition, and; (iii) protecting customers who are less able to engage to exploit the benefits of competition.

As part of efforts to help customers to engage to exploit the benefits of competition, the CMA made two notable recommendations:

- (i) The creation of a database of ‘disengaged domestic customers’ paying the standard variable tariff or any other ‘default’ tariff for three or more years. This database would be managed by the Office of Gas and Electricity Markets (Ofgem). Rival suppliers would be permitted to access the database with a view to prompting customers to re-engage in the domestic retail energy market.¹³
- (ii) The establishment of an ongoing programme within Ofgem to identify, test and implement measures with the use of pilot tests where appropriate. These measures would provide domestic customers with different or additional information with the aim of promoting engagement in the domestic retail energy markets.¹⁴

To protect customers who are less able to engage to exploit the benefits of competition, the CMA implemented a time-limited price cap on a particular group of domestic customers where detriment was estimated to be particularly acute (prepayment customers). In its consideration as to whether to introduce a wider-ranging price cap for all standard variable tariff customers, by majority the CMA concluded that attempting to control outcomes for the substantial majority of customers would – even during a transitional period – run excessive risks of undermining the competitive process, likely resulting in worse outcomes for customers in the long run.¹⁵

¹³ In September 2019, Ofgem confirmed following a review that it had decided not to build a register of disengaged customers at this time, noting that there may be more effective ways of enabling the necessary data to be shared (Ofgem, 2019b).

¹⁴ In January 2017, Ofgem put in place new powers to direct suppliers to test consumer engagement measures as part of their licence conditions, and has now carried out 10 trials related to consumer engagement measures. These trials included over 1.1 million energy customers, resulted in customer savings worth £21.3mn, and yielded world class evidence and understanding of consumers (Ofgem, 2017; 2019).

¹⁵ Notwithstanding this conclusion, the UK government proceeded to introduce a price cap on default energy tariffs (including standard variable tariffs) which took effect from 1 January 2019. Ofgem has been charged by the UK government with updating these price caps, which it does twice annually. Ofgem price caps are estimated to protect around 15 million energy customers from overcharging, and to have resulted in energy bill savings of £1bn during 2019 (Ofgem, 2020).

ii. Canada: retail internet access market

In 2016, the Canadian Radio-Television and Telecommunications Commission (CRTC) launched a review of differential pricing by internet service providers (ISPs) with respect to categories of internet traffic. The investigation followed a complaint on the practice of exempting select types of internet traffic (such as Spotify or Google music streaming services) from counting towards a user's monthly data allowance by some ISPs, while other services incurred the full cost. Consumer groups argued that this practice was anti-competitive, and served to disadvantage smaller ISPs seeking to establish a market presence. This practice was deemed to undermine the principle of net neutrality, i.e. that all traffic on the Internet should be afforded equal treatment by ISPs.

In 2017, having found that differential pricing had negative implications for competition, innovation and consumer choice, the CRTC adopted a new framework regarding differential pricing practices (CRTC, 2017). Given the rapidly evolving nature of technology and the internet, the CRTC opted against an ex-ante rules based system that would define which types of differential pricing were permissible and which were not. Instead, the CRTC provided for an ex-post complaints approach to assessing differential pricing practices of ISPs, with a set of evaluation criteria relating to (i) the agnostic treatment of data, (ii) the exclusiveness of the offering, (iii) the impact on Internet openness and innovation, and (iv) whether there is financial compensation involved. However, primary consideration would be given to the agnostic treatment of data. The CRTC concluded that such a framework would be more responsive and adaptable to future developments in the market for retail Internet access, while providing a clear basis for the assessment of the permissibility of any differential practice adopted by an ISP.

iii. UK: multi-market super complaint

In September 2018, a 'super-complaint' was submitted to the Competition and Markets Authority in the UK by Citizens Advice, which was developed in conjunction with the Behavioural Insights Team (BIT, 2018). The submission drew attention to "deep, structural price discrimination against disengaged and loyal consumers" across five essential markets: mobile phones, broadband, mortgages, insurance, and savings accounts.

The super-complaint noted that previous attempts to resolve issues relating to the loyalty penalty did not take account of behavioural inertia, "thinking that simply getting companies to inform consumers about switching would be sufficient to get people to focus on their economic incentives. Early attempts failed to have any effect as a result".

The CMA investigated the scale of the problem and recommended a package of reforms to address the issue. The response concluded that the loyalty penalty arises because:

- (a) Customers differ in terms of their likelihood and ability to negotiate or switch provider in response to a price rise, and
- (b) Businesses are able to charge higher prices to customers who are less likely to negotiate or switch, and they choose to do so.

