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Big Data and Personalised Price Discrimination in EU Competition Law

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Big Data and Personalised Price Discrimination in EU Competition Law

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1. Introduction

The networked digital revolution is ushering in a new data-driven age, powered by the engine of Big Data.² We generate a massive volume of digital data in our everyday lives via our on-line interactions, which can now be tracked on a continuous and highly granular basis. This tracking ability, combined with the power of machine learning algorithms, has given rise to a wide and varied range of 'personalised' services, ranging from personalised news content, advertising, energy management, fitness measurement and management, street navigation through to dating and mating services. These technologies have radically disrupted the retail sector, following the founding of digital retailer Amazon in July 1994 by entrepreneur Jeff Bezos, which is now valued at \$US 373 billion. Amazon's success, and the reason why customers return to it time and time again, is due to its ability to improve the shopping experience, whether through predicting what stocks to keep, understanding consumers' preferences and recommending other, complementary products, etc. through its collation, interpretation and utilisation of Big Data to personalise our digital shopping experience. However, this digital personalisation is no longer limited to shopping recommendations and advertising delivered to our smartphones, laptops and other mobile devices, but may extend to the *prices* at which goods and services are offered to customers in on-line environments, making it possible for two individuals to be offered exactly the same product, at precisely the same time, but at different prices, based on an algorithmic assessment of each shopper's predicted willingness to pay. For example, in 2000, Amazon.com sold DVDs to different people for different prices, prompting a public outcry that resulted in Amazon claiming it was merely a test and refunding the price difference to people who paid more. Yet in 2012, an Oregon newspaper reported that consumers were again finding that the prices charged for items on Amazon.com were highly variable, with one consumer placing a set of mahjong tiles in her shopping basket offered at a price for \$54.99, but a few minutes later, found that the price of the item in her basket had jumped to \$79.99, and when she cleared the cart and tried again, the item was then priced at \$59.99. In the same year, a Wall Street Journal investigation found that Staples Inc.'s website displays different prices to people after estimating their locations. If rival stores were physically located within approximately 20 miles from that person's estimated location, Staples.com usually showed a discounted price; a 2015 study into price differences

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² Although there are many definitions of Big Data, for our purposes we define Big Data in terms of the four elements identified by Bernhard Rieder: first, the steadily increasing production and availability of very large datasets that often comprise transactional data (logged behaviour) or other forms of non-traditional data such as social interactions, cultural tastes, or sensor readings; second, they rely on algorithmic techniques for data analysis, many of them probabilistic and capable of learning which have now become widely available; third, the rampant computerization of all aspects of contemporary life means that ever more practices are unfolding in online environments that allow for data collection as well as for the automation of decision-making and the performative implementation of its results; and fourth, more broadly, the relentless drift in economic and social organization towards market forms makes techniques that can adapt to and control complex and dynamic situations increasingly attractive, Bernhard Rieder, 'Big Data and the Paradox of Diversity' (2016) 2 Digital Culture & Society .

in international travel bookings for US hotel and car rental, showed a similar pattern.³ These instances all mine consumers' digital footprints, using machine learning algorithms to enable digital retailers to predict the price that individual consumers ('final end users') are willing to pay for particular items, and thus offer them different prices. This phenomenon, which we dub 'algorithmic consumer price discrimination' (ACPD) forms the focus of this paper.

The practice of price discrimination, which we define as "...charging different customers or different classes of customers different prices for goods or services whose costs are the same or, conversely, charging a single price to customers for whom supply costs differ..."⁴ is hardly a new phenomenon. Familiar forms include loyalty discounts, volume or multi-buy discounts, and the offering of status based discounts for students, old-age pensioners and the unemployed. However, the technological capacities of Big Data substantially enhance the ability of digital retailers to engage in much more precise, targeted and dynamic forms of price discrimination that were not previously possible. First, it allows for surveillance and tracking of online behaviour via the collection of individuals' 'digital breadcrumbs', enabling firms to create detailed profiles of the tastes, habits and purchasing preferences of consumers at a highly personal and granular level. Secondly, Big Data allows for personalised on-line strategic experimentation to acquire insight (information) concerning the preferences, behaviours and potential willingness to pay, of digital users (via online A/B testing).⁵ Finally, the online environment allows firms to mine the resulting data to personalise the informational choice environments of each user, including the digital 'shop floor' through which they make purchases. So, rather than products being displayed in a physical space offered at a single price to all customers, it is now technologically possible to offer the same goods to different consumers at *different* prices (based on their algorithmically predicted individual willingness to pay). As the digital consumer only sees her own 'personalised' digital shop front, she may be unaware that price discrimination is taking place. Digital retailers portray the shopping experience as a benefit to consumers, offering them a 'bespoke' informational environment that supposedly makes the online shopping experience more efficient and 'meaningful' to the individual. As we saw with our Amazon example, there are often advantages; but whether this ultimately benefits consumers is an open question, particularly given the capacity to engage in highly personalised price discrimination which these technologies make possible.

There are many areas of law that might mount a response to rising public anxieties associated with these practices. Data protection law and consumer protection laws are obvious candidates, given that ACPD relies heavily on the collection and algorithmic processing of personal data, and clearly affects the interests of consumers. Furthermore, other areas of law might also be brought to bear, including contract law, e-commerce law and anti-discrimination law. However, our paper seeks instead to critically examine these

³ Rose Michael and Rahman Mohammed, 'Who's Paying More to Tour These United States? Price Differences in International Travel Bookings' (2015) *Technology Science*. For other examples see Akiva Miller, 'What Do We Worry About When we Worry About Price Discrimination? The Law and Ethics of Using Personal Information for Pricing' (2014) 19 *Journal of Technology Law and Policy*, 48-54. More generally see, European Data Protection Supervisor, *Privacy and Competitiveness in the Age of Big Data: the interplay between data protection, competition law and consumer protection in the digital economy* (2014), 6-11.

⁴ Case C-209/10 *Post Danmark A/S v Konkurrencerådet* [2012] ECR I-172, para 30.

⁵ The so-called 'Facebook' emotional contagion experiments involved A/B testing, which provoked a storm of outrage. See Adam Kramer, Jamie Guillory and Jeremy Hancock, 'Experimental Evidence of Massive-Scale Emotional Contagion through Social Networks' (2014) 24 *Proceedings of the National Academy of Sciences of the United States of America*; and Michelle Meyer, 'Two Cheers for Corporate Experimentation - the A/B Illusion and the virtues of data-driven innovation' (2015) 13 *Colorado Technology Law Journal*.

practices from the perspective of *competition law* through which we seek to evaluate ACPD by reference to two contrasting normative values: economic efficiency, on the one hand, and fairness or equity on the other.⁶ Competition law provides a unique lens for interrogating the social implications of ACPD due to its distinctive character as a form of 'economic law' that is intended to protect and strengthen the process of rivalry in the marketplace. Although 'traditional' forms of price discrimination have long been the subject of economic analysis to evaluate whether they are economically efficient, algorithmic price discrimination⁷ has hitherto attracted relatively little critical analysis despite concerns recently expressed by the Executive Office of the President.⁸ The effects of market practices on economic efficiency are a matter of central importance to competition law, because this area of law rests on a fundamental tenet of economic theory: a belief that competitive markets incentivise firms to produce better quality products or services for their customers, and at lower costs, thereby enhancing collective welfare by facilitating the efficient allocation of society's scarce resources. Accordingly, a rising belief by policy-makers worldwide in the positive welfare effects of markets over the last 40 years has also seen a rapid proliferation of competition laws with more than 130 competition law regimes now in existence. By seeking to foster the competitive processes by legal intervention, competition law – somewhat paradoxically – imposes legal constraints on market behaviour in order to address problems associated with market failure. Our concern is with EU competition law, the core tenets of which are set out in Articles 101 and 102 of the Treaty on the Functioning

⁶ There is a burgeoning literature on big data and competition law but it has typically focused on the relationship between big data, consumer welfare and competition law more generally, rather than on the specific practices that Big Data makes possible. See for example: Ariel Ezrachi and Maurice Stucke, 'The Rise of Behavioural Discrimination' (2016) 37 *European Competition Law Review* ; Douglas Kochelek, 'Data Mining and Antitrust' (2009) 22 *Harvard Journal of Law and Technology* , Daniel Sokol and Roisin Comerford, 'Does Antitrust Have a Role to Play in Regulating Big Data?' (2016) SSRN , Darren Tucker and Hill Wellford, 'Big Mistakes Regarding Big Data' (2014) *The Antitrust Source* ; (big data and market power assessments in competition law); Francisco Costa-Cabral and Orla Lynskey, 'The Internal and External Constraints of Data Protection on Competition Law in the EU' (2015) LSE Law, Society and Economy Working Papers , Neil Averitt and Robert Lande, 'Consumer Sovereignty: a unified theory of antitrust and consumer protection law' (1997) 65 *Antitrust Law Journal* , Maureen Ohlhausen and Alexander Okuliar, 'Competition, Consumer Protection, and the Right [Approach] to Privacy' (2015) 80 *Antitrust Law Journal* , Supervisor, *Privacy and Competitiveness in the Age of Big Data: the interplay between data protection, competition law and consumer protection in the digital economy*, Oxera, *Behavioural Economics and its Impact on Competition Policy* (2013), Omer Tene and Jules Polonetsky, 'Judged by the Tin Man: individual rights in the age of big data' (2013) 11 *Journal on Telecommunications and High Technology Law* , Judith Mehta (ed), *Behavioural Economics in Competition and Consumer Policy* (2013), (exploring various intersections between big data, competition law, consumer law and privacy) - (the hidden costs of free goods). For a notable exception see, Miller, 'What Do We Worry About When we Worry About Price Discrimination? The Law and Ethics of Using Personal Information for Pricing'. More generally, also see Pinar Akman, 'To Abuse or Not to Abuse: discrimination between consumers' (2007) *European Law Review* . As regards the economics of privacy, for a recent and comprehensive review of the literature see, Alessandro Acquisti, Curtis Taylor and Liad Wagma, 'The Economics of Privacy' (2016) 54 *Journal of Economic Literature* ; I Png, *On the Value of Privacy from Telemarketing: evidence from the 'Do Not Call' registry* (2007); and Scott Savage and Donald Waldman, *The Value of Online Privacy* (2013).

⁷ It is theoretically possible to use ACPD to intentionally discriminate against certain individuals or groups, this is not the focus of this paper.

⁸ Executive Office of the President of the United States of America, *Big Data and Differential Pricing*, (2015). Cf Miller, 'What Do We Worry About When we Worry About Price Discrimination? The Law and Ethics of Using Personal Information for Pricing'.

of the European Union (the TFEU)⁹, focusing on whether ACPD would be regarded as unlawful under Article 102 TFEU, which prohibits ‘abuse’ by particularly powerful (‘dominant’) firms.¹⁰

Given that the fundamental concern of competition law, today, is principally to promote economic efficiency, our analysis begins by applying economic theory to the practice of ACPD to identify whether it enhances or diminishes economic efficiency. For this purpose, we interpret economic efficiency as “consumer surplus”¹¹ which is “...the aggregate measure of the surplus of all consumers.”¹² The surplus of an individual consumer is the difference between what she is willing to pay for the good and the price of the good. Big Data techniques provide firms with the capacity to gather more information about their consumers’ willingness to pay. If firms can price discriminate between consumers, they can charge lower prices to those with a lower willingness to pay compared with a regime in which only one price is possible. As we demonstrate in Section 2, the incentives for firms to engage in ACPD often exist. We find that consumers are in the aggregate often better off, economically, when sellers can price discriminate in this way, thereby enhancing consumer surplus. However, this is not always the case. Furthermore, whether EU competition law is solely and exclusively concerned with economic efficiency, or whether it provides scope for non-efficiency based considerations in the application of its provisions, is a matter of debate. Accordingly, in Section 3 we evaluate ACPD by reference to its fairness or justice (which we also call equity) understood in three distinct (and sometimes overlapping) ways: (a) the perceived fairness of pricing practices; (b) unfair dealing between online retailers and consumers (corrective justice); and (c) fairness as a requirement of distributive (or collective) justice. For each of these understandings of fairness, we identify points of convergence and conflict with economic evaluations of the effects of ACPD on aggregate consumer welfare.

No Article 102 cases have directly considered the legality of ACPD. Section 4 therefore interrogates existing Article 102 case law to ascertain whether ACPD would likely breach this provision. Because the current legal position is unclear, Section 5 draws together the efficiency and fairness evaluations by considering whether ACPD *should* be regarded as unlawful under EU competition law. We argue that where ACPD increases both consumer surplus and fairness, it should not breach Article 102. Conversely, where ACPD undermines both consumer welfare and fairness, then such practices should be unlawful under Article 102. However, because economic and fairness evaluations of ACPD may conflict in specific cases, Section 5 also considers whether, in the light of the underlying justifications for EU competition law and the EU’s foundational principles, ACPD should be considered a violation of Article 102 where it undermines justice or equity, even though it may enhance consumer surplus, and vice versa. We deal with the clashes between these goals in two ways: first, we offer a partial reconciliation between these goals, by supplementing conventional economic analysis with insights from behavioural economics, thus enabling some fairness

⁹ The *Treaty on European Union* (TEU) and the *Treaty on the Functioning of the European Union* (TFEU) establish the European Union (EU). They should be read together. TEU establishes the Union (Article 1), provides for its democratic principles, institutional structure, etc. The TFEU “...organises the functioning of the Union and determines the areas, the scope of, and arrangements for exercising its competences.”, Article 1(1).

¹⁰ Article 102 TFEU’s text reads: “Any abuse by one or more undertakings of a dominant position within the internal market or in a substantial part of it shall be prohibited as incompatible with the internal market in so far as it may affect trade between Member States.”

The EU’s competition rules are in Articles 101-109 TFEU. Although both Articles 101 and 102 TFEU have been applied to mergers, the EU has operated a special merger regulation since 1989. The current merger regulation is Council, *on the control of concentrations between undertakings* (2004).

¹¹ We use the term ‘consumer surplus’ and ‘consumer welfare’ interchangeably.

¹² Massimo Motta, *Competition Policy: theory and practice* (Cambridge University Press 2004), 18.

considerations that affect consumer welfare to be taken into account. Secondly, we suggest that fairness should have a secondary role when Article 102 is applied to ACPD, in the form of a 'defence' to an allegation of abuse of market power. On our suggested account, ACPD which reduces consumer surplus may nonetheless avoid falling foul of Article 102 if it can be justified on grounds of fairness. Section 6 concludes, suggesting that EU competition law may have a valuable but limited role to play in redressing some of the adverse impacts of ACPD, primarily by focusing on the consumer welfare effects of ACPD, and in which considerations of fairness and justice play a relevant, but nonetheless subsidiary, role. Competition law cannot, and should not, seek to solve all the social problems associated with market behaviour, including data-driven forms of personalised pricing. Our conclusions should not, however, be interpreted as suggesting that such concerns do not warrant a legal response: merely that competition law is not in our view the most appropriate legal instrument through which to address them. Identifying other avenues for legal intervention to redress these concerns, or a close consideration of the interaction between competition law and other areas of law that may have a role to play in responding to ACPD, are beyond the scope of this paper.

2. The Economics of ACPD

The advent of Big Data provides firms with more opportunities to obtain information on consumer preferences and their willingness to pay. This information may be public or private, and could be based both on the observed *characteristics* of the individual e.g. their location, age, gender, employment status, or on their observed *behaviour*, e.g. whether they have previously made a purchase, their responsiveness to previous price offers and their search histories.¹³ This information, together with the greater technical ability for sellers to offer consumers personalised prices, may lead to more, and more refined forms of price discrimination.

When firms have more information on consumer preferences it can provide them with more opportunities to extract consumer surplus using ACPD. While this may lead to a reduction in aggregate consumer surplus, consumers may also benefit from ACPD and aggregate consumer surplus may increase.

One reason for this is that consumers are not necessarily passive or powerless in this relationship. Consumers may choose not to reveal their information, or they may choose to act strategically, for example, delaying purchases in the expectation that sellers will lower prices at a later date. Sellers may therefore have to offer incentives to consumers to reveal information about their preferences and willingness to pay.

But a more fundamental reason is that when suppliers have more information on consumer preferences this can change the nature of competition. In many models, this can lead to more intensive cut-throat competition, although it may also dampen competition depending upon the type of information that is used to condition prices.

The relationship between information, ACPD, and consumer outcomes is therefore a complex one. In this section we seek to draw out the main insights that economic theory has to offer on this issue. We begin by examining classic models of price discrimination, which are based on a monopolist (single seller) acting on the basis of publicly available information. We then examine how the conclusions of these models change once consumers can choose between competing sellers. We then consider the incentives sellers may need to offer consumers to enable them to collect private information on consumer

¹³ Thomas Gehrig, Oz Shy and Rune Stenbacka, 'A Welfare Evaluation of History-Based Price Discrimination' (2012) 12 Journal of Industry, Competition & Trade .

preferences and willingness to pay. Finally, we consider some policy implications of this analysis. We highlight three issues:

- (i) Is price discrimination only harmful to consumers where sellers have substantial market power?;
- (ii) Should there be any restrictions on sellers collecting customer information?; and
- (iii) What distributional issues does ACPD raise?

2.1 Classic models – price discrimination by a single firm monopolist

Standard textbook treatments of price discrimination, such as Varian¹⁴, consider the welfare effects of price discrimination as practised by a monopolist. Three main types of price discrimination are identified which differ in the information assumed to be held by the monopolist:

- i. 1st degree price discrimination – where the monopolist has *perfect* information about each individual consumers' willingness to pay.
- ii. 2nd degree price discrimination – where the monopolist has no *ex ante* information about an individual consumers' willingness to pay, but consumers reveal (some) information about their preferences through their purchase decisions, e.g. a business traveller may identify themselves as having a relatively high willingness to pay by booking close to departure time or by choosing an unrestricted fare.
- iii. 3rd degree price discrimination – where a monopolist has *imperfect* information about an individuals' willingness and charges prices to different individual customers (or groups of customers) based on their observed characteristics or behaviour, e.g. discounts to senior citizens, or lower prices to new customers.

Arguably ACPD most closely resembles 3rd degree price discrimination in that suppliers observe consumer characteristics and behaviour that is correlated with their willingness to pay.¹⁵ They can then use this information to offer personalised prices and/or present customers with an individually tailored digital 'shop floor'. While Big Data allows suppliers to obtain better estimates of individual consumer preferences and willingness to pay, inevitably personalised prices are based on imperfect (3rd degree price discrimination) rather than perfect (1st degree price discrimination) information.

Price discrimination (as practised by a monopolist) has three main effects on aggregate consumer surplus (compared to uniform pricing):

- i. A rent transfer effect – if a monopoly supplier can price discriminate it has a wider range of pricing options which it can use to increase its profits (rents) at the expense of consumers.
- ii. A (mis-)allocation effect – under price discrimination, output is not necessarily allocated to those consumers that value it the most.

¹⁴ Hal Varian, *Intermediate Microeconomics: a modern approach* (Nineth Edition edn, W.W. Norton and Co. 2014).

¹⁵ This view is consistent with the definition adopted by the OFT see: "The economics of online personalised pricing", OFT (2013) para. 2.9 "we take personalised pricing to mean direct price discrimination that is imperfect but sophisticated. In other words, for the purposes of this report, we take personalised pricing to mean sophisticated third-degree price discrimination."

- iii. An output effect – price discrimination will often, but not invariably,¹⁶ result in an increase in output by allowing the seller to offer lower prices to consumers (or markets) that were previously not served at the uniform price.

The rent transfer and allocation effects tend to reduce consumer surplus, while the output effect usually increases it. The overall impact of 3rd degree price discrimination on consumer surplus is therefore ambiguous. However, Cowan argues that 3rd degree monopoly price discrimination will typically reduce consumer surplus, but there are plausible circumstances in which it can increase.¹⁷ Bergemann et al reach a similar conclusion.¹⁸

We know from the 1st degree price discrimination model that when a monopolist has perfect information on consumer willingness to pay, output and total economic surplus (consumer surplus plus producer surplus) increase compared to uniform pricing, but this is at the expense of consumer surplus which is entirely eliminated. This gives rise to the intuition that information *benefits firms and harms consumer*. As Armstrong notes, “It is consumers’ private information that protects them against giving up their surplus to a monopoly”.¹⁹

These classic models have been highly influential in shaping economic thinking on price discrimination. But, in our view they have very little to say about the likely impact of ACPD on consumers as:

- i. ACPD tends to occur in imperfectly competitive rather than monopolistic markets. In imperfectly competitive markets, the type of information used to condition prices can be very different to that in monopoly markets, and this, in turn, can lead to very different consumer outcomes.
- ii. Classic models assume that the type and accuracy of information available to the monopolist is exogenous. This neglects perhaps one of the most important aspects of ACPD, namely that firms often choose to collect substantial additional amounts of information on consumer preferences in order to meet their customer needs and/or secure a competitive advantage.
- iii. Classic models assume that consumers are passive. However, an important aspect of markets in which ACPD is practised is that consumers may choose to act *strategically* through actively sharing or hiding their information or through delaying purchases to entice the supplier to offer a lower price.

These three features greatly complicate the relationship between information, price discrimination and consumer surplus, so that the intuition that more information on consumer preferences benefits firms and harms consumers will not always hold. We look at each of these features in turn.

¹⁶ For example, if demand functions are linear, output with 3rd degree price discrimination is identical to that where uniform prices are charged, see, A Pigou, *The Economics of Welfare* (Macmillan 1920)

¹⁷ The net effect on consumer surplus depends primarily on the curvature of the consumer demand function, see Iñaki Aguirre, Simon Cowan and John Vickers, 'Monopoly Price Discrimination and Demand Curvature' (2010) 100 *The American Economic Review* 1601.

¹⁸ Dirk Bergemann, Benjamin Brooks and Stephen Morris, 'The Limits of Price Discrimination' (2015) 105 *American Economic Review* 921.

¹⁹ Mark Armstrong, 'Recent Developments in the Economics of Price Discrimination' in Richard Blundell, Whitney Newey and Torsten Persson (eds), *Advances in Economics and Econometrics: theory and applications: Ninth World Congress*, vol II (Advances in Economics and Econometrics: theory and applications: Ninth World Congress, Cambridge University Press 2006).

2.2 Price discrimination in imperfectly competitive²⁰ markets

In imperfectly competitive markets the relationship between information, ACPD, and consumer surplus is considerably more complex. A key insight of the economic literature is that, in these markets, price discrimination can either increase or reduce the *intensity of price competition*, depending upon the particular type of information used as a basis for offering personalised prices.

As we saw above, in monopoly markets, price discrimination is usually based on estimates of a consumers' willingness to pay i.e. the maximum price an individual is prepared to pay for an additional unit of a good or service. However, this form of price discrimination is not feasible where there is competition as consumers may simply switch to an alternative brand.

Price discrimination in imperfectly competitive markets has therefore to be conditioned on a different type of consumer information. Two main types may be distinguished:

- i. The additional value a consumer receives from purchasing a good or service from one particular supplier over another (brand preference / switching costs); and
- ii. The cost incurred by consumers in comparing differing brands (search costs).²¹

Access to both types of consumer information allows sellers the possibility of charging higher prices to those customers that are relative price inelastic (i.e. insensitive to changes in price). This price insensitivity may arise for example where a customer has a strong preference for a particular suppliers' brand or where they would incur costs in switching to a rivals' brand.

Alternatively, price insensitivity may result from higher search costs. Consumers that do not search, for example, because they have high search costs or because they are impulsive, inattentive or otherwise economically unsophisticated purchasers, mark themselves out as being price insensitive. Accordingly, they may be charged a higher price than those that search more widely and make more considered purchases.

Although these two types of consumer information appear similar, the economic effects on competition and consumers can be very different: price discrimination based on brand preference tends to intensify competition²² (and increase aggregate consumer surplus), whereas price discrimination based on search costs tends to weaken competition (and reduce consumer surplus). The intuition underlying this is that with respect to brand preferences, each seller has a "strong" group of customers that prefer its brand, and a "weak" group of potential customers that prefers the brand of a rival seller. The strong

²⁰ In imperfect competitive markets there is rivalry between two or more firms, but individual firms may retain some degree of market power, i.e. an ability to raise price above marginal cost.

²¹ In the standard Hotelling model consumer utility depends upon the valuation of the product, the price, and the "transport cost" between the good that best matches a consumer's preferences and the goods that are available. The "transport cost" is, itself, decomposed into a distance (d) and a cost/unit of distance (t) parameter. Armstrong, 'Recent Developments in the Economics of Price Discrimination' refers to the former as "brand preference" and the latter as "choosiness". We think that "cost of search" is perhaps a more intuitive notion of the t parameter.

²² An exception to this is the dynamic model presented by Shy et al, which shows that price discrimination can reduce the intensity of competition in declining markets. In growing markets however they obtain the standard result that price discrimination on the basis of brand preferences or switching costs intensifies competition, Oz Shy, Rune Stenbacka and David Hao Zhang, 'History-Based versus Uniform Pricing in Growing and Declining Markets' (2016) 48 International Journal of Industrial Organisation .

customers for one seller are the weak customers of its rival.²³ Each seller will seek to charge higher prices to those that prefer its brand, while discounting heavily to attract the customers of rival brands. It is these targeted price cuts – aimed at winning customers from rival suppliers – that lead to an intensification of competition, lower average prices and higher aggregate consumer surplus compared to uniform pricing.

The opposite situation applies when price discrimination is based on information on customer search costs. Here all sellers want to charge low prices to (“weak”) customers who search out the lowest price and high prices to “strong” consumers who have high search costs e.g. those that do not shop around and those that make impulsive purchasing decisions. The “strong” customers are the same for both sellers.²⁴ But, because these customers are price insensitive there is limited incentive to compete aggressively by offering lower prices. As a result, this type of price discrimination can weaken competition compared to uniform pricing.

Most attention in the academic literature on price discrimination in imperfectly competitive markets has focused on price discrimination based on brand preference (including switching costs). Thisse and Vives set out what has become a benchmark model to analyse this effect. Their model is similar to the first-degree price discrimination model,²⁵ in that sellers have perfect and publically available information on each individual consumer’s willingness to pay (including their brand preferences). However, rather than there being a monopolist, there are two competing sellers. The authors show that where customers’ brand preferences are uniformly distributed between the two firms, not only are consumers better off in aggregate with price discrimination (compared to uniform pricing) but all consumers are at least as well off.²⁶

Chen presents a similar model, but where price discrimination is based on customer switching costs rather than brand preferences.²⁷ This generates a similar result to Thisse and Vives with all consumers being at least as well off with price discrimination compared to uniform pricing.

In the above models, there are two conflicting effects: sellers would like to price discriminate to earn more rents from customers with a relatively high brand preference (the rent-seeking effect), but they would also prefer to avoid price discrimination as it intensifies competition (the intensification of competition effect). In all of the above models, the intensification of competition effect dominates the rent-seeking effect.

In a more general model, Ulph and Vulkan show that the intensification of competition effect typically dominates the rent-seeking effect.²⁸ As a result, prices are lower for nearly all consumers under price discrimination based on brand preferences compared to uniform prices. Only where consumers have extremely strong preferences for one seller over another does the rent-seeking effect dominate.

However, the above models assume that the strong customers for one seller are the weak customers for their rival (referred to in the technical literature as ‘best-response asymmetry’). This is typically the case with price discrimination based on brand preference

²³ This is known as best-response *asymmetry*, see Kenneth Corts, 'Third-Degree Price Discrimination in Oligopoly: all-out competition and strategic commitment' (1998) 29 Rand Journal of Economics .

²⁴ This is known as best-response *symmetry*, *ibid*.

²⁵ See text around footnote 14.

²⁶ J.-F. Thisse and X Vives, 'On the Strategic Choice of Spatial Price Policy' (1988) 78 American Economic Review 122.

²⁷ Y Chen, 'Paying Customers to Switch' (1997) 6 Journal of Economics and Management Strategy 877.

²⁸ David Ulph and Nir Vulkan, *Electronic Commerce and Competitive First-Degree Price Discrimination*, (2000).

(including switching costs). However, if instead the strong customers for each seller are the same ('best-response symmetry') – as we may expect when price discrimination is based on search costs – then price discrimination can weaken competition making consumers worse off in aggregate. Armstrong and Vickers show this formally. In their model, when there is best-response symmetry price discrimination *reduces* aggregate consumer surplus provided that there is sufficient competition in the market.²⁹

A somewhat different type of price discrimination arises where sellers charge different prices depending upon a buyer's search history. For example, a seller may offer a potential buyer a relatively low initial price if they were to buy immediately and a higher price if they return to make a purchase having unsuccessfully searched for a better offer from rival suppliers. This closely resembles the mahjong tiles example in the introduction. In a recent paper³⁰, Armstrong and Zhou show that this type of price discrimination – a form of best-response symmetry – can dampen competition through deterring search. In their model price discrimination always reduces aggregate consumer surplus. Interestingly, this type of price discrimination is capable of raising the search costs of all types of consumers, even the most rational, well-informed, and engaged. As a result, it is plausible that all consumers could be made worse off with this form of price discrimination when compared to uniform pricing.³¹

2.3 Price discrimination with more detailed information on consumer preferences

In standard (monopoly) models of price discrimination, the more detailed and accurate information a supplier has on consumer preferences, the greater are the profits it can extract and the lower is aggregate consumer surplus. But does this hold in markets where there is imperfect competition?

One approach to this question is to simulate how consumer outcomes change when suppliers have more detailed and accurate information on consumer preferences. Esteves provides one of the most intuitive models of this type.³² In this model, all suppliers have private information on their own consumers' preferences. However, the accuracy of this information can vary: at one extreme, there is no usable information; at the other perfect information. The more accurate is the information, the greater are the opportunities for sellers to earn rents at the expense of consumers, but also the greater is the intensity of competition. The competition effect dominates, and, as a result, aggregate consumer surplus increases as information on consumer preferences becomes more accurate.

Shy and Stenbacka examine whether consumer outcomes are better where information on individual consumer preferences is: a) available to all sellers, b) available only to the seller the consumer previously purchased from, or c) not available to any seller. In this model, consumers do best where no seller has information on individual consumer preferences. However, if the consumers' previous supplier has collected information on their

²⁹ Mark Armstrong and John Vickers, 'Competitive Price Discrimination' (2001) 32 *Rand Journal of Economics* 579.

³⁰ Mark Armstrong and Jidong Zhou, 'Search, Deterrence' (2016) 83 *Review of Economic Studies* 26.

³¹ All of the above models are based on the assumption that suppliers choose to compete rather than to collude (or, equivalently, that collusion is infeasible). Ezrachi and Stucke, however, argue that ACPD may make collusion more feasible through providing additional mechanisms to monitor compliance with a collusive agreement and to make punishment strategies by suppliers more credible and effective, Ariel Ezrachi and Maurice Stucke, *Virtual Competition* (Harvard University Press 2016), Part II. This form of anti-competitive behaviour is not part of this paper's Article 102 focus.

³² Rosa-Branca Esteves, 'Price Discrimination with Private and Imperfect Information' (2014) 116 *Scandinavian Journal of Economics*.

preferences, consumers are better off where this information is shared with all sellers in the market.³³

The Shy and Stenbacka results emphasises a common finding of the literature that consumers can both benefit and be harmed where information on their preferences and willingness to pay is made available to sellers, depending largely upon whether this information increases or reduces price competition. This in turn depends upon the type of information collected, and the economic model.³⁴

Although the above models provide important insights, they retain the assumption in classic price discrimination models that information is exogenous. This arguably ignores a key feature of Big Data, namely that suppliers make strategic choices as to how much, and what type of information on consumer preferences to collect, or indeed whether to collect any information at all. These strategic choices matter as they have the potential to influence the nature of price competition and with it, consumer outcomes.

The economic literature analyses this issue using dynamic models which allow the information available to sellers to evolve over time. Suppliers are able to choose how much data to collect, which they can do through a variety of means. Examples include providing incentives to consumers to share their data (e.g. through offering discounts, additional 'free' services or the opportunity to win prizes), through the use of tracking devices with different levels of accuracy, or through observing how consumers respond to different price offers.

One of the most well-known of these dynamic models is by Fudenberg and Tirole. They use a two-period model in which in the first period the two competing sellers have no information about consumers' brand preferences and so charge a single price to all consumers. However, customers that make a purchase in the first period reveal their brand preference, while those that do not buy reveal a low willingness to pay for any brand. In the second period sellers set three different prices: a price to their previous customers; a "poaching" price for those that previously bought from their rival; and a price to consumers who made no purchase. In this model, this type of price discrimination intensifies competition and all consumers are at least as well off compared to uniform pricing.³⁵

Other dynamic approaches by Villas-Boas, and by Caminal and Matutes use very different models but generate similar results with price discrimination increasing competition and reducing profits.³⁶ In these models, aggregate consumer surplus is higher with price discrimination compared to uniform pricing, although not every consumer is made better off.³⁷ However this is not a general result. For example, Chen and Zhang show that consumers in aggregate can be made worse off where sellers are able to price discriminate

³³ Oz Shy and Rune Stenbacka, 'Customer Privacy and Competition' (2015) *Journal of Economics and Management Strategy* .

³⁴ For an example of where increased quality of information increases competition, see: Q Liu and K Serfes, 'Quality of Information and Oligopolistic Price Discrimination' (2004) 13 *Journal of Economics and Management Strategy* 671;; and S Colombo, 'Imperfect Behaviour-based Price Discrimination' (2015) 25 *Journal of Economics and Management Strategy* . For a counter example where more information dampens competition see: Q Liu and J Shuai, 'Multi-dimensional Price Discrimination' (2013) 31 *International Journal of Industrial Organisation*

³⁵ D Fudenberg and Jean Tirole, 'Customer Poaching and Brand Switching.' (2000) 31 *RAND Journal of Economics* 634.

³⁶ J Villas-Boas, 'Dynamic Competition with Customer Recognition' (1999) 30 *RAND Journal of Economics* 604; and R Caminal and C Matutes, 'Endogenous Switching Costs in a Duopoly Model' (1990) 8 *International Journal of Industrial Organisation* 353.

³⁷ Customers with high brand loyalty may lose out, together with those that take the strategic decision to defer purchases (and thereby purchasing one rather than two units) in order to pay a lower price.

based on purchase history. In their model, sellers set high prices to screen out price sensitive customers, and in doing so, they moderate competition.³⁸

In the above dynamic models the information on consumer preferences is public knowledge. Choe et al.³⁹ make, arguably, the more realistic and relevant assumption (for ACPD), that firms use tracking devices to obtain (private) and detailed information about their own customers' brand preferences but have only limited information on the preferences of other consumers. In their model, the use of tracking devices increases competition, reduces profits, and increases aggregate consumer surplus. Nearly all consumers benefit from their preferences being revealed – only a small fraction of customers with the strongest brand preferences pay more.

This model is very similar to that of Fudenberg and Tirole above, the key difference being in the information available to suppliers. Whereas in the Fudenberg and Tirole model suppliers are only able to distinguish between broad categories of customers (loyal, switchers, new), in Choe et al. the use of tracking devices allows suppliers to charge personalised prices to customers based on precise estimates of their willingness to pay.⁴⁰ This more refined form of price discrimination allows more scope for suppliers to extract rents from consumers. But, it also results in more intensive price competition. The competition effect dominates, with aggregate consumer surplus being greater where suppliers have more precise estimates of consumer preferences and willingness to pay.

So, in this model, more information harms firms⁴¹ and benefits consumers – the precise opposite of the standard conclusion in monopoly models.⁴²

2.4 The role of consumers

The effectiveness of ACPD depends upon the information that sellers have on consumers' willingness to pay, much of which comes from observed consumer behaviour, e.g. through tracking devices. However, consumers may be able to act strategically to distort or block that information through, for example, deferring purchases (mimicking the behaviour of buyers with a low willingness to pay), deleting cookies or using alternative IP or email addresses.

Do buyers obtain lower prices by acting strategically in this way, or would they do better by willingly allowing their data to be shared with suppliers?

In a thought-provoking paper, Acquisti and Varian consider the effects of price discrimination in markets where firms are able to track consumer behaviour using cookies.⁴³ In their model consumers can choose to accept or delete cookies, so sellers must offer incentives to customers to get them to reveal information about their willingness to pay. They do this by offering value added services, such as preferential access to new products to consumers that register on line for products. Often such value-added services may be

³⁸ Y Chen and Z Zhang, 'Dynamic Targeted Pricing with Strategic Consumers' (2009) 27 International Journal of Industrial Organization 43.

³⁹ Choe, C., King, S., and Matsushima, N., "Pricing with Cookies: Behavior Based Price Discrimination and Spatial Competition", *Management Science* (forthcoming) discussion Paper ISSN 1441-5429

⁴⁰ In effect, Choe et al consider 1st degree and Fudenberg and Tirole 3rd degree price discrimination.

⁴¹ This is a standard result in models where ACPD increases competition. Individually firms earn more profits when they have information on their consumers' preferences while its rivals do not. However, when all firms have this information, collectively profits are lower compared to where no information is available. Firms are caught therefore in a type of Prisoners' Dilemma.

⁴² See for example, P Belleflamme and W Vergote, 'Monopoly Price Discrimination and Privacy: the hidden cost of hiding' (2016) 149 Economic Letters 141.

⁴³ A Acquisti and H Varian, 'Conditioning Prices on Purchase History' (2005) 24 Marketing Science 367.

costless to provide. For example, consumers typically get more value from a continuing relationship with their hairdresser because the hairdresser gets to know how they like to have their hair done.

In this model, customers that attach high value to value added services should reveal their information by accepting cookies, while other customers may do better by deleting them. Both types of customer typically benefit from price discrimination in this model: loyal customers pay higher prices but benefit from value-added services, while new customers, and those that present themselves as being new by deleting their cookies, pay comparatively lower prices.

Montes et al. present a model in which consumers can prevent data on their preferences being revealed to suppliers by paying a privacy charge.⁴⁴ Accordingly, when the cost of privacy increases, more consumers choose to reveal data. In this setting, this intensifies competition, and increases aggregate consumer surplus.

Belleflamme and Vergote explore a similar issue but in a monopoly context.⁴⁵ In their model suppliers use tracking technology to detect consumer preferences, but consumers can choose to deny the supplier access to this data. In this model, while consumers can individually benefit from not revealing their data, this causes prices to other customers to rise, and in aggregate consumers would be better off if they all permitted their data to be revealed.

2.5 Policy implications

In this section, we ask whether we can reach any broad conclusions on whether the price discrimination that results from use of Big Data harms or benefits consumers understood in terms of aggregate consumer welfare.

2.5.1 Is ACPD only a problem where there is market power?

It is now widely recognised that market power is not a pre-requisite for price discrimination, and that as a consequence ACPD can occur both in highly competitive and monopolistic markets.⁴⁶ But, are there any grounds to believe that ACPD is more likely to be harmful when practised by sellers with substantial market power?

In monopoly markets, recent research has shown that while consumers are typically made worse off in aggregate when a monopolist price discriminates, there are a number of plausible circumstances where the contrary may be true.⁴⁷ For example, if the curvature of demand functions is such that when a monopolist practices ACPD, the prices offered to customers with a relatively low willingness to pay fall by more than those with a higher willingness to pay rise, then price discrimination may lead to higher output and lower average prices compared to uniform pricing.⁴⁸

⁴⁴ R. Montes, W. Sand-Zantman and T. Valletti, 'The Value of Information in Markets with Endogenous Privacy' (2017) Toulouse School of Economics, working paper.

⁴⁵ Op cit.

⁴⁶ Micheal Levine, 'Price Discrimination Without Market Power' (2002) 19 Yale Journal on Regulation 1.

⁴⁷ See, Simon Cowan, 'Third-Degree Price Discrimination and Consumer Surplus' (2012) 60 The Journal of Industrial Economics.

⁴⁸ This is true in most practical circumstances where the monopolist has imperfect information on consumer preferences and practices 3rd degree price discrimination. Where a monopolist has perfect information, (1st degree) price discrimination will always reduce consumer surplus.

From a policy perspective, this suggests that while it may be reasonable to presume that price discrimination practised by a monopolist is likely to harm consumers this should be a rebuttable presumption.

In markets where there is some degree of competition the key insight from the economics literature, as discussed above, is that price discrimination can change the intensity of competition in a market. Where the market is characterised by best-response asymmetry (brand preference) ACPD typically increases the intensity of competition, while in markets with best-response symmetry (high search costs), it weakens it.

One immediate implication of this is that the level of market power has limited relevance in determining whether ACPD leads to better or worse outcomes for consumers compared to uniform pricing – whatever the level of pre-existing market power, ACPD can either improve or worsen consumer outcomes depending largely upon whether the market is characterised by best-response asymmetry or symmetry.

For example, in best-response asymmetry models (typically where prices are conditioned on brand preferences or switching costs), ACPD typically gives rise to higher aggregate consumer surplus than uniform pricing, and this gap widens the greater is market power.⁴⁹ In other words, in these models, market power leads to better outcomes for consumers.

In contrast, in best-response symmetry models (often where prices are conditioned on search costs or search history), consumers typically do better with uniform prices than ACPD. However, there is no discernible link between consumer outcomes and market power. For example, in Armstrong⁵⁰ if sellers engage in ACPD consumer surplus is *lower* the greater is market power, whereas, in Armstrong and Zhou's search deterrence history model,⁵¹ consumer surplus is *higher* the greater is market power.

In terms of policy, this suggests that, other than in monopoly, the level of market power is of little consequence for assessing whether ACPD is likely to harm consumers. In markets where there is substantial market power (which falls short of monopoly), we cannot therefore presume a loss of aggregate consumer surplus we must evaluate whether, as a matter of fact, consumer loss occurs. In this evaluation, a key factor is to determine whether the market is best characterised by best-response symmetry or asymmetry. Other factors may also be relevant for this assessment. For example, while best-response asymmetry typically intensifies competition, consumers may still suffer harm if their observed loyalty to a seller – which results in them paying relatively high prices – reflects a lack of consumer engagement or knowledge rather than genuine brand preference from which they derive value.

2.5.2 Should there be any restrictions on sellers collecting consumer information?

The theoretical discussion in Section 2.3 above highlighted a sharp distinction between the collection of more detailed information on consumer preferences in monopoly and imperfectly competitive markets.

Typically, in monopoly markets, ACPD based on more accurate and refined consumer preference data reduces aggregate consumer surplus. In imperfectly competitive markets however the relationship between information and consumer outcomes is more nuanced: the availability of more accurate data on individual consumer preferences can both intensify or dampen price competition depending largely on whether competition is best characterised as best-response asymmetry (typically where prices are conditioned on brand

⁴⁹ See, for example, Thisse and Vives, op. cit.

⁵⁰ Mark Armstrong (2006) op. cit.

⁵¹ Mark Armstrong and Jidong Zhou (2016) op. cit.

preferences or switching costs), or best-response symmetry (often where prices are conditioned on search costs or search history).

A related question is whether consumers should have the choice over whether to consent to, or deny, sellers access to information on their preferences and willingness to pay. Although there is a limited literature on this, the discussion in Section 2.4 above suggests that consumers do best individually (although not necessarily collectively) where they have the choice to share or not to share data. Even in a monopoly context, allowing consumers the opportunity to deny suppliers access to data on their individual preferences may be sufficient to prevent the exploitation of market power.

Accordingly, with the exception of where a seller has a pure monopoly, there is very limited economic evidence to support a blanket restriction on sellers collecting data on individual consumer preferences and using this to implement ACPD.⁵² However, objections could be raised to the exploitation of certain types of customer data, particularly prices conditioned on search history. Emerging economic evidence also provides support for a policy of ensuring that consumers are able to make an active choice as to whether data on their individual preferences is collected and shared.

2.5.3 Distributional issues

So far, we have focused on aggregate consumer surplus as a measure of consumer welfare. However, the *distribution* of that surplus amongst consumers may also raise policy concerns.