The CMA noted that, in addition to those markets which were identified by the Citizens' Advice super-complaint, loyalty penalties are likely to arise in other auto-renewal, roll over or subscription products or services such as: other insurance markets (e.g. car or health insurance or breakdown cover), subscription TV, film or music streaming, online gaming, software, credit checking services, or gym memberships.

The CMA found substantial variation both within and across markets in terms of the size of loyalty penalties (see Appendix for full details). Penalties ranged from being relatively thinly spread in the home insurance market (circa 47 per cent of customers incurring a penalty of £57 on average) to

being much more concentrated and acutely felt in the mortgage market (10 per cent of customers incurring a penalty of £1000 on average). In order to produce better estimates of the total size of the loyalty penalty, the CMA recommended that regulators and providers collect granular data on loyalty penalties in an ongoing and systematic way.

The CMA also proposed a range of cross-cutting market recommendations. These included giving people more help in finding better deals by capturing and sharing best practice in relation to behavioural nudge remedies, harnessing the power of reputation by publicising the loyalty penalty to hold suppliers to account, protecting consumers by way of targeted limitations on price differentials and specific measures to help vulnerable consumers, as well as bolder use of existing enforcement and regulatory powers of intervention.

In January 2020, the CMA published a '12 months on' update which acknowledged the progress made by relevant bodies in taking forward its recommendations but emphasised that this work remained far from complete (CMA, 2020). Recognising that the process of designing, testing, and implementing effective remedies takes time, the CMA called on regulators to focus on putting in place sufficiently strong remedies to tackle on-going consumer detriment. Notably, the update re-emphasised the importance of publishing metrics on the size of the loyalty penalty in key markets in such a way as to provide a reputational incentive for firms to improve their treatment of existing customers. Further, regulators were urged to explore the feasibility of matching price data to a recurring large scale consumer survey so as to enhance understanding in relation to who pays the loyalty penalty and to what extent this may correlate with sources of vulnerability.

4 Behavioural biases and differential pricing

One common feature of the case studies presented in Section 3 is that the practice of differential pricing can be more pronounced in markets where consumers do not shop around for alternative options or when they do not negotiate on price. There are various empirical examples that support this contention. For instance, Stango and Zinman (2016) find that in the U.S. credit card market the amount and quality of borrower search/shopping explains a significant degree of observed interest rate differentials across 'similar' borrowers. Similarly, Bhutta et al. (2019) document a substantial amount of interest rate price dispersion in the U.S. mortgage market, even after controlling at a very granular level for borrower characteristics, a feature that they contend is linked to the amount of search and negotiation that borrowers engage in.

While in some cases it may be rational for consumers to avoid a search for alternative products or services, (e.g. if the costs of search and negotiation are higher than the potential benefits), in other cases insufficient search and negotiation can be linked to behavioural biases that affect the customer's ability or willingness to access and use relevant information to negotiate on price. This can include, for example, a tendency towards procrastination, an overweighting of the potential cost of searching for alternative price options or an underweighting of the potential gains from price negotiation. **Table 1** provides several examples of behavioural biases that could affect customer choices in financial markets and lead to a lack of switching or negotiation on the part of customers.

Table 1: Examples of behavioural biases (for financial decisions)

Bias	Explanation	Outcome (decision errors)
Choice overload	Related to a limited capacity to process large volumes of information, choice overload occurs when our understanding of an option or ability to choose effectively is undermined by the number of choices, options, or attributes available.	Choice overload may result in confusion and poor financial decisions. It may also induce decision fatigue and lead to procrastination.
Information avoidance	Information avoidance refers to situations in which people choose not to obtain knowledge that is freely available. Information avoidance can include physical avoidance, inattention, the biased interpretation of information and forgetting.	Information avoidance can cause one to miss out on important and useful information for financial decision making.
Inertia	This is the tendency to stick with the status quo, even when doing so may be disadvantageous if weighed rationally against alternative options.	Inertia may cause one to persist in financial situations that are detrimental to welfare.
Present bias	This is when people attach a disproportionate importance to payoffs that occur sooner when compared to those that occur in future.	Present bias/myopia may cause one to miss out on future benefits which today require only a modest investment of energy to achieve.
Procrastination	This is the habit of postponing to a future date decisions or actions that could be taken today.	Repeated procrastination can result in a detrimental failure to take timely action.
Framing	Framing refers to the act of influencing decisions by the manner in which options are presented.	This can cause one to make inconsistent and poor decisions that do not reflect rational self-interest.

While the academic literature exploring the direct link between behavioural biases and the incidence of differential penalties remains underdeveloped, these biases have been widely linked with financial decision-making errors.