As is well known price discrimination creates winners and losers – consumers that are relatively price elastic will pay lower prices than those who have inelastic demands. This may create a policy concern in circumstances where the inelastic customers that pay the highest prices are not those that value products the most, or those that could search for a lower price but choose not to do so, but those who have fewer options to switch to alternative suppliers.⁵³ This may be, for example, because they are unable to access credit, have no internet access, or have lower cognitive abilities.

These issues arise with all forms of price discrimination. But does ACPD create additional distributional issues? One reason it might is that a distinctive feature of ACPD is that it provides additional opportunities to price discriminate on the basis of search costs and search history. This benefits not just those consumers with lower search costs, but also those that have more opportunities to benefit from searching. Those that have fewer options, e.g. because they have poor credit records, or no internet access, may do less well. In contrast, in markets with uniform pricing, markets can work well even where only a proportion of customers are well informed and economically sophisticated provided that competition for these informed customers sets the market price. Here, more vulnerable consumers are effectively ‘protected’ by the actions of informed customers. So, markets which are characterised by ACPD may work less well for vulnerable consumers than those with uniform pricing.

Another feature of ACPD is that because prices are set by an algorithm there may be no price transparency. This increases the complexity of consumer decision making (in terms of their response to it), and consumers that are better able to operate in more complex

⁵² Remember our focus is purely consumer welfare here; other logics, such as privacy motivations, might drive a different response.

⁵³ See for example, Financial Conduct Authority, “Our mission 2017: how we regulate financial services”, p.24. available at: <https://www.fca.org.uk/publication/corporate/our-mission-2017.pdf>

environments may do better than those that cannot. This lack of transparency may also undermine market confidence.⁵⁴

Perhaps the most distinctive aspect of ACPD is that consumers can act strategically through choosing either to reveal information on their personal preferences or to hide or disguise them. This may mean deleting cookies or browser history, or presenting yourself as having a low willingness to pay by strategically delaying purchases or using alternative IP or email addresses.

The discussion of the economic literature in Section 2.4 found that consumers will sometimes benefit from sharing their information and at other times from hiding it. But, the emerging view in the literature is that consumers always benefit from being given the *choice*. This suggests that consumers that are either unaware of the importance of this choice, or who cannot make an effective choice may pay relatively high prices. In particular, customers with no internet access may have no way of communicating their preferences, even when it is in their interest to do so (e.g. to take advantage of personalised offers).

However, the distributional effects of ACPD may have important feedback effects which impact on aggregate consumer surplus indirectly. One way this can arise is via the impact of ACPD on the complexity of consumer decision making. For example, if ACPD leads to greater search costs, and more complex decision making more generally (including whether to accept or delete cookies, buy now or defer purchases to wait for a lower price) consumers may respond either by greater use of heuristics to make decisions, or by engaging in more search. Both of these can have negative effects on consumer surplus, the former by inducing mistakes, and the latter by increasing the costs of shopping.

2.6 Conclusions

Our examination of the economic implications of ACPD on consumer welfare as measured by aggregate consumer surplus indicates that:

- i. Where a seller has a 100% monopoly, ACPD is likely to reduce consumer surplus (compared to uniform pricing). However, depending on the shape of demand curve, it is plausible that consumers could, in aggregate, be better off with ACPD.
- ii. In imperfectly competitive markets it is not possible to generalise about ACPD's effect on aggregate consumer welfare. An assessment in each case is required. The type of price discrimination matters: price discrimination based on brand preference or switching costs is likely to increase the intensity of competition (leading to better consumer outcomes), whereas price discrimination based on search costs is likely to weaken competition (leading to poorer consumer outcomes).
- iii. Price discrimination based on search history (e.g. "buy-now" discounts) can deter consumer search and dampen competition, leading to poorer consumer outcomes.
- iv. There is very limited theoretical relationship between ex ante market power and consumer outcomes.
- v. ACPD may increase the complexity of consumer decision making. This may lead to poorer consumer outcomes if it increases the cost of search or if it induces consumers to make more mistakes.

⁵⁴ See, OFT, op. cit.

- vi. It will sometimes be in consumers' interest to give up and at other times to protect the privacy of their preference information. But, consumers are better off through having the choice of revealing or hiding their data.
- vii. ACPD may raise distributional issues. In particular, it may result in consumers who are vulnerable either because they have difficulties in searching (e.g. no internet access, or low cognitive abilities) or who are less able to benefit from searching (e.g. because of a poor credit history), paying more than they would with uniform pricing, where they may benefit from the protection of informed customers.

3. Is Price Discrimination Unfair or Unjust?

We now turn our attention to a rather different normative benchmark by examining the *fairness* of ACPD. Although concepts of fairness (and justice) have been subject to philosophical debate since ancient times, for present purposes, fairness can be understood in three distinct and sometimes overlapping ways: the perceived fairness of pricing practices (Section 3.1); fair dealing between online retailers and consumers (corrective justice) (Section 3.2); and fairness as a requirement of distributive (or collective) justice (Section 3.3). In the following discussion, each of these understandings of fairness is applied to the practice of ACPD, before comparing these evaluations with the efficiency-based assessment from Section 2.

3.1 Subjective perceptions of unfair or unjust pricing

Studies in marketing and social psychology demonstrate that price discrimination directed at consumers (whether in the form of ACPD or less high-tech forms of price discrimination) can evoke strong subjective perceptions of unfairness, although these responses are not always consistent.⁵⁵ Drawing on experimental studies of individuals' perceptions of the pricing fairness that have identified various factors that systematically influence people's subjective perceptions of the fairness of price discrimination, we discuss three models of pricing fairness which these studies have spawned: (a) '*distributive justice theories*', which maintain that those in an exchange relationship with others are entitled to receive a reward that is proportional to their investment in the relationship;⁵⁶ (b) '*equity theories*', which posit that individuals who are similar to one another gauge the fairness (or equity) of an exchange by comparing the ratios of their contributions to that of others in their peer or reference group. If the ratios are not equal, the individual will perceive the prices as unfair;⁵⁷ and (c) '*procedural justice theories*', which focus on the influence of the underlying procedures used

⁵⁵ Lan Xia, Kent Monroe and Jennifer Cox, 'The Price is Unfair! A Conceptual Framework of Price Unfairness Perceptions' (2004) 68 *Journal of Marketing*, 1-15 and Appendix; Max Bazerman and Don Moore, *Judgement in Managerial Decision Making* (7th edn, John Wiley & Sons 2008) (hereafter 'Bazerman and Moore'), Chapter 7. Studies of this kind have also demonstrated that individuals are not motivated wholly by rational self-interest when setting prices, and that considerations of equity affect an individual's pricing decisions. For example, studies sought to investigate how people respond to the 'ultimatum game' in which a proposer divides a known, fixed sum of money any way s/he chooses which the responder can either accept and receive her portion, or reject and thus leave both parties with nothing. Traditional rational actor models predict that the proposer will offer only slightly more than zero, and that the responder will accept any offer greater than zero. But the results show that the average demand by the proposer was for less than 70% of the total sum, both for first time players and players repeating the game one week later. The most frequent offer from the proposer was an even split of the money: Bazerman and Moore, 117.

⁵⁶ Homans, G C. *Social Behavior: Its Elementary Forms*. New York: Harcourt, Brace & World, 1961 cited by Xia, Monroe and Cox, 'The Price is Unfair! A Conceptual Framework of Price Unfairness Perceptions'.

⁵⁷ Sarah Spiekermann, 'Individual Price Discrimination – an Impossibility?' (International Conference for Human-Computer Interaction).

to determine the outcomes, rather than the substantive reasons that are understood as explaining differential pricing policies.⁵⁸

3.1.1 Socially acceptable forms of price discrimination

Although many people may instinctively regard non-uniform pricing policies as unfair, many commonly practised forms of price discrimination are conventionally regarded as socially acceptable, which can be explained by one or more of the above theories.⁵⁹ Consider for example:

- (i) **status based discounts:** The practice of offering price discounts to classes of persons who are not typically expected to draw a substantial income, such as students, children, the elderly, the unemployed and other recipients of social welfare benefits, are generally considered fair.⁶⁰ Customers in the classes to whom such discounts are conventionally offered may be understood as falling into a different reference group to adults who are assumed to earn a regular and substantial income, so that the practice of offering discounts to those perceived as low income earners may be seen as progressive and thus socially acceptable;
- (ii) **volume based or multi-buy discounts:** many sellers offer discounted prices to customers who order larger quantities. The acceptability of these discounts can be understood in terms of either distributive justice theory or equity theory, with Spiekermann suggesting that differential pricing due to different purchasing volumes of the same good are perceived as fair because they involve the allocation of rewards based on their individual contribution to the exchange relationship;⁶¹
- (iii) **loyalty discounts:** customers who demonstrate loyalty to sellers through repeat purchases may be offered price discounts, often in the form of retailer loyalty programmes. These discounts are widely perceived as fair on the basis of equity theory, because this customer loyalty is being 'rewarded'.⁶² Consumer loyalty programmes also satisfy 'procedural justice' accounts of perceived pricing fairness: because the terms upon which a loyalty discount is offered are transparent and universally available, each consumer can then decide whether to make further purchases from that seller in order to benefit from the discount;
- (iv) **new customer discounts:** retailers sometimes offer discounts to new customers in order to encourage them to give their product a try. Equity theory posits that to the extent that new customers are regarded as placed in a different reference group as

⁵⁸ Thibaut, J W, and L Walker. *Procedural Justice: A Psychological Analysis*. Hillsdale, NJ: Lawrence Erlbaum Associates, 1975 cited by Xia, Monroe and Cox, 'The Price is Unfair! A Conceptual Framework of Price Unfairness Perceptions', 1; and Spiekermann, 'Individual Price Discrimination – an Impossibility?', 2.

⁵⁹ All the examples of price discrimination discussed in this section involve the unilateral offering of discounts by retailers, with the result that consumers are offered differential prices, but these do not result from a process of individual bargaining and negotiation between retailer and consumer. Accordingly, although haggling in street markets results in consumers paying different prices for the same item, it is excluded from this discussion because the differential prices are the result of the bargaining process between the individual retailer and individual consumer.

⁶⁰ Xia, Monroe and Cox, 'The Price is Unfair! A Conceptual Framework of Price Unfairness Perceptions', 3. Whether the perceived fairness of these discounts is contingent on the magnitude of the discount offered does not appear to have been the subject of systematic study.

⁶¹ Spiekermann, 'Individual Price Discrimination – an Impossibility?', 2.

⁶² Xia, Monroe and Cox, 'The Price is Unfair! A Conceptual Framework of Price Unfairness Perceptions', 9.

existing customers, then these discounts would be widely perceived as fair (but see below discussion of inconsistency);

- (v) **peak pricing:** price discrimination based on whether the service is consumed during peak or off-peak periods is typically regarded as fair, at least in relation to the provision of 'club' goods – a species of quasi-public goods that are excludable but non-rivalrous (the cost of providing the good to an additional consumer is zero), at least until reaching a point where congestion occurs. Because periods of high demand can create congestion, distributive justice theory might posit that it is legitimate for service providers to offer lower prices during periods of reduced demand in order to incentivise consumers to consume during off-peak periods, serving to reward consumers who are prepared to forego the consumption during the most popular peak times, which thereby smooths out demand, reducing congestion for others during peak times. Hence, it is conventionally regarded as acceptable to vary prices for peak vs off peak train travel, access to club facilities, gym membership and for home delivery slots occurring outside normal office hours;
- (vi) **Timing based discounts:** For some services, particularly passenger transport services, the price offered varies depending upon the dynamic interplay between demand and supply, including proximity to the time at which the service will be provided. Kimes suggests that consumers regard dynamic price variation in airline pricing as broadly acceptable to the extent that it constitutes a form of legitimate product differentiation. Hence the customer who purchases a ticket many months in advance perceives the product she acquires as qualitatively different from that acquired by the customer who purchases a ticket 3 weeks before she is due to fly, particularly if the former ticket is subject to numerous restrictions on cancellation, date change and so forth while the latter is not.⁶³ In the case of tickets purchased well in advance of departure, it might be thought legitimate to offer lower prices because this helps airlines to plan ahead and to reduce the business risk associated with scheduled flights carrying fewer passengers. Cheaper prices may also be understood as an appropriate 'reward' for customers who are willing to 'lock in' a price earlier, and thereby lose the flexibility associated with waiting until closer to their departure date (thus retaining the flexibility to choose not to fly on that particular flight).⁶⁴ From the perspective of equity theory, those who book well in advance and are willing to accept restrictive conditions with their ticket fall into a different reference group to those who do not purchase well advance, or who buy tickets which are not subject to stringent restrictions. At the same time, so-called 'last minute' discounts are generally perceived as legitimate because consumers recognise the desirability of avoiding waste; and that the supplier's incentive to sell at a reduced price is greatest to avoid the loss associated with the perishable nature of an airline's inventory, as an empty seat represents an opportunity lost.⁶⁵ Similarly, consumers typically accept the legitimacy of supermarkets reducing prices on 'sell-by' dates in order to avoid the waste associated with having to dispose of these items once that date has passed.

Taken together, these examples illustrate how each of the models helps to explain subjective perceptions of pricing fairness. These models ultimately rest on two criteria, one substantive, the other procedural. First, pricing discrimination is more likely to be perceived as fair if individuals can identify a *substantive explanation* for the price difference which they

⁶³ Sheryl Kimes, 'Perceived Fairness of Yield Management' (1994) 35 The Cornell HRA Quarterly 728.

⁶⁴ Yet, studies of perceived pricing justice indicate that people are less willing to regard such pricing practices as fair when they concern the price of hotel rooms, rather than the price of fares, *ibid.*

⁶⁵ *Ibid.*

regard as legitimate. Thus, if a person is willing to regard herself as *not* situated in a position of substantive equality relative to the person in receipt of the nominally more attractive price, then the first person is more likely to perceive the price differential as fair.⁶⁶ While the range of substantive justifications upon which consumers rely is invariably a product of social conventions (and so can change over time, e.g. the general perception about the fairness of airline pricing has changed considerably over time in response to the emergence of yield management techniques⁶⁷) the theories identified in the marketing and social psychology literature as 'equity theory' and 'distributive justice' theory both rest on a perceptions that the substantive reasons underpinning any given pricing policy can be judged as fair or unfair. Secondly, price discrimination is more likely to be regarded as fair if the *process* by which prices are determined and offered to consumers is regarded as fair.⁶⁸ This typically requires, at minimum, that the pricing policy is clear, transparent and offered on a *universal* basis to all those who satisfy the stipulated requirements. The greater the freedom for customers to 'self-select' the price at which they choose to purchase the good, the more likely the pricing process will be perceived as fair.⁶⁹

Although these studies demonstrate that people often have strong affective responses to pricing practices they perceive are unfair, they also show that such judgments are often inconsistent. For example, in a series of experiments by Kahnemann, Knetsch and Thaler, participants were asked to evaluate two scenarios in which a shortage has developed for a popular model of car so that customers must now wait two months for delivery.⁷⁰ In the first scenario, a dealer who has been selling these cars at list price increase his prices to \$200 above the list price as a result of the shortage, while in the second scenario, a dealer has been selling these cars at a discount of \$200 below list price now prices this model at list price. In both cases, the result of the shortage is to prompt the dealer to raise prices by the same amount, yet the majority of individuals (71%) viewed the action in the first scenario as unfair while only a minority (42%) considered the action in the second scenario to be unfair.⁷¹ This finding suggests that some consumers appear to accord special status to the

⁶⁶ As Xia et al put it, when customers perceive two transactions as similar, the effect of observed price differences on perceptions of price injustice is greater than for other situations. Therefore, perceptions of price injustice can be mitigated by a decrease in the similarity of transactions. The practice of yield management sets different prices for seemingly similar products or services, such as a hotel room or an airplane seat, but additional benefits or restrictions are attached to each offer, which makes the products or services less comparable. These restrictions decrease the similarity of the transactions and the attention that customers place on price differences, thereby reducing the likelihood of price injustice perceptions. Contrary to this principle, as discussed in the Introduction, Amazon.com charged different customers different prices for the same product on the basis of their purchasing histories. There was no differentiation between the products or services in the two transactions. As a result, Amazon.com received negative customer and media response when the practice was discovered, Xia, Monroe and Cox, 'The Price is Unfair! A Conceptual Framework of Price Unfairness Perceptions', 8.

⁶⁷ Kimes, 'Perceived Fairness of Yield Management'.

⁶⁸ Although the extent to which this theory may fail if price differentials are very large does not appear to have been studied.

⁶⁹ Spiekermann comments that as long as all customers have the *same access* to better prices, and it is only the individually chosen purchase process (i.e. self-selection) by which conditions are determined, this type of price differentiation was shown to be perceived as fair by consumers, meeting peoples' perception of *procedural justice*: Spiekermann, 'Individual Price Discrimination – an Impossibility?', 2, citing J Cox 'Can differential prices be fair?' (2001) *The Journal of Product and Brand Management*, vol 10, 264-276.

⁷⁰ Daniel Kahneman, Jack Knetsch and Richard Thaler, 'Fairness as a Constraint on Profit Seeking: Entitlements in the Market' (1986) 76 *American Economic Review*, 728-41.

⁷¹ *Ibid*, 732.

manufacturer's list price, even if they do not expect to pay that amount, which operates as a critical anchor for assessments of fairness. Similarly, a majority of respondents regarded it as unfair to reduce wages of employees in times of recession, yet it was not considered unfair to refrain from awarding pay rises to employees in boom times.⁷²

Yet these findings are consistent with experiments in cognitive psychology which demonstrate that individuals systematically make decisions that depart from the rational actor model of decision making due to their pervasive reliance on cognitive heuristics or mental short cuts, including the influence of 'framing effects', 'anchoring', 'loss aversion' and 'status quo bias'.⁷³ The inconsistent responses to the car shortage scenarios suggest that consumers are particularly concerned with departures from the status quo (reflected in list prices or current prices), so that economically rational actions will often be perceived as unfair.⁷⁴

This reliance on cognitive heuristics leading to inconsistent outcomes may help explain why consumers typically regard both loyalty discounts and new customer discounts as legitimate, even though the latter results in loyal customers paying higher prices, whilst the former results in loyal customers paying lower prices. Likewise, peak pricing schemes in which services consumed during off-peak periods are cheaper than the same services consumed during peak consumption periods in order to alleviate congestion may seem inconsistent with the findings of studies in which a significant majority of people consider it unfair for sellers to raise their prices in times of scarcity.⁷⁵ Recognising the effect of these heuristic 'frames' on consumers' subjective perceptions of fairness, Ezrachi and Stucke argue that retailers deliberately frame price discrimination in terms of discounts on offer, rather than the fact that this results in some consumers paying more.⁷⁶

3.1.2 Subjective perceptions of fairness vs economic efficiency

Economic evaluations of the efficiency (and hence desirability) of price discrimination clash directly with the perceived unfairness of price discrimination in circumstances where individuals cannot identify a legitimate *substantive explanation* for the price difference. This is because efficiency, as measured by aggregate consumer surplus, is concerned only with delivering the best outcomes for consumers *as a whole*, and not on whether any particular outcome is equitable. For example, if two identical consumers value a good at (say) £1 and the marginal cost of producing the good is zero, efficiency dictates only that both consumers are charged a price of £1 or less (so that both purchase the good). Aggregate consumer surplus would, for example, be identical if one consumer was charged £1 and the other £0,

⁷² Bazerman and Moore, *supra*, Chapter 7. Note that in both the car pricing and wage experiments, the list price and current wage appear to be regarded as a benchmark for fairness. However, in the car experiment, prices rise in both scenarios, whilst the wage experiment compares responses to a wage increase with a wage reduction, so that the difference in response might be explained on the basis of the cognitive heuristic known as 'loss aversion'.

⁷³ Amos Tversky and Daniel Kahneman, 'Judgment under Uncertainty: heuristics and biases' (1974) 185 *Science*, 1124-30; and Amos Tversky and Daniel Kahneman, 'The Framing of Decisions and the Psychology of Choice' (1981) 211 *Science*, 453-58. See discussion below, in text just before footnote 93, concerning whether we are currently in a period of transition in which social conventions about fair pricing may be in a state of flux, as big data analytics makes new forms of pricing possible.

⁷⁴ Bazerman and Moore, *supra*, 115-116.

⁷⁵ For example, such as raising the price of snow shovels the morning after a blizzard, which 82% of respondents regarded as unfair, Kahneman, Knetsch and Thaler, 'Fairness as a Constraint on Profit Seeking: Entitlements in the Market', 729. Alternatively, the social acceptability of peak pricing may be restricted to 'club goods' and not to ordinary consumption goods, which do not suffer from such congestion problems.

⁷⁶ Ezrachi and Stucke, *Virtual Competition*, 111-112.

or if both were charged £0.50. Having said that, there is scope for alignment between efficiency considerations and so-called distributive justice theories of perceived pricing fairness because these theories rest on a belief that consumers should be rewarded for their investment in the exchange relationship which they form with sellers. In some circumstances, the opportunity for reciprocal exchange provides incentives for consumers to act in ways that promote economic efficiency. Peak period pricing provides a good illustration of this. Typically, it is economically efficient in that it switches demand from costly peak supply to low cost off-peak supply. At the same time, peak pricing might be regarded as distributively fair because it compensates consumers who are prepared to (say) travel at less convenient off-peak times for their contribution to reducing the overall economic cost of supply. In a different but related vein, consumers typically perceive the use of the price mechanism to allocate demand to be fair where there is excess supply, reflected in perceptions that it is fair to lower prices to reduce waste. Yet findings from psychological studies which demonstrate that individuals often consider it unfair to adjust prices upwards in times of shortage (i.e. when there is excess demand, such as demand for shovels following a snowstorm). In both cases, the use of the price mechanism promotes economic efficiency, yet this is often only considered fair in cases of excess supply. In cases of excess demand, it appears that efficiency and perceptions of fairness often come into direct conflict.