For instance:

- King and Singh (2018) provide evidence that prospective mortgage holders demonstrating present bias are 8 per cent more likely to choose a more expensive 'cashback' mortgage option which bears higher interest rates but offers immediate cash payments of €3000-€6000 at drawdown.
- Teppa and van Rooij (2012) find a significant impact of framing effects and default options on individuals' pension choices. They show that the probability of choosing alternative pension contribution or asset allocation options is significantly higher when the label 'standard' is applied to these options.
- Shiller (1999) highlights how regret aversion helps to explain the pattern of investors deferring the sale of stocks that have declined in value and accelerating the sale of stocks that have increased in value.

The effect of behavioural biases on consumer financial decisions can be exacerbated in cases where certain features of a market make it more difficult to shop around or switch, or if firms actively employ strategies that manipulate behavioural biases to reduce the likelihood of searching for

better offers. These interactions can give rise to 'behavioural market failures' that may require tailored policy solutions (see for instance Bar-Gill (2012), Akerlof and Shiller (2015), Sunstein (2012), or FCA (2013)), as evidenced in the case studies explored in Section 3. To inform policy debate, a number of public authorities across the globe have established behavioural economics teams to understand the relative importance of behavioural and other factors in driving consumer outcomes.

5 Conclusions

Differential pricing refers to the practice of charging individual customers or groups of customers different prices for access to the same good or service. It is observed in various markets, including for example telecommunications, credit or energy markets. It can bring benefits for consumers, such as providing market access to customers who would be unable or unwilling to pay a uniform price. The practice can also be associated with costs for consumers, and these costs can be exacerbated in cases where market features or firm actions serve to reduce the propensity of customers to shop around for better offers or to negotiate on price.

Concerns about differential pricing practices have motivated public authorities in multiple jurisdictions and across various sectors to investigate the issue in essential product markets. Frequently, public authorities have recommended better arming consumers with the tools necessary to navigate essential product markets and search for alternative price offers. This has included, for example, the recommendation of new data collections that would serve to highlight better the range of options available to consumers, and the pre-testing of potential interventions to reduce the impact of behavioural obstacles on effective customer engagement. In some cases authorities have provided guidance on when differential pricing may be permissible and when it may not, and in other cases authorities have taken active steps to prohibit the practice.

In all of these cases, it is clear that a careful weighing of the likely costs and benefits of any potential policy solution is essential, with appropriate consideration given to potential competition and consumer price effects, as well as the impact on vulnerable consumers.

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Appendix

Table A1: Summary of estimated loyalty penalties in UK markets (from CMA, 2018)

Market	Number of people/households (proportion of customers) potentially affected	Total loyalty penalty (per year)	Average penalty per 'loyal' person/household (per year)	Definition of the penalty	Source
Mobile (including handset)	1.5 million (6%)	£330m	£222	Overpayment based on estimated average monthly handset charge when acquired with a pay monthly mobile service and number of pay monthly mobile handset contract customers who said they continued to pay the same price outside of their contract period.	Ofcom, 2018.
	4 million (34%)	£473m	£264	Difference between the initial fixed term contract price and continuing price for people who remain on the contract longer than the initial fixed term length.	Citizens Advice, 2018.
Broadband packages	8.7 million (37% of dualplay and 41% of triple-play customers)	£990m	£112 (£72 for dual-play and £156 for triple-play)	Difference between average spend per customer for 'in contract' and 'out of contract' customers and number of customers 'out of contract'.	CMA calculations
	11 million (43%)	£1128m	£113	Difference between price paid after and during the initial contract period (based on cheapest basic broadband contract) for households which began their current broadband contract at least three years ago.	Citizens Advice, 2018.
Savings accounts	Not known	£1136m	£48 (typical customer for cash ISA only)	Difference in the average interest rate offered to accounts less than two years old and more than five years old, for people with saving accounts that are more than five years old.	Citizens Advice, 2018 based on FCA, 2018.
Home Insurance	12.4 million (47%)	£709m	£13-90, depending on tenure (£57 on average)	Difference between policy price after renewal and the policy price offered to new customers, for people who renew with their provider (ie everyone who has been with the provider with more than a year).	Citizens Advice, 2018 based on FCA, 2015.
Mortgages	0.8 million (10%)	£800m	£1000	Potential savings consumers who remained on the reversion rate for six months or more could make if they switched to a new two-year fixed deal with the same provider, taking into account that some consumers actively choose to stay on the reversion rate.	FCA, 2018.
	1.2 million (10%)	£527m	£439	Difference between standard variable rate and fixed rate (also considering fees associated with switching) for people on standard variable rates.	Citizens Advice, 2018.

Note: Aggregate CMA estimate of a total loyalty penalty of £4 billion in total across five markets based upon the preferred estimates marked in bold.

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