In relation to procedural fairness accounts that seek to explain the perceived fairness of price discrimination, economic efficiency is largely silent. Put simply, aggregate consumer surplus measures *outcomes* and not the *process* by which those outcomes are attained. But while certain aspects of procedural fairness such as equality of opportunity have no resonance with efficiency, other aspects, most notably transparency, do. In particular, price transparency can increase consumer surplus directly by reducing the likelihood that consumers will make mistakes, i.e. purchase too much or too little. Price transparency may also increase consumer surplus indirectly through increasing the intensity of competition between sellers.⁷⁷ So, procedural justice and efficiency will often be aligned when considering price transparency. But, when considering other aspects of procedural justice such as equality of opportunity, their efficiency might or might not generate converging policy conclusions – on some occasions efficiency might suggest that equality of opportunity is desirable on the basis that it is efficiency-enhancing, but not on others. For example, a buyer may be obliged to put a contract out to tender to promote equality of opportunity. This could however have a positive (increase in price competition) or a negative (reduced incentives on the incumbent to invest) effect on economic efficiency, depending upon the specific context in which it occurs.

3.2 Price discrimination as unfair dealing

Although the studies referred to above demonstrate that some forms of price discrimination evoke strong perceptions of unfairness, this fact alone is not sufficient to justify legal intervention – at least intervention of a coercive kind. Within liberal democratic communities, something more than moral distaste (however strongly felt) is required.⁷⁸ For John Stuart Mill, the only acceptable justification for coercive legal intervention was the prevention of harm to others (the so-called ‘harm principle’).⁷⁹ Although the concept of

⁷⁷ Price transparency can, in some circumstances, help facilitate collusion. Accordingly, the impact of price transparency on consumer surplus is not invariably positive.

⁷⁸ Unless, of course, the relevant provision is directly trying to assess the surplus of these consumers, and this surplus is affected by their perceptions about ACPD. In this case, their perceptions would be important, although we would have to ensure that we collate the perceptions of all relevant consumers (remember there will be winners and losers, and they might have different views). See discussion in Section 3.2.1(c) on efficiency and price transparency.

⁷⁹ John Stuart Mill, *On Liberty* (2nd edn, John W Parker & Son 1859).

'harm' is notoriously indeterminate, harm is conventionally understood within contemporary liberal theory to require tangible harm in the form of harm to health or property. With the rise of rights discourse from the mid 20th century onwards, this principle has been further refined and elaborated through the idea of rights: in which the interference with moral rights constitutes a moral harm and raises a *prima facie* claim for legal protection. Fundamental rights are recognised as a species of moral right that are regarded as essential to basic human needs such that the state has an obligation to protect them, if necessary by force.⁸⁰

Accordingly, the following discussion considers whether there might be some kind of moral right to non-discrimination in the pricing of goods and services that might justify legal intervention in order to redress price discrimination directed at consumers as a form of 'unfair dealing'. We suggest that it may be possible to identify such a right, but this arises not from the basic principle of equality. Rather, we suggest that because ACPD can be understood as a violation of 'contextual integrity', it could be characterised as a form of unfair dealing. We therefore suggest that mandatory disclosure might be an appropriate legal response, discussed more fully at section 3.4 below.

3.2.1 Equality, perceptions of fairness and the evolution of social norms

One of the most fundamental principles of justice, defined by Aristotle more than two thousand years ago, is the principle that 'equals should be treated equally.' But although it is well accepted that, within liberal democratic communities, every individual has a moral right to equal concern and respect,⁸¹ this does not translate into a general obligation of equality of treatment. Indeed, one of the fundamental problems with the ideal of equality is that it does not provide a theory of legitimate difference.⁸² Rather, the way in which we identify people as equally or differently situated in ways that are regarded as legitimate is essentially a product of *social norms*. Consumer perceptions of fairness/unfairness associated with price differentiation are partly a product of both their general knowledge about the marketplace and social norms of economic exchange⁸³ which serve as guides to behaviour to parties in exchange transactions.⁸⁴ Because these social norms evolve and change over time, the perceived unfairness of a pricing practice or procedure may also change over time.⁸⁵ Thus, individual perceptions of fair and unfair price discrimination are ultimately subjective, unstable and contingent. Attempts to regulate such practices on grounds of perceived fairness would inevitably encounter considerable difficulties in defining in advance which kinds of practices are inherently unfair.⁸⁶

(a) Price discrimination, informational privacy and contextual integrity

Although the right to equal concern and respect is unlikely to provide a basis upon which forms of price discrimination which are often perceived as unfair might be legally restricted, at least in western capitalised economies, there may be other moral rights implicated in

⁸⁰ Peter Jones, 'Rights' in Peter Jones and Albert Weale (eds), *Issues in Political Theory* (Issues in Political Theory, Macmillan 1994).

⁸¹ Ronald M Dworkin, *A Matter of Principle* (Harvard University Press 1985).

⁸² Paul Brest, 'The Empty Idea of Equality' (1982) 95 Harvard Law Review .

⁸³ Xia, Monroe and Cox, 'The Price is Unfair! A Conceptual Framework of Price Unfairness Perceptions', 6.

⁸⁴ Sarah Maxwell, 'The Social Norms of Discrete Consumer Exchange' (1999) 58 American Journal of Economics and Sociology .

⁸⁵ Akiva Miller, 'What Do We Worry About When We Worry About Price Discrimination? The Law and Ethics of Using Personal Information for Pricing' (2014) Journal of Technology Law & Policy , 41-59, 88.

⁸⁶ Hence Miller argues that the difficulty in defining unfairness in the abstract is a significant counter argument against adopting sweeping market regulations on these grounds, *ibid*.

algorithmic online price discrimination. Nissenbaum's concept of contextual integrity can illuminate the social conventions that inform people's perceptions of the fairness or unfairness of various forms of price discrimination.⁸⁷ Nissenbaum emphasises the importance of recognising that people have *substantive expectations* about appropriate and inappropriate practices in relation to their personal information. These substantive expectations are shaped by norms (or standards of good behaviour) within the social context in which those interactions take place (for our purposes the 'relevant market').⁸⁸ It is this difference in social context and convention which may account for the contrasting perceptions concerning price discrimination in *business to business* transactions on the one hand, and *business to consumer* transactions on the other. In a business-to-business context, equivalent transactions which result in dissimilar conditions,⁸⁹ are conventionally regarded as acceptable because, when dealing with each other, firms negotiate the best price for themselves and, as a result, the prices ultimately settled upon will result in different prices being offered (as long as the firms are dealing in their core area of activity, and of a similar size and sophistication). In contrast, within contemporary 'off-line' retail environments, consumers do not negotiate (and are often seen as having little or no bargaining power relative to major retailers whose stores they frequent).⁹⁰ Absent any of the justifications identified above, consumers are conventionally offered the same price as all other consumers for identical goods when they visit the physical store at which the goods were offered for sale. Consumers understand that the price of consumer goods may vary over time in store (discounts might be offered during seasonal sales, in response to rising costs and so forth). However, prices are nevertheless offered on a *uniform, universal and transparent* basis at each moment in time.

(b) Mistaken assumptions that off-line shopping conventions apply to on-line purchases

In online retail environments, however, it becomes technologically possible for retailers to offer customers (whether businesses or consumers) different prices for the same goods at precisely the same time, because online shoppers only see the personalised digital shop front offered to them.⁹¹ Hence online consumer prices are neither universal nor transparent (in terms of what other consumers are paying), and it is these considerations which largely explain why people often regard ACPD as highly unfair, violating well-established social conventions associated with consumer purchasing in the off-line world. Indeed, it might be argued that the moral legitimacy of market transactions ultimately rests on the informed

⁸⁷ Helen Nissenbaum, 'A Contextual Approach to Privacy Online' (2011) 140 *Daedalus*, 32-48. Nissenbaum develops her conception of contextual integrity in seeking to identify what informational privacy requires in networked online contexts, but it seems equally appropriate in our context.

⁸⁸ In relation to social norms concerning fair pricing, Xia et al claim that buyers' perceptions of price justice stem both from economic comparisons and from social norms comparisons. Social norms of economic exchange are the understood rules of behaviour, Xia, Monroe and Cox, 'The Price is Unfair! A Conceptual Framework of Price Unfairness Perceptions', 6. Maxwell demonstrates that many price justice judgments stem from buyers' considerations of how the seller determines price and whether the price is affordable to everyone, particularly in reference to necessities such as pharmaceuticals. Thus consumers may also rely on their beliefs about exchange norms to refine their justice judgment, Sarah Maxwell, 'What Makes a Price Increase Seem 'Fair'?' (1995) 3 *Pricing Strategy & Practice*, 21-27.

⁸⁹ Maxwell, 'The Social Norms of Discrete Consumer Exchange'.

⁹⁰ Friedrich Kessler, 'Contracts of Adhesion - Some Thoughts About Freedom of Contract' (1943) 54 *Columbia Law Review*, 631.

⁹¹ See Karen Yeung, 'Hypertext: Big Data as a Mode of Regulation by Design' (2016) *Information, Communication & Society*, 20: 118-136.

consent of the transacting parties⁹² so that if a consumer would *not* have purchased an item at a particular price if she had known of the willingness of the retailer to sell precisely the same good at *lower* prices to others, then the consensual basis of her contract with the seller has been undermined. In consumer welfare terms, a consumer who is unaware that ACPD is occurring might claim that her willingness to enter the contract was based on a mistaken assessment of the value of the goods and services offered. On this line of reasoning, this results in a mismatch between widely shared social conventions about acceptable retail practice in the off-line world, and the technological possibilities for price discrimination in networked, online retail environments. In circumstances in which consumers regard ACPD as intuitively unfair, this may be because it violates social and moral conventions that apply in off-line retail environments and which many consumers unthinkingly *assume* continue to apply in the online retail context.⁹³ Nevertheless, it is possible to imagine that, over time, as on-line consumers become aware of such practices and begin to understand how they work, they may become increasingly savvy, learning to use digital tools (such as on-line price comparison websites, identifying online discount coupons, or anticipating the timing of on-line ‘flash sales’) and thus develop strategies to outsmart or at least reduce the extent to which online retailers may price discriminate against them in ways that result in them paying higher prices.⁹⁴

(c) Efficiency and price transparency

In conventional microeconomics, consumer surplus (and efficiency) only depends upon the (absolute) price that an individual pays for a good – the prices offered to other consumers (i.e. relative prices) are irrelevant.⁹⁵ According to this perspective, an individual consumer would not therefore be induced to make a mistake (in her valuation of a product or service) if non-transparent discounts are offered to other consumers; and so there is assumed to be no loss of aggregate consumer surplus. However, even before the advent of behavioural economics, traditional economic analysis has long recognised that *relative* prices (or, what

⁹² According to ‘consent theories’ of contract associated with various writers such as Charles Fried and Randy Barnett, *Contract as Promise: A Theory of Contractual Obligation* (Harvard University Press 1981); and Randy Barnett, ‘A Consent Theory of Contract’ (1986) *Columbia Law Review*, 269. For a discussion of autonomy-based theories of contract, see Anthony Duggan, Michael Bryan and Frances Hanks, *Contractual Non-Disclosure: An Applied Study in Modern Contract Theory* (Longman Professional Publishing 1994), chapter 3.

⁹³ OFT, *Personalised Pricing: increasing transparency to improve trust* (2013), 5: ‘where personalisation takes place, it is less likely to be harmful where consumers know that it is happening, understand how it works, and can exercise an effective choice. E.g. where consumers receive personalised discounts as a result of membership of a loyalty scheme. We think there is potential for harm if consumers receive a personalised price without knowing this is so. OFT 1489: Research found that consumers are more likely to be concerned (i) when the fact that it is occurring is not transparent to consumers; (ii) when it is not expected by consumers with respect to the products they are purchasing.’ Analogous arguments have been made to justify imposing criminal sanctions for cartel behaviour, characterising such conduct as deceptive or as tantamount to cheating because consumers are operating on the mistaken assumption that prices are being set independently: P Whelan *The Criminalization of European Cartel Enforcement: Theoretical, Legal and Practical Challenges* (Oxford: Oxford University Press, 2014); B Wardhaugh ‘A normative approach to the criminalisation of cartel activity’ (2012) 32 *Legal Stud* 369 (or his book: B Wardhaugh *Cartels, Markets and Crime: A Normative Justification for the Criminalisation of Economic Collusion* (Cambridge, UK: Cambridge University Press, 2014)). We are indebted to Caron Beaton-Wells for drawing our attention to this literature.

⁹⁴ Ezrachi and Stucke, *Virtual Competition*, 115.

⁹⁵ See, for example, Varian, *Intermediate Microeconomics: a modern approach*.

we term, inter-personal effects) can and do have an impact on consumer surplus.⁹⁶ For example:

- i. Where the value of a good is uncertain, consumers may look to the prices charged to other consumers to inform their judgment about the true value of the product, e.g. common value auctions.
- ii. Prestige or status goods, such as perfumes and designer clothing, may derive some of their value from being exclusive – if prestige goods are offered to other consumers at a discount, it can undermine the value a consumer places on that good.
- iii. Consumer valuations may be interdependent. For example, knowing that the person sitting next to me on the plane has paid only half as much as me might reduce the surplus I get from my own ticket purchase.

In each of these examples, a lack of transparency about the prices offered to others may induce consumers to make mistakes, leading to either under-purchasing or over-purchasing. Mistakes of this kind cause a misallocation of resources, reducing aggregate consumer surplus with implications for policy that are consistent with our argument that unfair dealing can arise in online retail environments due to mistaken assumptions made by consumers.

However, an absence of price transparency can, in some circumstances, be used to boost sales, leading to an offsetting positive effect on consumer surplus. For example, flash sales are often deliberately opaque so that excess supplies can be sold at a discount without making consumers who paid the full price feel that they have made a mistake. That said, in general, price transparency tends to help markets work more efficiently and is likely to increase or have a neutral impact on sales. In short, there is typically no clash between efficiency and justice evaluations of the desirability of price transparency.

Accordingly, one legal policy response may be to require transparency in the use of ACPD, requiring all firms that engage in ACPD to ensure that customers are meaningfully informed that variable pricing is in operation, in which the price offered is based on an evaluation of each user's digital profile created from the continuous tracking of their online behaviour.⁹⁷ While the details of such a regime need careful consideration, its animating concern would be to ensure that consumers are adequately informed that prices are determined on a *differential basis* rather than on a uniform and universal basis, and of the *range of variables* that affect how prices are individually determined (which should also allow them to assess whether discrimination is taking place on legally protected grounds).⁹⁸ Only then can

⁹⁶ There is a long tradition of these and similar types of inter-personal effects being incorporated into models of consumer decision making and economic welfare, e.g. Harvey Leibenstein, 'Bandwagon, Snob, and Veblen Effects in the Theory of Consumer Demand' (1950) 64 Quarterly Journal of Economics 183. It is however difficult to estimate these effects empirically, which is one reason why these types of effects are routinely ignored in evaluations of consumer surplus.

⁹⁷ Footnote 146 notes that the ECJ has held that a lack of price transparency (allowing a dominant firm to transfer surplus from one customer to another) may be, in itself, an unfair abuse, Article 102.

⁹⁸ This proposal is consistent with the EU Data Protection Directive, article 12(a) which provides data subjects with a right to 'knowledge of the logic involved in any automated processing of data concerning him at least in the case of automated decisions referred in to article 15(1) which establishes the 'right to every person not to be subject to a decision which produces legal effects concerning him or significantly affects him and which is based solely on automated processing of data intended to evaluate certain personal aspects relating to him, such as his performance at work, creditworthiness, reliability, conduct etc.' The new data protection regulation (which enters into force in May 2018) has similar provisions Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016, *on the protection of natural persons with regard to the processing of*

consumers make more informed decisions about whom they wish to transact with and on what terms. Hence, we suggest that a disclosure regime must, at minimum, oblige firms that wish to engage in ACPD to inform consumers in advance:

- i. that prices offered online to any customer may differ from those offered to other customers;
- ii. that their personal digital data, including data acquired from continuous tracking of their online behaviour, may be used to construct consumer profiles that form the operative basis for determining the prices at which goods will be offered to them, and
- iii. of the full range of variables which affect the algorithmic determination of how the prices of goods and services are calculated (this need not entail disclosure of the underlying algorithm itself, nor the costs associated with production of the relevant good/service - only of the algorithmic variables and the directions in which they can be expected to move).⁹⁹

Because this would not prohibit firms from engaging in ACPD, some consumers might *continue* to perceive ACPD as unfair and unjust, particularly given that disclosure of the variables that inform algorithmic pricing strategies is unlikely to provide consumers with a clear and comprehensible understanding of the intuitive logic upon which these practices rest.¹⁰⁰ We have suggested, however, that the *perceived* unfairness of algorithmic pricing is not, in and of itself, sufficient to justify substantive legal intervention prohibiting such practices. A mandatory disclosure regime recognises the importance of contextual integrity, highlighting the role played by social conventions that inform people's perceptions of the fairness or unfairness of price discrimination. In contemporary on-line business to consumer transactions, consumers often assume that prices are offered on a uniform, universal and transparent basis, at each relevant moment in time (i.e. allowing for seasonal sales, etc.). Under ACPD, firms can depart from this assumption, yet many consumers do not even realise this is happening, believing that the normal conventions offline, also operate online, if they even consider the issue at all. So, ACPD risks violating widely shared social and moral conventions. If such a shift is not communicated to and supported by consumers, this may undermine the perceived moral legitimacy of (online) markets in which on-line retailers are able successfully to exploit consumers' mistaken assumptions and expectations about the basis of their on-line dealings and is therefore unfair.¹⁰¹

3.3 Collective fairness and distributive justice

Allegations that price discrimination is unfair to those individuals who pay higher prices relative to other consumers for the same goods or services rest on a notion of corrective

personal data and on the free movement of such data, and repealing Directive 95/46/EC, OJ 2016 L119/1.

⁹⁹ Any mandatory disclosure policy must establish criteria to identify what would constitute an acceptable policy. Although specification of the content and parameters of such a policy is beyond the scope of this article, we suggest such policies must provide sufficient detail in order to provide adequate guidance to consumers who wish to order their affairs in order to secure the cheapest offer. Hence vaguely worded policies that merely indicate that the price of goods is determined by an algorithm that takes into account a consumer's past online purchasing behaviour and overall customer interest in that item would not be sufficient. Policies must also be clear and transparent.

¹⁰⁰ See generally Sandra Wachter, Brent Mittelstadt, Luciano Floridi; Why a Right to Explanation of Automated Decision-Making Does Not Exist in the General Data Protection Regulation, *International Data Privacy Law*, Volume 7, Issue 2, 1 May 2017, Pages 76–99, <https://doi.org/10.1093/idpl/ix005>.

¹⁰¹ As pointed out above, see footnote 93, the UK's competition authority was also worried about consumers losing "...significant trust in online markets due to concerns about price discrimination..."

justice or unfair dealing, in which discriminatory pricing is characterized as a form of individual wrongdoing.¹⁰² But the fairness of price discrimination can also be evaluated by reference to *collective* understandings of fairness, viewed through the lens of *distributive justice* (or ‘social justice’)¹⁰³ which is particularly concerned with the distribution of benefits and burdens between and across members of a political community, including different societal groups.¹⁰⁴

3.3.1 ACPD as unfair social sorting

ACPD may have other significant and troubling distributive consequences, by providing online retailers with the technological capacity to segment the consuming public into different groups, based on their relative value and profitability to the retailer. In other words, retailers may be rationally inclined to engage in a form of *social sorting*, seeking to cultivate and attract the choicest customers (the “strong market”) and exclude low-value consumers (the “weak market”).¹⁰⁵ Miller claims that if a large part of the information used as a basis for ACPD pertains to persistent qualities, such as the neighbourhood consumers live in, their income level, and their level of education, this is likely to result in some individuals routinely suffering the same treatment across different sellers. He fears that, in the long run, this threatens to create a market divided between a class of consumers who receive lavish personal attention and preferential treatment including offers for the best products, services and prices, and a class of consumers algorithmically assessed as ‘low value’ who are systematically ignored, under-served, and over-charged. As Miller puts it:

“It is one thing when people are treated differently in the market as a result of their different buying power; it is another thing entirely when people are treated differently as a result of deliberate data-driven judgments by the sellers about the kind of people their clients are.”¹⁰⁶

In the off-line retail environment, the segmentation of consumer groups may generate beneficial forms of retail innovation, with retailers tailoring their offerings towards particular kinds of consumers, such as supermarket chains focused on affluent consumers with a preference for organic and high quality fresh and gourmet products, whilst other supermarket chains such as Aldi and Lidl focus on price-sensitive shoppers with an emphasis on low prices and basic groceries and a more streamlined product range. But the social sorting and resulting ‘digital red-lining’ that algorithmic price discrimination makes possible

¹⁰² The classic formulation of the idea of corrective justice is provided by Aristotle’s treatment of justice in *Nichomachean Ethics*, Book V, 2-5, 1130a14-1133b28.

¹⁰³ On Aristotle’s account, distributive justice concerns the distribution of benefits and burdens among participants of a political community, *Nichomachean Ethics* III.9.1280a7–22.

¹⁰⁴ John Rawls, *A Theory of Justice* (Clarendon Press 1972).

¹⁰⁵ Concerns about the distributive consequences of online pricing were also raised in OFT, *Personalised Pricing: increasing transparency to improve trust*, 13: ‘The research and evidence we have collected indicates that businesses are trying to identify different sorts of customer and segment their customer base into fine groups, rather than seeking to identify who individuals are.’ “Even if the overall benefit of price discrimination were positive, we would still be concerned if the group who were disadvantaged by personalized pricing were considered vulnerable (vulnerability may relate to the capacity of the consumer – e.g. poor literacy or numeracy skills (individual vulnerability) or the nature of the product/service, or the way it is sold – e.g. high pressure tactics. Also, “Oscar Gandy argued over 20 years ago that the effects of this ‘panoptic’ technologies is to victimize through avoidance of certain groups of people, who are persistently disfavoured because of their race, gender, age, class, culture, and consciousness. This exclusion goes beyond the mere disadvantages of not having enough money to pay, and amounts to an entrenchment of social classes already victim to past biases.” **[Are all of these quotes from the OFT? If not, can you provide references?]**

¹⁰⁶ Miller, ‘What Do We Worry About When we Worry About Price Discrimination? The Law and Ethics of Using Personal Information for Pricing’, 96.

is distinguishable because the online digital environment can be readily *personalized* in ways that physical retail environments cannot. In off-line retail environments, the consumer who regularly shops at discount stores is free to browse in high-end retail stores aimed at well-heeled, affluent clientele, and to purchase goods at a uniform, universal and transparent price. In other words, she is not excluded from high-end retail products on the same terms as others, because she can enter the physical store and purchase them on uniform terms as the affluent (leaving aside any discounts offered for loyal customers). But in the online retail environment, although the same consumer may browse retail websites aimed at affluent consumers, she has no way of knowing whether the prices at which goods are being offered to her are the same as those offered to others, since she sees only her own ‘personalised’ version of the retailer’s online store.

Yet we are only just beginning to wrestle with the collective justice implications of algorithmic discrimination of this kind, of which ACPD is but one example.¹⁰⁷ In our view, if there is clear evidence that online price discrimination perpetuates or reinforces social injustice, then legal intervention of a substantive kind may well be justified given that within a free society, the law is properly concerned with the task of securing distributive justice, in addition to the task of harm prevention.¹⁰⁸ At present, there is little in terms of systematic attempts to evaluate the extent to which ACPD is occurring, let alone an empirical evaluation of its implications for distributive justice. Accordingly, there is an urgent need for further systematic research and investigation to generate a solid evidence base from which to consider whether substantive legal intervention is required and, the kind of legal and political institutions that might best be enrolled in order to prevent algorithmic discrimination that serves to perpetuate social injustice.

3.3.2 ACPD as efficient social sorting?

From an efficiency perspective, price discrimination on the basis of social groupings typically increases aggregate consumer surplus *provided* it is based on economic criteria, especially a consumer’s willingness to pay, rather than the consumer’s social status. In some circumstances, status-based discounts may provide a reasonable proxy for willingness to pay, so that any resulting price discrimination might be judged both fair and economically efficient. For example, discounts on train fares offered to students might be regarded as both fair and efficient, since they result in lower prices being offered to those that can least afford to pay and, assuming that these groups also have relatively elastic demand (which is typically, but not invariably true¹⁰⁹) – such status discounts can also lead to an increase in output increasing economic efficiency.¹¹⁰ On the other hand, group-based differential pricing

¹⁰⁷ For example, researchers at Carnegie Mellon built a tool to simulate Google users that started with no search history and then visited employment websites. Later, on a third-party news site, Google showed an ad for a career coaching service advertising “\$200k+” executive positions 1,852 times to men and 318 times to women: Amit Datta, Michael Car Tschantz and Anupam Datta, 'Automated Experiments on Ad Privacy Settings' (2015) 1 Proceedings on Privacy Enhancing Technologies 92. The reason for the difference is unknown. It could have been that the advertiser requested that the ads be targeted toward men, or that the algorithm determined that men were more likely to click on the ads. Google declined to say how the ad showed up, but said in a statement, “Advertisers can choose to target the audience they want to reach, and we have policies that guide the type of interest-based ads that are allowed.” See Claire Cain, 'When Algorithms Discriminate' *The New York Times* (9 July 2015).

¹⁰⁸ Rawls, *A Theory of Justice*.

¹⁰⁹ A counter example would be where low income groups are, on average, less financially literate and more financially constrained.

¹¹⁰ Status discounts have two effects on consumer surplus: an output effect, and a distribution effect. The output effect tends to be positive as status discounts allow consumers who value the good above the marginal cost of production but below the non-discounted price to make a purchase. The

might be regarded as unfair yet generate economically efficient outcomes. For example, the ECJ has prohibited the practice of gender-based insurance pricing largely on the basis of equity and procedural justice. However, the weight of economic evidence¹¹¹ is that gender based pricing can increase economic efficiency and reduce the average cost of insurance *provided* that prices reflect the different risks (and therefore costs) of insuring different genders.

Conversely, price discrimination on non-economic criteria often reduces economic efficiency. One concern raised by justice theorists is that ACPD may result in a form of social sorting, with some groups routinely discriminated against, particularly on the basis of gender, race, or geographic location. Miller suggests that this may result in some groups not being supplied, or being charged higher prices. But it is unclear whether discrimination of this kind would result in a social group being *routinely* discriminated on the basis of economic criteria. For example, prohibitions on gender-based price discrimination in the pension annuities market results in women paying higher prices for these products on account of their greater life expectancy, but lower prices for car insurance, due to their lower risk of accidents. Similarly, while some social groups may have relatively inelastic demand for some products (and pay higher prices) they are likely to have relatively elastic demand, and pay lower prices, for other products. Indeed, lower income social groups have often found to be more price elastic – and therefore potentially beneficiaries of ACPD – than other consumers for products such as breakfast cereals and cigarettes.¹¹²

However, there is one social group of customers that may be routinely discriminated against through ACPD – consumers that have difficulty in making good decisions due to a lack of knowledge, poor computational abilities, or by being disengaged. Although these so-called ‘sleepers’¹¹³ might fail to shop around and search for better deals through sheer laziness or apathy, many such customers are likely to be correlated with some of the more vulnerable groups in society, including the low income, the elderly, and the illiterate. As Section 2 highlighted, this group may superficially appear to have a low price elasticity of demand because they fail to, search out the best deal, or switch providers, when prices rise. Accordingly, with ACPD, this group may pay higher prices than the well informed and financially savvy consumers who regularly switch providers. They may also pay higher prices than they would under uniform pricing where prices may be set by competition to well-informed consumers.

Although it could be argued that ACPD promotes economic efficiency by charging higher prices to this group on the basis of their lower observed price elasticity of demand, this is a potentially erroneous analysis. It is wrong in two distinct ways.

First, the efficiency rationale for charging higher prices to customers that are price inelastic is that these customers have a high willingness to pay either because they have a strong preference for staying with their existing provider or that they would incur relatively high switching costs in changing supplier. However, consumers who stay with their existing provider not out of brand preference, but because they lack the computational skills, the information or the engagement to take advantage of better deals elsewhere do not

distribution effect is negative to the extent that price discrimination results in some goods being supplied to those that value them less than consumers who fail to make a purchase. The output effect tends to dominate the distribution effect so that the net effect of status discounts on efficiency is, most often, positive.

¹¹¹ See, for example a review of evidence by Oxera (2015).

<http://www.oxera.com/oxera/media/oxera/the-use-of-gender-in-insurance-pricing.pdf?ext=.pdf>

¹¹² <http://ageconsearch.umn.edu/bitstream/26645/1/25010082.pdf>,

<http://www.ncbi.nlm.nih.gov/pubmed/25430738>

¹¹³ Ezrachi and Stucke, *Virtual Competition*, 114.

necessarily have a high willingness to pay. On the contrary, they make economic mistakes – they purchase from the wrong supplier and possibly also over-consume.

Second, the finding in the economics literature that price discrimination in competitive markets tends to intensify competition and increase aggregate consumer surplus is based on the assumption that some consumers prefer one brand and other groups prefer another (best-response asymmetry). As a result, individual consumers or consumer groups are not routinely discriminated against. However, for consumers that have a preference for their status quo providers because they lack the computational powers, information or engagement to search for and take advantage of better deals can find themselves routinely discriminated against. Under these conditions (best-response symmetry), ACPD can reduce economic efficiency in competitive markets. So, intriguingly, economic efficiency and collective justice could reinforce each other where a group of consumers routinely makes mistakes in consumer decision-making.

3.4 Summary

The preceding discussion demonstrates that whether price discrimination, including ACPD, may be considered fair is not straightforward, partly due to the different ways in which fairness might be understood (in terms of perceptions of unfairness, as unfair dealing, or as collective injustice). While consumers often regard price discrimination in general as intuitively unfair, studies of consumer perceptions of pricing fairness reveal that these evaluations are often inconsistent. In any event, the mere fact that people subjectively regard conduct as morally undesirable or unfair does not, in and of itself, justify coercive legal intervention. We have also seen that, in general, conventional economics has little to say on issues of fairness – it offers a theory of efficiency and not a theory of justice.

Nevertheless, we have identified two circumstances in which the values of efficiency and fairness/equity converge in their assessment. Firstly, if consumers who currently make on-line purchases typically do so on the mistaken belief that the assumption of uniform pricing which typically applies in the off-line world also applies in the on-line environment, then ACPD might in this context constitute a form of unfair dealing and reduce consumer surplus because it leads to mistakes in the valuation of on-line goods and services. To address this problem, we have suggested that mandatory disclosure by retailers that they engage in ACPD is an appropriate legal response.

Secondly, we saw that ACPD may mean that vulnerable groups of consumers who lack the digital literacy and sophistication required to search for the best deal, and fail to switch providers in circumstances where it would otherwise be economically rational for them to do so, pay more. In some circumstances, the failure of consumers of this kind to shop around or switch providers may be misinterpreted by on-line suppliers as an indication of brand preference and willingness to pay, and so they may be charged higher prices than those offered to more informed, savvy consumers. Proposing solutions is more difficult here. One problem is that sellers may not be able to distinguish between these vulnerable consumers and consumers positively demonstrating brand preference; observationally, these two groups of consumers respond in the same way. We may want to intervene to protect the vulnerable, but not the latter. One possibility is to define a separate market for these vulnerable consumers and then apply Article 102 in the normal way; but that is not always appropriate. Furthermore, the problem does not only arise from ACPD by dominant firms, and so even if such a course is sometimes possible, it is not sufficient to deal with the perceived harm. A more extensive remedy that should work in many instances is a form of price regulation, such as price caps. These are controversial, and will only be applied where there is very serious and long-standing consumer harm (and other remedies have failed). It may be that this is an area where there is a harm, but no appropriate, widespread remedy.

4. EU Competition Law and Article 102 TFEU

Now that we have considered the normative desirability of ACPD, by reference to the values of economic efficiency (in seeking to maximise aggregate consumer welfare) and fairness, we are in a position to consider its *legality*, viewed primarily through the lens of EU competition law. In arguing in favour of a mandatory disclosure regime where ACPD is in use, we have deliberately avoided stipulating whether such a remedy would fall within the remit of any particular area of law. Possible candidates might include consumer protection law, data protection law, laws concerning e-commerce or competition law, but identifying which field of legal protection provides the most suitable vehicle for response is beyond the scope of this paper. Rather, the focus of our analysis is on how EU competition law may be expected to respond to ACPD, and hence the following discussion focuses on, Article 102 TFEU, which prohibits the abuse of a dominant position. In the absence of any EU competition cases dealing directly with ACPD, the following discussion describes the case law as it currently stands. We conclude that, although it is theoretically possible for ACPD to be legally characterised as abusive, it is far from certain that the EU Courts would reach this conclusion if called upon to decide the issue. Section 5 then asks how the Article 102 framework *should* be applied to evaluate the legality of ACPD in light of the values of economic efficiency and fairness.

Before proceeding, it is important to bear in mind that the legal effect of Article 102 can be highly intrusive in the commercial decisions of dominant firms, affecting the price that they can charge, and even who they can contract with. Advocate General Jacobs warned that caution is needed when interfering in the commercial decisions of dominant firms:

“...the right to choose one's trading partners and freely to dispose of one's property are generally recognised principles in the laws of the Member States...Incursions on those rights require careful justification. Secondly, the justification in terms of competition policy for interfering with a dominant undertaking's freedom to contract often requires a careful balancing of conflicting considerations.”¹¹⁴

Although Advocate General Jacob's comments related to legally requiring dominant firms to provide competitors with access to their facilities, which is not the problem that ACPD creates, his warning is nonetheless worth bearing in mind when applying Article 102 to ACPD.

4.1 The Article 102 prohibition on abuse of dominance

Article 102 TFEU seeks to ensure that particularly powerful ('dominant') firms ('undertakings') do not abuse their market power within the EU. It provides that:

“Any abuse by one or more undertakings of a dominant position within the internal market or in a substantial part of it shall be prohibited as incompatible with the internal market in so far as it may affect trade between Member States.”

Dominance is a level of economic strength such that the firm concerned can prevent the maintenance of effective competition “...by affording it the power to behave to an appreciable extent independently of its competitors, its customers and ultimately of

¹¹⁴ Case C-7/97 *Oscar Bronner GmbH & Co. KG v Mediaprint Zeitungs- und Zeitschriftenverlag GmbH & Co. KG, Mediaprint Zeitungsvertriebsgesellschaft mbH & Co. KG and Mediaprint Anzeigengesellschaft mbH & Co. KG* [1998] ECR I-7791, the Opinion of Advocate General Jacobs, paras 56-7. In this case, the question was whether the refusal by a dominant newspaper publisher in Austria (Mediaprint) to allow a rival newspaper publisher access to Mediaprint's home delivery newspaper distribution system was abusive conduct in violation of Article 102.

consumers.”¹¹⁵ Not many firms have a dominant position.¹¹⁶ Because the focus of this paper is on whether ACPD constitutes an ‘abuse’, we will assume that all other Article 102 criteria, including dominance, have been fulfilled. The fact that relatively few firms are dominant does not diminish the relevance of our paper. The ECJ has held that the goals of Article 102 (abuse of dominance) are the same as those of Article 101 (anti-competitive arrangements).¹¹⁷ As a result, our conclusions about ACPD should be equally relevant in Article 101 too, which is a much more commonly used provision. A similar point applies to EU merger control.

There is no case law that directly addresses the legality of ACPD under Article 102. This is unsurprising, given our inability to engage in personalised pricing at scale until the relatively recent emergence of Big Data technologies. Although there is a substantial body of EU case law concerned with price discrimination, it has focused on price discrimination occurring at the business-to-business level. One example is the *United Brands* case, in which a firm supplying bananas to Member States at different prices was held to have abused its dominant position because the bananas were essentially identical and the costs of shipping them basically the same.¹¹⁸ In contrast, very few competition cases even *indirectly* address the practice of direct sales to retail consumers, let alone price discrimination *directed* towards them.

One final point needs to be raised before we start this analysis. Section 2.6 noted that where a monopolist uses ACPD, it is likely to reduce aggregate consumer surplus. Some seem to assume that price discrimination is only important in competition law where a seller has substantial market power.¹¹⁹ In relation to ACPD, this assumption seems legally and empirically misplaced. Two issues must be separated here, the empirical reality, and the legal test. In relation to empirical reality, Section 2 argued that we must identify whether the ACPD relates to best response asymmetry (brand preference or switching costs) in which case price discrimination tends to intensify competition, or best response symmetry (search costs), in which case price discrimination tends to weaken competition. Market power does not always seem necessary to generate welfare losses under ACPD, but the literature is too undeveloped to generate further generalizable presumptions. In other words, ACPD may (sometimes) have adverse consequences for consumer welfare even where firms lack market power; further, even where firms do have market power, ACPD can improve welfare. One must assess the dominant firm’s behaviour in the light of the relevant legal and economic context.

In relation to the legal test of abuse and the way in which the courts apply it, we know, for example, that firms that are *not* dominant are legally free to engage in practices that would be unlawful if undertaken by a firm occupying a dominant position. If relevant actual or

¹¹⁵ Case 85/76 *Hoffmann-La Roche & Co. AG v Commission* [1979] ECR 461, para 38. It does not preclude some competition being present, para 39.

¹¹⁶ Examples of firms that have been held to be dominant include: British Airways (UK market for the procurement of air travel agency services), Deutsche Post (collection, carriage and delivery of mail in Germany), Michelin (new replacement tyres for heavy vehicles in the Netherlands) and Microsoft (personal computer operating software systems). Respectively, Case T-219/99 *British Airways plc v Commission* [2003] ECR II-5917, paras 189-225; Case C-147/97 *Deutsche Post AG v Gesellschaft für Zahlungssysteme mbH GZS* [2000] ECR I-825, paras 37-8; Case 322/81 *NV Nederlandsche Banden Industrie Michelin v Commission* [1983] ECR 3461, paras 53-61; and Case T-201/04 *Microsoft Corp. v Commission* [2007] ECR II-3601, paras 30-5.

¹¹⁷ Case 6/72 *Europemballage Corporation and Continental Can Company Inc. v Commission* [1973] ECR 215, paras 24-5.

¹¹⁸ Case 27/76 *United Brands v Commission* [1978] ECR 207, paras 204-34.

¹¹⁹ Ezrachi and Stucke, *Virtual Competition*, 221 hints at this.

potential harm (be that consumer welfare loss, or something else) caused by a dominant undertaking can be demonstrated, is that enough to constitute an abuse for the purposes of Article 102? Or, do we need to show that this harm was only possible, or made worse, because of this dominance? From a legal perspective, although the dominance and the abuse must exist on the same (or a related) relevant market;¹²⁰ it is questionable whether the abuse must only be possible, or problematic, as a consequence of having market power.¹²¹ As the EU Courts have explained, Article 102 must be interpreted in the light of its object and purpose, regardless of the reasons why a firm is dominant. A firm in this position has:

“...a special responsibility not to allow its conduct to impair genuine undistorted competition on the common market, in accordance with the general objective set out in Article 3(f) of the Treaty as it was then worded [Section 5.1 discusses a new object and purpose]. Thus Article 86 [now Article 102] covers all conduct of an undertaking in a dominant position which is such as to hinder the maintenance or the growth of the degree of competition still existing in a market where, as a result of the very presence of that undertaking, competition is weakened...”¹²²

In other words, under EU competition law, dominant firms have a special responsibility not to allow their conduct to impair (fair) competition on the relevant market because the very presence of market dominance weakens competition. So, discrimination, by a dominant undertaking, might be considered problematic if it has relevant negative consequences, even if those consequences are not generated, or made worse, by the dominance itself.

4.2 Does ACPD fall within the definition of ‘abuse’ under Article 102?

The meaning of the term ‘abuse’ within Article 102 cannot be readily discerned from the text of Article 102. Its meaning must therefore be ascertained by reading the text of Article 102 in the light of its interpretation by the EU Courts. The following discussion adopts this approach in order to identify whether ACPD could be regarded as falling within the scope of Article 102. An obvious place to start our inquiry is by examining the open list of examples of abuse that are explicitly mentioned in Article 102.¹²³ We start by looking at Article 102(a), unfair pricing, and then we turn to Article 102(c), discriminatory pricing. Finally, we discuss discrimination as a more general form of abuse.

Article 102(a) explicitly refers to unfair pricing as a possible abuse. Several cases have considered this provision. They provide clear support that charging an amount that bears no reasonable relation to the value of the product (or its costs?) is abusive.¹²⁴ This may be

¹²⁰ Case C-333/94 P *Tetra Pak International SA v Commission* [1996] ECR I-5951, para 27.

¹²¹ Joined Cases 6 and 7/73 *ICI and CSC v Commission* [1974] ECR I-223, para 22.

¹²² Case T-83/91 *Tetra Pak International SA v Commission* [1994] ECR II-755, para 114; confirmed on appeal, Case C-333/94 P *Tetra Pak International SA v Commission* [1996] ECR I-5951, paras 21-33 (by implication). See also Case 85/76 *Hoffmann-La Roche v Commission* [1979] ECR 461, para 91

¹²³ Article 102 provides that ‘...abuse may, in particular, consist in: (a) directly or indirectly imposing unfair purchase or selling prices or other unfair trading conditions; (b) limiting production, markets or technical development to the prejudice of consumers; (c) applying dissimilar conditions to equivalent transactions with other trading parties, thereby placing them at a competitive disadvantage; (d) making the conclusion of contracts subject to acceptance by the other parties of supplementary obligations which, by their nature or according to commercial usage, have no connection with the subject of such contracts.’

¹²⁴ Case 26/75 *General Motors v Commission* [1976] ECR 1367, para 12; Case 27/76 *United Brands v Commission* [1978] ECR 207, paras 250-66; Case 226/84 *British Leyland v Commission* [1986] ECR 3263, paras 27-30; Case 66/86 *Ahmed Saeed Flugreisen and others v Zentrale zur Bekämpfung Unlauteren Wettbewerbs* [1989] ECR 803, paras 42-4; Case C-179/90, *Merci convenzionali porto di Genova SpA v Siderurgica Gabrielli SpA* [1991] ECR I-5889, paras 18-9; Case C-323/93 *Société Civile*

relevant when evaluating ACPD, because it may be difficult to argue that there is a reasonable relation between the value of the product and the multiple, different, prices offered.

Article 102(c) provides a further example of abusive conduct in terms of “...applying dissimilar conditions to equivalent transactions with other trading parties, thereby placing them at a competitive disadvantage...”

All three of Article 102(c)’s conditions must be satisfied. First, does the practice entail the application of dissimilar conditions to ‘equivalent transactions’ with other trading parties? Clearly, this condition is met if two transactions are identical (i.e. the same quantity and quality of the same good or service).¹²⁵ Furthermore, ‘equivalence’ must extend beyond ‘identical’ transactions, yet it is unclear how far ‘equivalence’ can be stretched.¹²⁶ Is a small café latte equivalent to a large café latte? What if two transactions appear identical in outward appearance, but the context in which they occur differs? For example, local laws might increase the cost of selling a particular kind of item. Charging different prices to reflect this extra cost does not appear problematic, because the price difference is cost justified.¹²⁷ These equivalent transactions must be with other ‘trading parties’. Are consumers ‘trading parties’? Some Treaty language versions imply that this means buyers must be engaged in trading (e.g. the French version reads ‘partenaires commerciaux’). Others are not so demanding (e.g. the Spanish version reads ‘terceros contratantes’). The interpretation that the EU Courts ultimately adopt may affect the relevance of ACPD under Article 102(c).

Secondly, the conditions must be ‘dissimilar. In other words, are the *prices* that A and B pay to the dominant firm for their equivalent transactions, dissimilar?’¹²⁸ The test is wide enough to include other (non-price) issues too, such as product quality and service.¹²⁹

Thirdly, the dissimilar conditions for equivalent transactions must result in a ‘competitive disadvantage’. Is a consumer who pays more for the same item as another consumer placed at a *disadvantage* vis-à-vis that other? And is that disadvantage properly characterised as a ‘competitive’ disadvantage? Where buyers from the dominant firm are direct competitors

Agricole du Centre d'Insémination de la Crespelle v Coopérative d'Elevage et d'Insémination Artificielle du Département de la Mayenne [1994] ECR I-5077, paras 25-7; Case C-242/95 *GT-Link A/S v De Danske Statsbaner (DSB)* [1997] ECR I-4449, para 39; Case T-151/01 *Der Grüne Punkt - Duales System Deutschland GmbH v Commission* [2007] ECR II-1607, paras 121-39, not considered on appeal, Case 385/07 P *Der Grüne Punkt - Duales System Deutschland GmbH v Commission* [2009] ECR I-6155; Case T-306/05 *Isabella Scippacercola and Ioannis Terezakis v Commission* [2008] ECR II-4, paras 102-5, and Case C-159/08 P *Isabella Scippacercola and Ioannis Terezakis v Commission* [2009] ECR I-46 (Order), paras 44-9; and Case C-52/07, *Kanal 5 Ltd, TV 4 AB v Föreningen Svenska Tonsättares Internationella Musikbyrå (STIM) upa* [2008] ECR I-9275, paras 29-36.

¹²⁵ Case 27/76 *United Brands v Commission* [1978] ECR 207, paras 224-5; and Case C-95/04 P *British Airways v Commission* [2007] ECR I-2331, para 134 (by implication).

¹²⁶ Case T-301/04, *Clearstream Banking AG v Commission* [2009] ECR II-3155, paras 73 and 172-80; and Case C-163/99, *Portuguese Republic v Commission* [2001] ECR I-2613 (by implication), paras 51-4.

¹²⁷ Case T-168/01 *Glaxo v Commission* [2006] ECR II-2969 (nothing on appeal), para 179. This is an Article 101 case (anti-competitive arrangements). In any event, Article 101(d) and Article 102(c) have the same wording. The court implies that the content of the provisions is similar, paras 174-7.

¹²⁸ Case 27/76 *United Brands v Commission* [1978] ECR 207, para 224; and Case C-95/04 P *British Airways v Commission* [2007] ECR I-2331, para 134 (agreed by parties). In contrast, see Case 322/81, *NV Nederlandsche Banden Industrie Michelin v Commission* [1983] ECR 3461, para 90, this may have been about objective justifications (no comment from the Advocate General).

¹²⁹ Respectively, Case T-228/97, *Irish Sugar v Commission* [1999] ECR II-2696, para 147 (sugar, but not guaranteed of beet origin, so no EU storage rebate); and Commission decision, *Deutsche Post AG*, OJ 2001 L331/40, paras 127-8 (slower delivery times).

(e.g. retail shops selling bottled water), if they pay different prices this clearly places the firm paying a higher price for the same goods at a competitive disadvantage.¹³⁰ However, it does not fall within the natural English meaning to say that a final consumer has a 'competitive disadvantage' vis-à-vis another final consumer. That said, it is possible to hypothesise examples of interdependence between consumers¹³¹ and some language versions of the EU Treaties are wide enough to include retail level consumers in this definition. In any event, as we explain in Section 5, literal methods of interpretation are not critical in EU law. The Commission, for example, argues that Article 102(c) should apply to final end consumers¹³² and this would allow Art 102(c) to incorporate ACPD.

Surprisingly, despite the explicit wording of Article 102(c), the case law suggests that it might not be necessary to show *disadvantage*. In some cases, a dominant firm has discriminated between firms that do not compete with each other (e.g. one firm in France and the other in Sweden, where these are different relevant geographic markets) and thus suffer no competitive disadvantage. Yet such discrimination has been held to constitute an abuse.¹³³ Sometimes, the EU Courts ask whether the entity that was charged a higher price was disadvantaged vis-à-vis how it would have been charged had it paid the same price as other(s).¹³⁴ If the latter test is used, then it may be easier to attack ACPD.

At times, Article 102(c) has been interpreted so widely that any difference in treatment to similar transactions is discriminatory.¹³⁵ In this case, ACPD should fall within it.

¹³⁰ A recent case states that the provision only applies to buyers that compete with each other, Case C-52/07, *Kanal 5 Ltd, TV 4 AB v Föreningen Svenska Tonsättare Internationella Musikbyrå (STIM) upa* [2008] ECR I-9275, para 46 (also Advocate General Trstenjak, paras 113-5). See also, the Opinion of Advocate General Kokott, Case C-109/10 P *Solvay SA v Commission* [2011] ECR I-10329, paras 104-7 (not discussed on appeal).

¹³¹ Imagine an electricity supplier with limited capacity. It prioritises its scarce resources to those who pay a premium (perhaps it charges more during the day, when demand is high, in an attempt to smooth out demand more, so that new power stations do not need to be produced just to service peak demand). If all consumers pay the premium, one can see the interdependence of demand, Jean Tirole, *The Theory of Industrial Organisation* (9th edn, The MIT Press 1997), 152. See also, Akman, 'To Abuse or Not to Abuse: discrimination between consumers', 498.

¹³² Commission decision, *Deutsche Post AG*, OJ 2001 L331/40 (not appealed), para 133. See Liza Lovdahl Gormsen, *A Principled Approach to Abuse of Dominance in European Competition Law* (Cambridge University Press 2010), 107-10; and Akman, 'To Abuse or Not to Abuse: discrimination between consumers', 500 (and the other cases that they cite).

¹³³ Case C-179/90, *Merci convenzionali porto di Genova SpA v Siderurgica Gabrielli SpA* [1991] ECR I-5889 (the ECJ ignored the issue), paras 18-9; and Case C-163/99, *Portuguese Republic v Commission* [2001] ECR I-2613, para 66 (by implication). See also, Akman, 'To Abuse or Not to Abuse: discrimination between consumers', 498, 500-2; and John Temple Lang and Robert O'Donoghue, 'Defining Legitimate Competition: how to classify pricing abuses under Article 82 of the EC Treaty' (2002) 26 *Fordham International Law Journal*, 119. Alternatively, they may take the view that the buyers compete more generally, Case C-95/04 P *British Airways v Commission* [2007] ECR I-2331, paras 143-5; and Case T-301/04, *Clearstream Banking AG v Commission* [2009] ECR II-3155, paras 192-4.

¹³⁴ Case T-228/97, *Irish Sugar v Commission* [1999] ECR II-2696, paras 143-8, 164 (by implication, but see para 167); and Case T-57/01, *Solvay SA v Commission* [2009] ECR II-4621, para 400 (not discussed on appeal, Case C-109/10 P, but criticised by Advocate General Kokott, see reference in footnote 130).

¹³⁵ Gormsen, *A Principled Approach to Abuse of Dominance in European Competition Law*, 105-7; Akman, 'To Abuse or Not to Abuse: discrimination between consumers', 495; Romano Subiotto and Robert O'Donoghue, 'Defining the Scope of the Duty of Dominant Firms to Deal with Existing Customers under Article 82 EC' (2003) 24 *European Competition Law Review*, 685 (they say the ECJ has substantially limited this principle, although there is no discussion of sales to final consumers); and Moritz Lorenz, Maike Lubbig and Alexia Russell, 'Price Discrimination, A Tender Story' (2005) 26

Discriminatory conduct has also been challenged under Article 102, without reference to Article 102(c).¹³⁶ On these occasions, the EU Courts have defined ‘abuse’ in various ways; some are clearly formulated, others less so. Examples are: (1) *any* difference in treatment;¹³⁷ (2) any *unfair* discrimination,¹³⁸ whatever ‘fairness’ is understood to mean in relation to ACPD (perhaps in line with Section 3, above); and (3) any discrimination contrary to EU principles¹³⁹ (presumably the matters listed in Article 10 TFEU and possibly also Article 21 of the Charter (see discussion in Section 5, below)). These lines of cases potentially support characterising ACPD as a breach of Article 102. It may be easier to mount a discrimination argument under Article 102 generally, rather than under Article 102(c), because this does not typically require establishing that the claimant is placed at a ‘competitive disadvantage’¹⁴⁰ and it also avoids a strained interpretation of the text.

More generally, some cases hint that it is unacceptable for a dominant undertaking to charge different prices to consumers merely because they have a different willingness to pay.¹⁴¹ Sometimes the EU Courts have sought to avoid the issue while¹⁴² others hint that it might be acceptable.¹⁴³ One line of cases even appears to imply that, provided the method

European Competition Law Review , 355. Lorenz et al compare this with the position in the UK and Germany, where this does not happen. See, for example, Commission decision, *Portuguese Airports*, OJ (1999) L69/31, para 27; Case T-128/98 *Aéroports de Paris v Commission* [2000] ECR II-3929, paras 201-2 (not discussed on appeal, Case C-82/01 P); and Case T-83/91 *Tetra Pak v Commission* [1994] ECR II-755, para 207.

¹³⁶ Case 322/81, *NV Nederlandsche Banden Industrie Michelin v Commission* [1983] ECR 3461; Case 7/82, *Gesellschaft zur Verwertung von Leistungsschutzrechten mbH (GVL) v Commission* [1983] ECR 483, para 56; Commission decision, *Deutsche Post AG*, OJ 2001 L331/40 (not appealed); and Case T-301/04, *Clearstream Banking AG v Commission* [2009] ECR II-3155.

¹³⁷ In Case T-65/89, *BPB Industries v Commission* [1993] ECR II-389, para 94 (confirmed on appeal, Case C-310/93 P, para 11).

¹³⁸ The case referred to in the last footnote is ambiguous and can be interpreted in this way too.

¹³⁹ Case 7/82, *Gesellschaft zur Verwertung von Leistungsschutzrechten mbH (GVL) v Commission* [1983] ECR 483, para 56; and the Opinion of Advocate General Reischl, pages 526-7. The focus is on the EU single market principle. It is unclear whether the principle, phrased in general terms, is wider.

¹⁴⁰ Commission decision, *Deutsche Post AG*, OJ 2001 L331/40, paras 133-4; and Case T-301/04, *Clearstream Banking AG v Commission* [2009] ECR II-3155, paras 106, 112-20, 151 and 157.

¹⁴¹ Case T-228/97, *Irish Sugar v Commission* [1999] ECR II-2696, paras 141 and 188-9 (although compare with paras 146-50); Case C-179/90, *Merci convenzionali porto di Genova SpA v Siderurgica Gabrielli SpA* [1991] ECR I-5889, para 19 (more strongly, see Advocate General van Gerven, page 5916); Case T-83/91 *Tetra Pak v Commission* [1994] ECR II-755, paras 163-70 and 207-9; Case T-128/98 *Aéroports de Paris v Commission* [2000] ECR II-3929, paras 201-2 (nothing on appeal); Case C-163/99, *Portuguese Republic v Commission* [2001] ECR I-2613, para 46; and Case T-301/04, *Clearstream Banking AG v Commission* [2009] ECR II-3155, para 170. Akman, ‘To Abuse or Not to Abuse: discrimination between consumers’, 496, takes this view.

¹⁴² Case T-229/94 *Deutsche Bahn AG v Commission* [1997] ECR II-1689, para 91 (there was an appeal Case C-436/97 P, but not on anything relevant).

¹⁴³ Case 27/76 *United Brands v Commission* [1978] ECR 207, paras 227-30 (ambiguous, Gregory Adams, ‘European and American Antitrust Regulation of Pricing Monopolists’ (1985) 18 *Vanderbilt Journal of Transnational Law* , 31-5 argues that the case says the opposite, for example); Case 322/81, *NV Nederlandsche Banden Industrie Michelin v Commission* [1983] ECR 3461, para 90 (by implication); Case C-62/86 *AKZO Chemie BV v Commission* [1991] ECR I-3359, para 120; Joined Cases T-5/00 and 6/00 *Nederlandse Federatieve Vereniging voor de Groothandel op Elektrotechnisch Gebied* [2003] ECR II-5768, paras 274 and 277 (oblique hint), see also Ulrich Springer, ‘Borden and United Brands Revisited: a comparison of the elements of price discrimination under EC and US antitrust law’ (1997) 18 *European Competition Law Review* , compare text around footnotes 41 and 77; and Opinion of Advocate General Jacobs in Case 395/87 *Ministère Public v Tournier* [1989] ECR 2521 (ECJ says nothing on this), para 67 (willingness to pay may be logical, but not if need the good for your business). Willingness to pay might be acceptable sometimes though, Case C-52/07, *Kanal 5 Ltd, TV 4*

(calculation) of ‘payment’ is the same, then the amount that different consumers pay can be different. Imagine that a dominant firm charges all customers of its service a percentage of their income. Those customers making more income pay more than others for that (same) service (10% of £100 is more than 10% of £50) yet the EU Courts do not appear to regard this as falling foul of Article 102(c), although the point has not been specifically argued before them.¹⁴⁴

In other words, the case law here is contradictory. Some cases imply that charging based on willingness to pay is acceptable, other cases seem to see this as abusive, yet finding an answer to this question is vital for our understanding of the legality of ACPD by dominant firms.¹⁴⁵

One final point might be made here, which affects our analysis. There has sometimes (although not always) been discussion of whether the focus of abuse should be at the level of specific individuals or at the level of the market, as a whole. This matters, because it affects the perspective of discrimination arguments (discrimination might only be a problem if it reduces benefits, in the aggregate, to the whole market). The EU Courts have not been consistent here either. Sometimes, the ECJ seems to focus on unfairness to individuals, rather than groups. For example, the ECJ hints at this in *Merci*,¹⁴⁶ where it seems to say that opaque pricing structures allowing the dominant undertaking to charge some customers less than the normal price, and to compensate for this by charging others more, is unfair. However, in other cases, which did not focus on discrimination or fairness in particular, the EU Courts insist that the level of assessment is that of the market as a whole, rather than looking at the effects on specific individuals or on groups of individuals.¹⁴⁷ One possible explanation of this inconsistency is that, where the abuse focuses on discrimination, the EU Courts have been prepared to examine harm at an individual level.

4.3 If ACPD is an ‘abuse’ under Article 102, can it be objectively justified?

If there is an abuse (whether under Article 102(c), or more generally), the EU Courts then ask whether the relevant behaviour can be “objectively justified”¹⁴⁸ by considering whether four cumulative conditions have been met: that the abusive conduct is (1) outweighed by benefits; (2) inures to the benefit of consumers; (3) is necessary to achieve these benefits;

AB v Föreningen Svenska Tonsättares Internationella Musikbyrå (STIM) upa [2008] ECR I-9275, para 36 (no explanation of why, but here was music copyright, so hard to value it on costs, says the ECJ).

¹⁴⁴ Case T-128/98 *Aéroports de Paris v Commission* [2000] ECR II-3929 (although note different inference above); and Case C-52/07, *Kanal 5 Ltd, TV 4 AB v Föreningen Svenska Tonsättares Internationella Musikbyrå (STIM) upa* [2008] ECR I-9275, paras 44-5.

¹⁴⁵ If the dominant firm could show that the costs of precision significantly outweigh the gains from outlawing ‘discrimination’, then an objective justification might be available, see below. This last argument might provide some room for prices that do not perfectly reflect costs. However, while this kind of argument may be used to justify charging the same prices, even if there are not identical costs of supply, one wonders whether it would be equally acceptable as a justification for charging different prices, where the costs of supply are the same, or largely similar.

¹⁴⁶ Case C-179/90 *Merci convenzionali porto di Genova SpA v Siderurgica Gabrielli SpA* [1991] ECR I-5889, para 19.

¹⁴⁷ For example, in relation to arguments for exemption of anti-competitive arrangements under Article 101(3), the EU Courts have implied that it is the effect on consumers overall that is important, it is not relevant if some individuals are worse off, Case T-131/99 *Michael Hamilton Shaw and Timothy John Falla v Commission* [2002] ECR II-2023, para 163; and Case C-238/05 *Asnef-Equifax, Servicios de Información sobre Solvencia y Crédito, SL v Asociación de Usuarios de Servicios Bancarios* [2006] ECR I-11125, paras 67-70.

¹⁴⁸ ‘Objective justifications’ do not appear in Article 102’s text. The EU Courts added them.

and (4) does not eliminate effective competition.¹⁴⁹ The Commission focuses on economic criteria in the interpretation of each of these conditions. One can imagine firms claiming that the practice ACPD enables them to increase output, for example, and this results in benefits to many consumers (perhaps increasing aggregate consumer welfare). The EU Courts have also considered other issues here, such as the impact upon health.¹⁵⁰

4.4 Summary

The EU courts' interpretation of the text of Article 102 in business-to-business price discrimination appears theoretically capable of extending to ACPD, although their approach might differ where price discrimination is intentionally directed at final consumers. In fact, given the myriad language versions of the EU Treaties, the EU Courts rarely rely on close textual interpretations. Nor does textual analysis illuminate whether it is *normatively desirable* to characterise ACPD as an abuse of dominance pursuant to Article 102. Section 5 therefore draws upon our preceding analysis of the economic and fairness dimensions of ACPD, Sections 2 and 3, above, in the light of the EU Treaties' framework, to consider whether and to what extent Article 102 is aimed at maximising consumer welfare, and/or ensuring fairness and justice in order to identify how ACPD should be evaluated thereunder.

5. Should ACPD be considered unlawful under Article 102 TFEU?

In the preceding section, we argued that ACPD could, in theory, fall within Article 102's existing case law, but whether the EU Courts would regard ACPD as a violation of Article 102 is an open question. Accordingly, in this section, we ask whether ACPD *should* be regarded as a violation of EU competition law, and Article 102, in particular. To answer this question, we must first identify, from a legal perspective, what is right, or appropriate, in the EU legal order. We argue that *both* consumer welfare and fairness are important goals of the EU legal order, and that proper interpretation of the EU Treaties suggests that they are also the substantive goals of Article 102. Although consumer welfare is regarded by many competition academics and practitioners as a valid and desirable goal for EU competition law, their reasons for supporting this view are not primarily legal in nature. We therefore turn to the EU Treaties themselves, to demonstrate that they provide a legal basis that relies upon teleological and contextual methods of interpretation to enable the identification of consumer welfare as one of EU competition law's substantive goals. We then consider specific types of unfairness in the EU legal order (Section 5.1) to demonstrate that the EU Treaties also indicate that fairness is another substantive goal of EU competition law. Accordingly, in circumstances where ACPD enhances both fairness and consumer welfare, we argue that it should not violate Articles 102 or 101. Correlatively, in circumstances where ACPD undermines both fairness and consumer welfare, then we suggest that it should be judged unlawful under Articles 102 and 101. But what if the effect of ACPD is to enhance consumer welfare but reduce fairness, or vice versa? In other words, how should EU competition law respond when consumer welfare and fairness clash in the EU legal order? This is the focus of the discussion in Section 5.2. Throughout Section 5 our focus is on 'abuse' and we assume, as we have done in the rest of this paper, that all other parts of Article 102's test have been met.

5.1 Consumer welfare and fairness as possible substantive goals of EU competition¹⁵¹

¹⁴⁹ See Case C-209/10 *Post Danmark A/S v Konkurrencerådet* [2012] ECR I-172, paras 41 and 42. There is some debate about the relevance of all four criteria, see footnote 189.

¹⁵⁰ Case T-30/89 *Hilti AG v Commission* [1991] ECR II-1439, para 118; and Case T-83/91 *Tetra Pak International SA v Commission* [1994] ECR II-755, paras 83-4 and 138.

¹⁵¹ Several interconnected issues arise in identifying whether there is scope within EU competition law generally, and Article 102 in particular, to consider justice. These considerations include, for example,

5.1.1 Is consumer welfare a substantive goal of EU competition law?

The EU Courts have never embraced consumer welfare as the sole and exclusive goal of EU competition law, although some cases hint that it might be a relevant goal.¹⁵² Despite this, the prevailing orthodoxy is that the goal of Articles 101 and 102, and for EU competition law generally (including the EU merger rules) is that of consumer welfare;¹⁵³ a view actively espoused by the EU Commission (a key enforcer) and many academics and legal practitioners.¹⁵⁴ Many commentators adopt this view based on their belief that effective competition is the best way of delivering consumer benefits in terms of lower prices, higher levels of output, and greater choice. Competition is considered an important driver of productivity¹⁵⁵ and economic efficiency more generally, helping to allocate our scarce resources to those that value them the most. Yet the consumer welfare standard can be problematic. For example, it is debatable whether it provides a consistent and predictable framework of assessment and provides simplicity of enforcement¹⁵⁶ given that there are many theoretical disagreements in economics which affect the framework of assessment.¹⁵⁷ For example, many disagree about where how much innovation maximises welfare in different markets. Standards of measurement are also prone to vagueness and are based on contestable assumptions. For example, the conventional economic standard collapses the distinction between those with the capacity to pay for goods or services, and those who desire goods or services but lack the capacity to pay for them. Other problems arise because real markets often do not reflect the demanding pre-requisites of the neo-classical model: markets may be affected by factors such as the market power of firms; imperfect knowledge of purchasers; irrational market actors; insufficient numbers of buyers and sellers; barriers to entry in the market, or exit.¹⁵⁸ Despite this, there are practical reasons in favour of

issues of informational privacy, Costa-Cabral and Lynskey, 'The Internal and External Constraints of Data Protection on Competition Law in the EU'. Some see no place for privacy in competition law, even if it is a parameter of non-price competition, Sokol and Comerford, 'Does Antitrust Have a Role to Play in Regulating Big Data?', 17. Some ignore privacy saying that competition and privacy harms are distinct, Kochelek, 'Data Mining and Antitrust', 520. While we believe that they *could* be relevant in Article 102, we leave informational privacy issues on one side because, while related to our discussion, they are not the main focus of our paper.

¹⁵² The only EU competition cases that explicitly mention consumer welfare directly are: Case C-23/14 *Post Danmark A/S v Konkurrencerådet* ECLI:EU:C:2015:651, para 49 (consumer welfare is relevant in objective justification); Case C-382/12 P *MasterCard Inc. v Commission* ECLI:EU:C:2014:2201, para 29, as well as para 186 of the General Court judgment, Case T-111/08 (summarising the applicant's arguments); Case C-209/10 *Post Danmark A/S v Konkurrencerådet* [2012] ECR I-172, para 42 (consumer welfare is relevant in objective justification); Case C-501/06, etc. *GlaxoSmithKline Services Unlimited v Commission* [2009] ECR I-9291, paras 62-4 (no need to show consumer welfare loss to find a breach of Article 101); and Case T-201/04 *Microsoft Corp v Commission* [2007] ECR II-3601, para 41 (summarising Commission's arguments in its decision).

¹⁵³ Some argue that we should focus on the efficiency effects on consumers, others that we should look at the effects on producers, and some for a mixture of these effects. We focus on consumer welfare, as this is overwhelmingly supported in the EU context, and limited space means we cannot fully explore the topic. See, for example, Motta, *Competition Policy: theory and practice*, 17-22.

¹⁵⁴ Commission, *Guidelines on the application of Article 81(3) of the Treaty* (2004), para 13; Richard Whish and David Bailey, *Competition Law* (Eighth edn, Oxford University Press 2015), 20; and Alison Jones and Brenda Sufrin, *EU Competition Law* (Fifth edition edn, Oxford University Press 2014), 18.

¹⁵⁵ For a review of the theoretical and empirical relationship between competition and productivity see, "Productivity and Competition: A Summary of the Evidence", CMA 45, July 2015.

¹⁵⁶ Compare, Frederic Jenny, 'Competition and Efficiency' (1993) Fordham Corporate Law Institute, 197; and Christopher Townley, *Article 81 EC and Public Policy* (Hart 2009), 232-8, for example.

¹⁵⁷ See, the various economic models in Ha-Joon Chang, *Economics: a user's guide* (Penguin Books Limited 2014), for example.

¹⁵⁸ See, for example, Whish and Bailey, *Competition Law*, chapter 1.

adopting this standard: many competition authorities around the world have now embraced a consumer welfare standard, so that its adoption by the EU might encourage co-operation between competition authorities, thus bolstering effective enforcement action. It would also reduce legal costs for companies operating in multiple jurisdictions. Yet the adoption of a common standard may reduce the space for regulatory experimentation and might thus reduce the prospects of developing a 'better' rule, and a more variegated approach might better reflect the competition law goals of particular states to their preferred variety of capitalism.¹⁵⁹

The preceding arguments which favour a consumer welfare goal for EU competition law are based primarily on economic reasoning and the practicalities of implementation. Yet *legal* arguments can also be mounted in favour of a consumer welfare approach, drawing on the text of the EU Treaties,¹⁶⁰ although they do not explicitly refer to consumer welfare. First, although Articles 101 (restriction of competition) and 102 (abuse of dominance) do not explicitly refer to consumer welfare, the wording of these provisions seems broad enough to encompass this standard. Secondly, the EU Courts often adopt a more teleological and contextual approaches to the interpretation of the EU Treaties, regarding them as a web of inter-linked provisions. As Bengoetxea has observed:

“[T]he court [ECJ] usually has recourse to three types of first-order criteria in typical hard case situations: (i) semiotic or linguistic arguments; (ii) systemic and context-establishing arguments; and (iii) teleological, functional, or consequentialist arguments – and that preference is usually given to systemic functional criteria.”¹⁶¹

In our view, the EU Courts' teleological approach demands that specific treaty provisions (like Articles 101 and 102) be interpreted in accordance with the EU Treaties' overarching goals. The Preamble to the TFEU calls the essential objective of the EU Treaties “...the constant improvement of the living and working conditions of...” the EU's peoples. This is clearly wide enough to support a consumer welfare goal in EU competition law.

One example of the teleological approach being used in EU competition law relates to the so-called 'single market imperative'.¹⁶² It is generally accepted that, since the earliest cases,

¹⁵⁹ Christopher Townley, 'Co-ordinated Diversity: revolutionary suggestions for EU competition law (and EU law too)' in Piet Eeckhout and Takis Tridimas (eds), *Yearbook of European Law*, vol 33 (Yearbook of European Law, Oxford University Press 2014); and Christopher Townley, *A Framework for European Competition Law: co-ordinated diversity* (Hart Publishing 2018), forthcoming.

¹⁶⁰ Although, see Okeoghene Odudu, *The Boundaries of EC Competition Law: the scope of Article 81* (OUP 2006), chapter 7; Okeoghene Odudu, 'The Wider Concerns of Competition Law' (2010) 30 *Oxford Journal of Legal Studies*; and Pinar Akman, *The Concept of Abuse in EU Competition Law* (Bloomsbury 2015), parts I and II. For replies see Townley, *Article 81 EC and Public Policy*; Christopher Townley, 'Is There (Still) Room for Non-Economic Arguments in Article 101 TFEU Cases?' in Caroline Heide-Jørgensen and others (eds), *Aims and Values in EU Competition Law* (Aims and Values in EU Competition Law, DJØF Publishing 2013); and Giorgio Monti, *EC Competition Law* (Cambridge University Press 2007), chapters 1-4.

¹⁶¹ J Bengoetxea, *The Legal Reasoning of the European Court of Justice* (Clarendon Press 1993), 233-4. See also, Case 283/81 *Srl CILFIT and Lanificio di Gavardo SpA v Ministry of Health* [1982] ECR 3415, paras 16-20. Similar interpretative principles should apply for the Merger Regulation (Council, *on the control of concentrations between undertakings*), see Case 149/10 *Zoi Chatzi v Ypourgos Oikonomikon* [2010] ECR I-8489, para 43 (by implication).

¹⁶² The single market goal (or imperative), in the context of EU competition law, rests on the idea that the “...Treaty, whose preamble and content aim at abolishing the barriers between states, and which in several provisions gives evidence of a stern attitude with regard to their reappearance, could not allow undertakings to reconstruct such barriers. Article 85(1) [now Article 101(1)] is designed to pursue this aim, even in the case of agreements between undertakings placed at different levels in the economic process.”, Joined Cases 56 and 58/64 *Établissements Consten S.à.R.L. and Grundig-*

one of Articles 101 and 102's main aims has been to prohibit arrangements that perpetuate national divisions in trade between Member States even though nothing in the text of Articles 101-102 refers to single market integration. Recently, the ECJ reaffirmed the importance of this goal as consistent with the EU Treaties' "...objective of achieving the integration of national markets through the establishment of a single market" while emphasising that single market integration is not a mere proxy for consumer welfare.¹⁶³ In so doing, the Court thereby emphasised the importance of a teleological approach in EU competition law. The case also clearly demonstrates that consumer welfare is not the sole and exclusive goal of Articles 101 and 102.¹⁶⁴

In addition to literal and teleological methods of interpretation, the EU Courts also rely on a third approach, the contextual approach. For example, Article 12 TFEU requires that consumer protection "...requirements shall be taken into account in defining and implementing Union policies and activities." EU competition law is a Union policy. Article 169 TFEU explains that consumer protection includes taking into account the "...economic interests of consumers, as well as...promoting their right to information..." Once again, this is wide enough to support a consumer welfare goal in EU competition law.¹⁶⁵

The Commission, and many academics and practitioners, often go further and claim that consumer welfare should be the *only* goal of these EU competition provisions¹⁶⁶ leaving no room for fairness or equity. We disagree. Firstly, it conflicts with the EU Courts' case law with many recent cases reaching precisely the opposite conclusion by¹⁶⁷ reaffirming that, single market integration is a distinct goal of the EU competition provisions so that the promotion of consumer welfare is not their only goal. Secondly, such a narrow reading of the substantive goals of EU competition law does not comport with a proper interpretation

Verkaufs-GmbH v Commission [1966] ECR 299, 340. The same applies to Article 102, given their common goals, see text around footnote 117.

In addition, many other public policy goals have been, and should be, considered relevant in EU competition law, given the wider EU Treaties' framework. The relevance of wider public policy goals is not the focus of this paper, and is not discussed further here. For a further discussion of these issues see Townley, *Article 81 EC and Public Policy*; Townley, 'Is There (Still) Room for Non-Economic Arguments in Article 101 TFEU Cases?'; and Monti, *EC Competition Law*, chapter 4.

¹⁶³ Joined Cases 56 and 58/64 *Établissements Consten S.à.R.L. and Grundig-Verkaufs-GmbH v Commission* [1966] ECR 299, 340; and C-501/06 P *GlaxoSmithKline Services Unlimited v Commission* [2009] ECR I-9291, paras 61-3 (which also explains that the single market initiative and consumer welfare do not always overlap). The single market objective seems to have been a key motivation under Article 102 in Case 27/76 *United Brands v Commission* [1978] ECR 207, para 232, for example. See also, Whish and Bailey, *Competition Law*, 221.

¹⁶⁴ That said, as David Elliott points out, the single market imperative often works against consumer welfare. Where firms have to recover fixed costs, for example, R&D, the single market says you must charge the uniform price to recover the profit required to meet fixed costs. Economic theory tells us that the best solution (with straight line demand curves) is to allow third degree price discrimination between different countries with different willingness to pay. Aggregate consumer surplus will typically be higher than that under the uniform price case. Of course, there will be winners, (perhaps Greece with low prices) and losers (Germany and UK, with high prices), which can make this cross-subsidisation politically unpopular. So, the single market objective may outweigh aggregate consumer surplus.

¹⁶⁵ Townley, *Article 81 EC and Public Policy*, chapter 2; and Townley, 'Is There (Still) Room for Non-Economic Arguments in Article 101 TFEU Cases?'.
¹⁶⁶ See references at footnote 154.

¹⁶⁷ See references at footnote 163.

of the EU Treaties, given that the teleological and contextual methods of interpretation are also important in the interpretation of EU (competition) law, see above.¹⁶⁸

But is the promotion of fairness and justice also a substantive goal of EU competition law? In the following discussion, we apply literal, contextual and teleological interpretative techniques to the EU Treaties to argue that fairness and justice are also legitimate substantive goals underpinning the proper interpretation and application of EU competition law.

5.1.2 *Is fairness and justice a substantive goal of EU competition law?*

In Section 3, we examined the implications of ACPD from the perspective of fairness and justice. These normative values constitute important goals that animate the interpretation and application of the EU Treaties. For example, the Preamble to the TFEU recognises “...that the removal of existing obstacles calls for concerted action in order to guarantee steady expansion, balanced trade and *fair* competition...” (our emphasis). Within the text of Article 102, itself, Article 102(a) explicitly states that charging ‘unfair prices’ is abusive.¹⁶⁹ In addition, the EU Treaties’ competition provisions are intended to help facilitate the achievement of the EU internal market,¹⁷⁰ which is itself informed by a concern for fairness understood as *collective justice*. Article 3(3) TEU describes the aims of the internal market in terms of aiming to ‘combat social exclusion and discrimination’, to ‘promote social justice and protection...and solidarity between generations’ as well as promoting ‘solidarity among Member States’. These normative goals are concerned with securing fairness and justice, and cannot be accurately described solely in terms of the promotion of aggregate economic welfare.¹⁷¹

The importance of fairness, understood as collective justice, can also be found in other EU Treaty provisions, which provide the larger interpretative context for Articles 101 and 102. For example, the EU Treaties prohibit discrimination on the basis of various legally protected grounds. We suggest that ACPD is more likely to be found unjust or unfair, and thus even more likely to infringe EU competition law, when it entails unlawful discrimination. For example, located in a part of the EU Treaties entitled ‘provisions having general application’, Article 10 TFEU stipulates that:

“In defining and implementing its policies and activities, the Union shall aim to combat discrimination based on sex, racial or ethnic origin, religion or belief, disability, age or sexual orientation.”

¹⁶⁸ Those in favour of a sole consumer welfare goal for EU competition law are not immune from raising other considerations themselves. For example, freedom of contract is often pleaded as a relevant consideration, Subiotto and O'Donoghue, 'Defining the Scope of the Duty of Dominant Firms to Deal with Existing Customers under Article 82 EC', 683-4. This is relevant, but then we do not agree with a sole consumer welfare objective.

¹⁶⁹ The EU Treaties go even further in limited areas. For example, the Common Agricultural Policy explicitly outlaws all discrimination between consumers and producers, Article 40(2) TFEU. Is this wide enough to outlaw ACPD when we apply the normal EU competition rules in agricultural areas? If so, this could help to protect vulnerable consumers in this area.

¹⁷⁰ Protocol 27 annexed to the TFEU states “...the internal market as set out in Article 3 TEU includes a system ensuring that competition is not distorted...” Undermining market integration, in terms of discriminating between nationals from different Member States (unless based on objective factors) is generally prohibited in Article 102, see the discussion around footnote 163.

¹⁷¹ Article 2 TEU adds “The Union is founded on the values of respect for human dignity, freedom, democracy, equality, the rule of law and respect for human rights, including the rights of persons belonging to minorities. These values are common to the Member States in a society in which pluralism, non-discrimination, tolerance, justice, solidarity and equality between women and men prevail.” ACPD can undermine many of these values, including solidarity.

As we have seen, Article 12 TFEU has an equivalent provision for consumer protection.¹⁷² Article 18 TFEU also appears to hardwire a prohibition on discrimination on the grounds of nationality in a similar way by stating that, within the scope of application of the Treaties, “...any discrimination on grounds of nationality shall be prohibited.” Neither of these Treaty articles allows any form of defence.¹⁷³ Accordingly, by interpreting Article 102 in the light of Articles 10 and 18 TFEU, ACPD by a dominant firm that entails discrimination on legally protected grounds, (especially discrimination on nationality that segments the single market), is likely to be regarded as a violation of the Article 102 prohibition, although a case-by-case analysis is nevertheless required to identify whether ACPD, in fact, produces these consequences.¹⁷⁴ Again, the view that multiple policy goals underpin EU competition law is supported by the EU Courts’ case law, which displays a strong commitment to taking these goals into account when interpreting EU competition law provisions, unless the EU Treaties very clearly indicate a contrary intent, rather than merely focusing on the goal of aggregate consumer welfare.¹⁷⁵

5.2. The interaction between efficiency and fairness evaluations

As the preceding analysis demonstrates, literal, teleological and contextual approaches to interpretation of the EU Treaties suggest that *both* consumer welfare and the promotion of fairness and justice are substantive goals of EU competition law, in addition to the aim of securing single market integration. Accordingly, we suggest that Articles 102 and 101 should be interpreted in light of all of these goals, and are therefore relevant to an evaluation of whether ACPD violates EU competition law. Leaving aside single market integration concerns, we now map out the various possible interactions between the consumer welfare and fairness effects of ACPD in order to identify whether such practices should be considered a violation of EU competition law. We show that there are four possible situations to consider in relation to how they interact in a specific case, in two they are aligned, and in the other two, they conflict. Then, we place these four scenarios into the Article 102 framework, putting forward our proposals for how these clashes should be dealt with thereunder.

5.2.1 Where efficiency and fairness considerations are aligned

In Section 2, we showed how ACPD by a dominant firm might either increase, or decrease, consumer welfare, depending on the specific facts of the case; while in Section 3, we showed how ACPD might be evaluated from the perspective of different understandings of

¹⁷² See the text around footnote 165.

¹⁷³ Article 21 EU Charter of Fundamental Rights is even wider, in terms of the grounds that cannot be employed as a basis for discrimination, “1. Any discrimination based on any ground such as sex, race, colour, ethnic or social origin, genetic features, language, religion or belief, political or any other opinion, membership of a national minority, property, birth, disability, age or sexual orientation shall be prohibited. 2. Within the scope of application of the Treaties and without prejudice to any of their specific provisions, any discrimination on grounds of nationality shall be prohibited.” Once again, there seems to have been an explicit effort made to incorporate this prohibition against discrimination on protected grounds into provisions throughout the EU Treaties. It is hard to understand why this would not be effective in relation to competition law and Article 102. The implication of Article 51 of the EU Charter of Fundamental Rights seems to be that these rights should be considered throughout the EU Treaties, including Article 102 TFEU.

¹⁷⁴ The, more recent, Lisbon Treaty takes the role and importance of contextual interpretation to a new level. We now have a new Article 7 TEU, which demands consistency between policies and activities. This seems to demand that all implementing provisions take account of the goals of other provisions. Article 7 reads: “The Union shall ensure consistency between its policies and activities, taking all of its objectives into account and in accordance with the principle of conferral of powers.”

¹⁷⁵ See, Townley, *Article 81 EC and Public Policy*, Chapter 1, section 3, and Chapter 2, section 2.

fairness. If, consumer welfare and justice are aligned, either because, in the particular circumstances, ACPD increases consumer welfare and promotes fairness and justice, or because it adversely impacts upon both normative goals, then the policy implications of this are, theoretically, straightforward: assuming that no other relevant goals are affected, then if aggregate consumer welfare is enhanced by ACPD and such practices do not generate significant fairness concerns (as in the case of status based price discounting where status is a reasonable proxy for willingness to pay, or in cases of price discounting in cases of excess supply in order to alleviate waste), then such practices should be legally permissible under Article 102. Conversely, in circumstances where ACPD both reduces aggregate consumer surplus and also generates fairness concerns, as in the case of ACPD by a single firm monopolist (where this monopoly cannot be easily challenged), then Article 102 should apply in order to proscribe discriminatory pricing practices of this kind.

5.2.2 What if the efficiency and fairness dimensions of ACPD are in conflict?

Difficulties arise, however, when the consumer welfare and fairness dimensions of ACPD come into conflict. How should Article 102 be applied if there is either an increase in consumer welfare and a reduction in fairness, or vice versa, resulting from ACPD? Consider, for example, situations in which ACPD may lead to an overall increase in consumer surplus, but this is achieved at the expense of elderly and infirm consumers who, due to their lack of digital literacy, fail to shop around and switch to a provider who could satisfy their consumption preferences at a lower price. Or, conversely, consider the case of a retailer who sells razors to men and women at the same price (which may promote fairness in terms of gender equality) even though ACPD potentially may have led to lower average prices being paid by consumers and a higher consumer surplus.¹⁷⁶

In applying Article 102 to these cases, we will suggest that consumer welfare provides the primary focus of our analysis, but with the goals of fairness and justice playing a significant, but nonetheless secondary role, to orient the analysis. This hierarchy of values in EU competition law can then assist in determining whether the pricing practice in question constitutes an ‘abuse’ of market power; and secondly, whether practices that might otherwise be regarded as abuses, might be objective justification (‘defences’); although, strictly speaking, objective justification forms a part of the ‘abuse’ assessment.

a) *Abuse*

In this section, we offer a sketch of our proposed approach, suggesting that whether ACPD constitutes an ‘abuse’ should depend on whether it is likely to reduce aggregate consumer welfare, but allows matters of fairness to be considered at the level of objective justification. While we have argued that consumer welfare and fairness are both relevant substantive goals of EU competition law, the EU Treaties provide little assistance allocating their normative goals to the Treaties’ implementing provisions, or to ranking their relative importance and how they should apply to various legal elements of specific Treaty provisions. We offer an approach in which the notion of ‘abuse’ is interpreted exclusively by reference to consumer welfare, finding evidence to support our approach in the form of both positive legal arguments (the location of the competition rules in the EU Treaties, hints from the Council procedural regulation, the current mainstream conception of competition law’s aims, as well as further efficiency benefits generated by approximating competition law goals worldwide), and negative legal arguments (it is sufficient, from an EU law perspective, to consider fairness later). We then discuss the importance of inter-personal effects in consumer welfare analysis, drawing on insights from behavioural economics in

¹⁷⁶ Mark Leftly, ‘Tesco Cuts Price of Women’s Razors So They Cost the Same as Men’s’ *The Guardian* (1 January 2017)

order to argue for a widening of the conventional understanding of aggregate consumer welfare. We also provide a concrete example, to illustrate how our suggested approach might operate.

Four legal arguments are offered, suggesting that an exclusive focus on consumer welfare effects should be required when interpreting whether a particular course of conduct constitutes an 'abuse' for the purposes of Article 102. First, Article 102 is located in a part of the TFEU entitled 'Rules on competition'. The overwhelming (although not exclusive) view in competition circles worldwide is that consumer welfare should be a (if not *the*) primary substantive goal of EU competition law.¹⁷⁷ Second, recital 9 of Regulation 1/2003, the implementing regulation for Articles 101 and 102, explicitly states that Articles 101 and 102 "...have as their objective the protection of competition on the market."¹⁷⁸ This also hints at a consumer welfare approach, with its emphasis on competition within a market. So, we suggest that competition and the promotion of aggregate consumer welfare should be the core focus, at least when interpreting the meaning of 'abuse'.¹⁷⁹ Finally, this has the additional benefit of further aligning competition laws worldwide; which should reduce the legal compliance costs for multi-nationals, while still achieving an important EU goal.¹⁸⁰

Our proposed approach would mark a change of emphasis in the EU Courts' current approach to Article 102, by strongly prioritising the pursuit of consumer welfare over and above the other goals, such as, freedom to compete, protecting the structure of the market, market integration, and so forth, that the courts have hitherto considered relevant to its interpretation.¹⁸¹ However, for the above reasons, we support the emphasis placed by competition scholars today on consumer welfare as a primary goal of Article 102; relegating fairness considerations to a secondary role that enters into the legal application of Article 102 at the stage of 'defences'.¹⁸² This approach may also provide more freedom for national systems to select their preferred local balance of substantive goals.¹⁸³

Critics might respond that our proposed approach fails to give sufficient weight to the Treaty provisions outlawing discrimination on protected grounds in light of the EU Treaties' goal of social inclusion, claiming that concerns of this kind ought properly to be taken into account in identifying what constitutes an 'abuse' under Article 102. Although there is scope for reasonable disagreement about this matter, we think it preferable if fairness based objections to algorithmic practices, including ACPD, be primarily protected via legal regimes that are directly concerned with the goals of ensuring collective fairness and distributive justice, such as equality legislation that is aimed at securing the protection of historically disadvantaged and which could then, if considered appropriate, be extended to include other social groups considered in need of special legal protection. One exception to this is the goal of single market integration, which the Member States do not typically protect in

¹⁷⁷ See text around footnotes 154 and 166.

¹⁷⁸ This Council regulation was made further to Article 103(2)(b) TFEU.

¹⁷⁹ Fairness considerations may, however, be relevant at the level of objective justification.

¹⁸⁰ See text around footnote 159.

¹⁸¹ See, the cases referenced in footnote 163; Stavros Makris, 'Applying Normative Theories in EU Competition Law: exploring Article 102 TFEU' (2014) 3 UCL Journal of Law and Jurisprudence, 30; Gormsen, *A Principled Approach to Abuse of Dominance in European Competition Law*; Odudu, *The Boundaries of EC Competition Law: the scope of Article 81*; Monti, *EC Competition Law*, chapter 4; and Townley, *Article 81 EC and Public Policy*, chapters 3 and 4.

¹⁸² See the discussion around footnote 155, for a discussion of the many costs and benefits of a consumer welfare approach. For similar arguments in relation to Article 101 TFEU (anti-competitive arrangements), see Townley, *Article 81 EC and Public Policy*, 231-41.

¹⁸³ See, Townley, 'Co-ordinated Diversity: revolutionary suggestions for EU competition law (and EU law too)'.

their national legal orders (unlike the other grounds of collective fairness highlighted in Section 5.1). As a consequence, it is, in our view, appropriate to maintain the single market imperative as a basis for abuse (in addition to consumer welfare).

There are two foreseeable objections to excluding fairness from the definition of ‘abuse’ for Article 102 purposes. First, the current political climate seems to demonstrate a widely held view that the benefits of economic growth have been appropriated by the already well off, widening income and wealth inequality.¹⁸⁴ If so, now may not be a good time to focus on aggregate consumer welfare, at the expense of more re-distributive goals, especially collective fairness, which might particularly benefit the vulnerable. Nonetheless, in our view the best way to protect these re-distributive goals is to increase their protection through legislation that is more explicitly redistributive in its aim (such as consumer protection, or tax legislation, for example), and to increase the resources for enforcing these legislative instruments. A narrower focus for the competition rules is also beneficial in several respects, making them easier and cheaper to enforce; providing more legal certainty for firms (as a limited number of goals in any part of a test reduces complexity, even though a consumer welfare standard is admittedly far from straightforward to apply); and the EU competition rules would have a narrower remit. If the range of social goals and values that informs the interpretation of competition policy is drawn too widely, competition provisions may be unwieldy and unpredictable. Secondly, the Commission appears keen to focus on economic efficiency in objective justifications, which might hint that this is not the primary focus of ‘abuse’ and the EU Courts’ case law provides some support for this view (see Section 4 above). However, the older case law that provides support for this view preceded the contemporary emphasis on economic reasoning in EU competition law with its focus on consumer welfare and, we therefore suggest that the time is ripe for fundamental reform to reduce the lack of clarity that currently persists.¹⁸⁵

Thirdly, although we have argued for a narrower interpretation of ‘abuse’ in one sense (by confining it to conduct which reduces the aggregate consumer welfare or undermines single market integration), we suggest that it should be expanded in another sense, by incorporating insights from behavioural economics to supplement conventional economic understandings of aggregate consumer welfare. In standard analyses, the individual surplus enjoyed by a consumer depends only upon how much of the good they consume and the price that they pay. But as we saw in Section 3.2.1, insights from behavioural economics suggest that the value of an item to consumers may also be partially dependent upon the price paid by others. For example, if I pay £100 for a widget today, but then discover that you only paid £60 for exactly the same widget at the same time, I may revise the value I obtained from my purchase (and so might you), and my consumer surplus will be lower (while yours may be higher). In conventional economic analysis (while accepted as relevant), these inter-personal effects on valuation are routinely ignored to simplify the consumer welfare assessment.¹⁸⁶ Yet, Section 3.2.1 argued that these effects are relevant to an evaluation of aggregate consumer welfare, and so should form part of the legal evaluation of ACPD pursuant to Article 102. By reinterpreting how aggregate consumer welfare is determined, which allows for inter-personal effects to be taken into account, the perspectives of economics and fairness can be partially integrated, rather than being posed

¹⁸⁴ See for example, Jonathan Baker and Steven Salop, ‘Competition, Antitrust and Inequality’ (2015) 104 *Georgetown Law Journal* 1.

¹⁸⁵ An alternative is to allow different areas to interpret abuse and objective justification in diverse ways, unless and until the EU Courts more precisely define them, Townley, ‘Co-ordinated Diversity: revolutionary suggestions for EU competition law (and EU law too)’; and Townley, *A Framework for European Competition Law: co-ordinated diversity*, forthcoming.

¹⁸⁶ See reference at footnote 96.

in opposition to each other. At the same time, this avoids the need to establish an independent normative foundation in order to provide a legal basis by and through which subjective perceptions of pricing fairness can be made legally relevant when evaluating ACPD under EU competition law.

Accordingly, where ACPD enhances aggregate consumer welfare, it should not constitute an 'abuse' for the purposes of Article 102, irrespective of its implications for fairness. Although Article 102(c) prohibits applying dissimilar conditions to equivalent transactions with other trading parties thereby placing them at a disadvantage, we believe that this prohibition should apply only in the business-to-business context in circumstances where a supplier distorts competition by charging different prices to two downstream firms that compete with each other. In contrast, ACPD is aimed at final end users, individual consumers, rather than firms in competition with each other. Consumers might cause each other disadvantage, where there is true scarcity. This is rare, and even then, it is hard to see it as a *competitive* disadvantage. This is the assumption of many commentators¹⁸⁷ and some support for this view can be found in the ECSC Treaty.¹⁸⁸

To illustrate our suggested approach, consider a scenario in which men have a higher willingness to pay for a particular kind of good than women – such as razors. Let us assume that razors sold to men and women form part of the same relevant market, and that the dominant firm supplying razors is a monopolist. Accordingly, this firm could set a uniform price P for razors, sold to both men and women. Alternatively, it could sell razors at higher price P_m to men and lower price P_w to women, discouraging arbitrage by, say, making the cheaper women's razors pink and released in more feminine packaging. In this way, ACPD might allow the dominant firm to price in such a way that it enhances total consumer welfare. If, under a uniform pricing regime of P , very few women would be willing to pay for razors, then, *by engaging in price discrimination*, the dominant firm may be able to raise consumer welfare across the two groups. Accordingly, ACPD would not then constitute an 'abuse' because the overall effect is to increase total consumer surplus, even if men pay more than they otherwise would under a uniform price regime, where women get a product that they would not otherwise get, or get it more cheaply.

Yet this example entails discrimination on the basis of gender, which is a legally protected ground under EU anti-discrimination law, and it would remain open to legal challenge on that basis. In other words, ACPD in these circumstances may generate a conflict between consumer welfare (which is enhanced) and fairness understood in the equal treatment of men and women (which is undermined). In our view, this is not a matter that is appropriately resolved by competition law, but must be dealt with at a more general level in the interplay between anti-discrimination law, on the one hand, and competition law on the other, consideration of which is beyond the scope of this paper. From the perspective of competition law alone, these *prima facie* gender-based discrimination entailed by ACPD should not, in our view, bear upon whether the practice counts as an 'abuse' for the purposes of Article 102.

¹⁸⁷ Robert O'Donoghue and Jorge Padilla, *The Law and Economics of Article 102 TFEU* (2nd edn, Hart Publishing 2013), 247-9; Gormsen, *A Principled Approach to Abuse of Dominance in European Competition Law*, 107-10; and Ezrachi and Stucke, *Virtual Competition*, 128. For a contrary view, see Akman, 'To Abuse or Not to Abuse: discrimination between consumers', 497.

¹⁸⁸ One of the 'original three' EU treaties, the ECSC Treaty was signed on 18 April 1951 by the six original members of the EEC Treaty and dealt with coal and steel; it expired on 23 July 2002. It contained provisions that would have outlawed ACPD, they expressly prohibited discrimination and referred to consumers (and buyers), see Article 4(b), combined with Article 63(1). The EU Treaties have not followed this approach; which may indicate that they did not want final end users to be covered by Article 102(c), although contrary arguments can also be made.

Our interpretive aim in seeking to apply Article 102 to ACPD in this way is to ensure that its primary concern is promoting aggregate consumer welfare (and the single market). Nevertheless, the EU Treaties demand that fairness and justice *should* inform the interpretation of Article 102, but the legally appropriate place for this arises at the stage of objective justification.

b) Objective Justification (defences)

What about the converse situation, that is, circumstances in which ACPD may be *prima facie* consumer welfare reducing, but might nevertheless be regarded as fairness-enhancing? For example, drawing on the preceding example, let us imagine that this monopolist at some later date decides to stop discriminating between men and women, and – for whatever reason, now takes the view that it would be more profitable to charge a uniform price to both men and women, with the effect that aggregate consumer welfare is reduced. Such conduct would therefore be abusive pursuant to Article 102. However, the effect of the practice is to eliminate gender discrimination, thus enhancing the fairness of the monopolist's pricing practices. In our suggested approach, this fairness-enhancing effect can be taken into account at the stage of objective justifications for conduct that constitutes a *prima facie* abuse of Article 102. Depending upon the facts in the specific case, these fairness benefits might outweigh the consumer welfare (or single market) loss.¹⁸⁹

In both scenarios where a change in the price of razors is contemplated, efficiency and fairness/justice come into conflict. Because the main purpose of the EU competition rules should be, in our view, to enhance aggregate consumer welfare (and market integration), we think that ACPD or other discriminatory practices resulting in consumer welfare/ market integration *gains* should not constitute a *prima facie* violation of Article 102, (provided that consumer welfare is interpreted widely to include interpersonal effects) regardless of their impact upon fairness. However, if this conduct decreases aggregate consumer welfare (or the single market) and therefore constitutes a *prima facie* abuse under Article 102, it may, nevertheless, be objectively justified on grounds of fairness and equity.

In conclusion, consumer welfare (including inter-personal effects) should be the primary substantive goal of EU competition law (with the single market initiative) and corrective fairness relevant as a secondary goal. This means that, where ACPD enhances consumer welfare (or the single market), but fairness is undermined, we would not consider this a matter for the competition rules, but something to be dealt with more specifically in the EU Treaties' provisions that are directly oriented towards promoting equality and fairness (or their national equivalent, as appropriate). Where ACPD reduces consumer welfare, however, then we believe that fairness gains should be allowed to outweigh this competition harm, as recognised by the EU Treaties, and in Article 102 itself. Accordingly, if ACPD involves discrimination on legally protected (ie nationality, sex, racial or ethnic origin, religion or religious belief, disability, age or sexual orientation) then this can only be considered within Article 102 if ACPD also reduces consumer welfare. In the same way, where a measure by a dominant firm reduces discrimination, this may be relevant as a 'defence' to consumer welfare loss. Finally, as we noted in Section 3, a lack of transparency about the fact that firms are using ACPD, as well as the basis of their discriminatory pricing, particularly in the

¹⁸⁹ In these circumstances, it is for the dominant firm to show "...that its conduct is objectively necessary (see, to that effect, Case 311/84 *CBEM* [1985] ECR 3261, paragraph 27)...", Case C-209/10 *Post Danmark A/S v Konkurrencerådet* [2012] ECR I-172, paras 41-2. This case hints that the cumulative criteria in objective justification (benefit outweighs the harm, conduct is necessary to achieve the gains and does not eliminate effective competition) only apply to efficiency benefits and not those based on other grounds. So, we ignore them here. However, they might also be relevant, in which case they would also need to be applied. In principle, this is possible.

current social context in which many consumers continue to assume that uniform pricing is in operation, risks generating so many mistakes by consumers that their aggregate welfare, collective justice and/ or corrective justice could also be undermined for this reason. So, a lack of transparency by dominant firms engaging in ACPD should also be treated as *prima facie* abusive, generating a rebuttable presumption that such practices reduce consumer welfare and undermine fairness.¹⁹⁰

6. Conclusion

This paper has examined whether ACPD should be unlawful under EU competition law. To answer this question, we have considered the desirability of ACPD by reference to two normative values, economic efficiency (focusing on its effects on aggregate consumer surplus) understood in terms of conventional economic analysis, and by reference to fairness or justice, understood in terms of consumers' subjective perceptions, as unfair dealing, and in terms of its potential unfairness to social groups (collective justice). Taken together, both these normative perspectives highlight concerns associated with the information asymmetry that Big Data analytic techniques make possible and reinforce, and which ACPD seeks to harness.¹⁹¹ Because online retailers can observe individual online behaviour at a highly granular level, but individual consumers are unable to scrutinise the pricing behaviour of online retailers at the same level of detail, this places consumers at risk of exploitation, often feeling that they have been unfairly treated (even assuming that they are aware that ACPD is taking place). On the other hand, ACPD may also intensify competition (and provide a more personalised shopping experience), from which many individual consumers may benefit (although some may not), and which may be beneficial to consumers in the aggregate. Although the focus of our legal analysis has been on Article 102 TFEU (the prohibition on the abuse of dominance), our conclusions are relevant for many major competition law provisions, including anti-competitive arrangements under Article 101 TFEU, and mergers.

Economic analysis suggests that, except in the case of ACPD by a single firm monopolist which is likely to diminish overall consumer surplus and which we therefore argue should give rise to a rebuttable presumption that it violates Article 102, the effects on consumer welfare are ambiguous. We have argued that, because the predominant concern of Article 102, today, is to promote economic efficiency, understood in terms of maximising consumer welfare, ACPD should not constitute a *per se* violation of Article 102. Rather, case by case examination is required to determine the effects of ACPD on consumer welfare, and this is likely to depend upon whether the market is characterised by best-response asymmetry (e.g. where sellers price discriminate on the basis of brand preference or switching costs) or best-response symmetry (where price discrimination is based on search costs). In the former, price discrimination tends to intensify competition, but in the latter, it tends to weaken competition. However, a finding that ACPD tends to reduce consumer welfare (or the single market) on a conventional economic analysis does not necessarily imply that it should be regarded as unlawful under Article 102, because we have suggested that it might nonetheless be objectively justified on the basis that it promotes equity and justice by avoiding discrimination on legally protected grounds. Similar findings should apply under Article 101 and the Merger Regulation.

¹⁹⁰ There is some support in the case law for the idea that a lack of pricing transparency that facilitates discrimination between customers is abusive, although it is far from clear; Case C-179/90, *Merci convenzionali porto di Genova SpA v Siderurgica Gabrielli SpA* [1991] ECR I-5889, para 20, and Advocate General van Gerven, para 19. This might be particularly the case where vulnerable consumers bear this extra burden.

¹⁹¹ Although see, America, *Big Data and Differential Pricing*, 13-5.

Conversely, even if conventional economic analysis suggests that a given case of ACPD enhances consumer welfare, we believe that a more wide-reaching consumer welfare analysis must be undertaken. First, insights from behavioural economics, which draws on findings from experiments in cognitive psychology that systematically demonstrate that people frequently make sub-rational decisions owing to various cognitive heuristics and decision-making flaws, may reverse this finding. In particular, an individual consumer's failure to switch providers who offer cheaper prices or better quality does not necessarily indicate that the consumer has a preference for the services offered by her existing supplier: rather, it may be that the individual is simply unaware of the alternative more attractive offers, or fails to switch suppliers due to inertia or worries about the level of personal effort and anxiety associated with navigating and transacting in the online market place. Accordingly, charging such a consumer a higher price might be more accurately understood as a form of exploitation of the vulnerability and ignorance of certain kinds of unsophisticated consumers. Thus, the behavioural economics perspective shares common ground with the collective fairness (distributive justice) perspective, which reveals how ACPD may lead to distributive injustice, in which certain social groups suffer discrimination in terms of the inferior prices and service quality in online markets relative to other more digitally savvy groups. Proposing solutions is difficult here. One problem is that sellers may not be able to distinguish between these vulnerable consumers and consumers positively demonstrating brand preference; observationally, these two groups of consumers respond in the same way. We may want to intervene to protect the vulnerable, but not the latter. One possibility is to define a separate market for these vulnerable consumers and then apply Article 102 in the normal way (we even saw some support in the case law for the idea that a lack of pricing transparency that facilitates discrimination between customers is abusive; this might be even worse where vulnerable consumers bear this extra burden); but that is not always appropriate. Furthermore, the problem does not only arise from ACPD by dominant firms, and so even if such a course is sometimes possible, it is not sufficient to deal with the perceived harm. A more extensive remedy that should work in many instances is a form of price regulation, such as price caps. These are controversial, and will only be applied where there is very serious and long-standing consumer harm (and other remedies have failed). It may be that this is an area where there is a harm, but no appropriate, widespread remedy.

Secondly, behavioural economics also allows scope for consumers' subjective perceptions of relative pricing fairness to be taken into consideration. There is a long tradition of these and similar types of inter-personal effects being incorporated into models of consumer decision making and economic welfare. It is however difficult to estimate these effects empirically, so, it is conventionally assumed that the fact that one consumer does not know the price that other consumers obtain is irrelevant: efficiency is enhanced in circumstances in which consumers are able to acquire the good at their highest willingness to pay. Accordingly, if two consumers pay different prices for the same good, this may be efficiency enhancing. But, we have argued that the price one consumer obtains provides an anchor by which another consumer assesses the value of a product. This may affect both consumers' assessments of the product's value. On this understanding, ACPD may reduce consumer welfare (efficiency) more than current economic analyses suggest. By recognising that consumers may make mistakes when making purchasing decisions, behavioural economics also reflects concerns that ACPD may be unfair, understood in terms of unfair dealing. In particular, if consumers assume that uniform pricing, which typically applies when purchasing goods and services in the off-line environment, also applies in the on-line environment, this may undermine the consensual basis of the transaction if the consumer would have arrived at a different (lower) valuation of the relevant product if she had known that the same retailer was willing to sell the product to others at a lower price. In other words, if consumers have imperfect information they make mistakes and this reduces

economic welfare. ACPD can induce mistakes: if an individual consumer's utility depends upon knowing not only the price she is offered but also the price that *other* consumers are offered, but she does not have access to this information, then some consumers will make mistakes (some benefit too). In these circumstances, ACPD is to blame. This is particularly relevant today. Many consumers are not even aware that ACPD is being employed to personalise online prices. If the counterfactual is that all consumers are paid the same price, then all consumers are perfectly informed of the available price. So, if the distribution of prices affects individual utility, then ACPD induces mistakes, and these mistakes give rise to inefficient outcomes. In these circumstances, we suggest that the appropriate legal response is to introduce a mandatory disclosure regime to ensure that on-line consumers are properly informed that the pricing of products by dominant firms may vary for different consumers, and of the variables that affect the price at which goods or services are offered. In fact, we believe that this sort of transparency is so important that a more general consumer protection requirement is needed, mandating disclosure by all firms (not just for dominant firms) that engage in ACPD in order to protect the integrity of the market.

We have therefore considered one way in which the so-called Big Data revolution is transforming the consumer retail sector. These technologies enable online sellers to engage in highly granular tracking of the online browsing and purchasing behaviour of consumers, employing sophisticated data mining techniques to estimate each individual consumer's willingness to pay while, crucially, enabling online retailers to personalise price offers accordingly because the on-line consumer sees only his or her individualised digital shopfront. Not only does this enable firms to conceal the actual prices that individual consumers are offered from each other, but it enables them to 'segment' customers into groups based on perceived willingness to pay. In short, the core concerns which ACPD generates spring from the information asymmetry that Big Data analytic techniques make possible and exacerbate by rendering consumers relatively powerless vis-à-vis online retailers - they cannot choose which information about their identity to 'reveal' to suppliers, because online retailers now have extremely powerful (and relatively inexpensive) tools to glean information about not just consumers' past purchasing behaviour, but also their tendency to avail themselves of 'flash sales', multi-buy discounts, targeted advertising, when they are most likely to be tempted to make online purchases, etc. - but because this is all highly opaque, there may be relatively little that consumers can do in response, and they may therefore be largely at the mercy of sellers in their on-line dealings. On the other hand, we have also seen how competition between rival retailers may offer consumers significant protection against exploitation by retailers, in so far as ACPD may in some circumstances intensify competition between rivals, with resulting benefits to consumers in the aggregate (although not all consumers benefit equally). Because no systematic attempts have yet been made to evaluate the extent to which ACPD is occurring, there is an urgent need for systematic empirical research to generate a solid evidence base from which we can then seek to assess its effects, including the extent to which it may perpetuate social injustice and therefore warrants substantive legal intervention.

The information asymmetry story that lies at the heart of our analysis¹⁹² suggests that competition law and policy may, in some respects, be well-suited to respond to societal concerns about ACPD because its overarching concern is that of aggregate consumer welfare, but it nevertheless allows some scope for considerations of fairness and justice to be taken into consideration. However, we believe that this response of EU competition law to these concerns should be relatively limited: not because a legal response is unwarranted, but rather because EU competition law in general, and Article 102 in particular, may not be the most suitable legal form for fashioning an appropriate response.

¹⁹² See also Ezrahi and Stucke, *Virtual Competition*, 113.

Our analysis is important because it subjects an increasingly important and ubiquitous practice taking place in the on-line world to critical scrutiny, and can be understood as contributing to several strands of academic literature. At its simplest, it contributes to our understanding of the economic and fairness implications of ACPD and how they may be evaluated from the perspective of EU competition law. But our analysis can also be situated within the broader socio-technical context in which ACPD takes place, pointing to the challenges associated with securing 'algorithmic accountability' and the large challenges associated with understanding and evaluating the economic, social and ethical implications of the algorithmic turn across all sectors of society and the economy.¹⁹³ At the same time, it can also be understood as contributing to a growing interest in 'law and technology', by exploring the challenges for law in responding to new technological developments within an ambiguous moral framework and an exploration of alternative ways in which law might best respond to those challenges.¹⁹⁴

Although we have critically examined the implications of ACPD for economic efficiency and for fairness and equity, what remains unknown is the extent to which firms actually engage in ACPD. We believe that ACPD is likely to be attractive to online retailers, because it enables them to compete more effectively vis-à-vis their rivals, in order, ultimately, to try to boost their profit. Although we have shown that ACPD often provides economic benefits to consumers in the aggregate and thus to society in general, we have also noted that these benefits may not be equally distributed, thereby generating concerns for collective justice. And in some circumstances, the only beneficiaries are the powerful on-line retailers themselves. Given its potential to impact the market mechanism in both positive and negative ways, ACPD is a fascinating vehicle for examining the limits of competition law as a device for constraining new behavioural techniques which Big Data analytics and the computational turn makes possible, fuelled by the market-driven logic of global capitalism.

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¹⁹⁴ See generally R Brownsword, E Scotford and K Yeung (eds) *The Oxford Handbook of Law, Regulation and Technology* (2017) OUP, Oxford.

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