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Optional Price Discrimination

Lee Anne Fennell

OPTIONAL PRICE DISCRIMINATION

*by: Lee Anne Fennell**

Abstract

Price discrimination generates considerable angst. As merchants develop ever-more-powerful mechanisms for gathering and compiling information about consumers, the specter of fully personalized pricing seems to loom as an ominous threat. Yet a parallel phenomenon quietly coexists with all this distress over tailored prices: models that encourage people to voluntarily contribute, typically in varying amounts, the sums necessary to cover the fixed costs of producing particular goods and services. This Article proposes enabling customers to opt into price discrimination in a more structured way across a broader range of markets. Optional price differentiation can make markets fairer and more inclusive by extending access to more consumers and facilitating provision of a broader array of products and services. For it to do so successfully, however, producers must be able to bind themselves to pricing practices and uses of revenue that are attractive enough to induce participation by both high- and low-valuing consumers, and that are transparent enough to ensure meaningful choice. Government can facilitate experimentation along these lines by setting standards for disclosure and data use, and by policing against fraud and misrepresentation.

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I. INTRODUCTION

Price discrimination gets a bad rap. It conjures images of ruthless monopolists bent on opportunistically extracting surplus from unsuspecting consumers. As merchants develop ever-more-powerful mechanisms for gathering and compiling information about consumers, the specter of fully personalized pricing seems to loom as an ominous threat. Despite past economic defenses of price discrimination as an efficient and even consumer-friendly move in some contexts,[1] recent writing highlights the perceived unfairness of tailoring prices to willingness to pay ("WTP"), especially when this is accomplished through "big data."[2]

1. *See, e.g.*, ROBERT H. BORK, THE ANTITRUST PARADOX: A POLICY AT WAR WITH ITSELF 394–401 (1978); Hal R. Varian, *Price Discrimination and Social Welfare*, 75 AM. ECON. REV. 870 (1985); *see also* discussion *infra* Part II.C.

2. The literature on this topic is burgeoning. *See, e.g.*, Akiva A. Miller, *What Do We Worry About When We Worry About Price Discrimination? The Law and Ethics of Using Personal Information for Pricing*, 19 J. TECH. L. & POL'Y 41 (2014); Klaus Wertenbroch, *From the Editor: A Manifesto for Research on Automation in Marketing and Consumer Behavior*, 4 J. MKTG. BEHAV. 1 (2019), https://doi.org/10.1561/107.00000062; Salil K. Mehra, *Price Discrimination-Driven Algorithmic Collusion: Platforms for Durable Cartels*, 26 STAN. J.L. BUS. & FIN. 171 (2021); Gerhard Wagner & Horst Eidenmüller, *Down by Algorithms? Siphoning Rents, Exploiting Biases, and Shaping Preferences: Regulating the Dark Side of Personalized Transactions*, 86 U. CHI. L. REV. 581 (2019); Mark Klock, *Unconscionability and Price Discrimination*, 69 TENN. L. REV. 317 (2002); Ramsi A. Woodcock, *Personalized Pricing as Monopolization*, 51 CONN. L. REV. 311 (2019); Jerry Useem, *How Online Shopping Makes Suckers of Us All*, ATLANTIC, May 2017, at 62.

Yet a parallel phenomenon quietly coexists with all this distress over personalized prices: models that encourage people to voluntarily contribute, typically in varying amounts, the sums necessary to cover the fixed costs of producing new goods or services. That nonprofits rely on forms of "voluntary price discrimination" to cover their costs has been understood for decades, largely due to the work of Henry Hansmann.[3] "Provision point mechanisms," which make production of a good or service contingent on reaching a threshold of voluntary contributions, have a long history as well as a modern presence in models like Kickstarter's.[4] Firms, artists, and organizations have also experimented with pay-what-you-want models in a variety of contexts.[5]

This Article explores the possibility of enabling customers to opt into price discrimination[6] in settings where it might serve socially valuable purposes—from extending access to lower-income consumers, to facilitating the provision of products that serve small or niche markets, to accomplishing social goals in tandem with consumption. It builds on the rationale for Ramsey pricing, a form of surplus-maximizing price discrimination that covers fixed costs through prices that inversely correlate with buyers' elasticity of demand, subject to a profit constraint.[7] An opt-in model, similarly constrained, could add structure to

3. *See, e.g.*, Henry B. Hansmann, *The Role of Nonprofit Enterprise*, 89 YALE L.J. 835, 856 (1980), https://doi.org/10.2307/796089 (describing contributions to performing arts nonprofits as "in essence, a form of voluntary price discrimination, or, in other words, a means whereby different customers can be charged different prices for the same service"); *see also* THOMAS GALE MOORE, THE ECONOMICS OF THE AMERICAN THEATER 120–21 (1968) (discussing how opera houses effectively employ price discrimination).

4. *See, e.g.*, Ian Ayres, *Voluntary Taxation and Beyond: The Promise of Social-Contracting Voting Mechanisms*, 19 AM. L. & ECON. REV. 1, 3 (2017), https://doi.org/10.1093/aler/ahw016 ("Voluntary contribution mechanisms requiring that some threshold be met have been used for hundreds of years."); Julia Y. Lee, *Gaining Assurances*, 2012 WIS. L. REV. 1137, 1147–55; *see also* discussion *infra* Part III.C.2.

5. *See, e.g.*, Klaus M. Schmidt et al., *Pay What You Want as a Marketing Strategy in Monopolistic and Competitive Markets*, 61 MGMT. SCI. 1217, 1217 (2015), https://doi.org/10.1287/mnsc.2014.1946; *see also* discussion *infra* Part III.C.3.

6. One might question whether "price discrimination" is an appropriate term for a pricing protocol that customers willingly choose. The term carries a negative connotation, suggestive of a harmful act carried out by a perpetrator against victims. "Price differentiation" is a more neutral and descriptive term, and one that I will use interchangeably here. I use the term "price discrimination" in this Article, however, because it is an economic term of art that is functionally descriptive and connects the discussion here to prior work, including that addressing voluntary forms of price differentiation.

7. *See* ROBERT WILSON, NONLINEAR PRICING 98 (1993) ("The guiding principle of Ramsey pricing is to construct the tariff to maximize an aggregate of customers' benefits, subject to the constraint that the firm's revenues recover its total costs."); *see also* William J. Baumol, *Ramsey Pricing*, *in* THE NEW PALGRAVE DICTIONARY OF ECONOMICS 11178, 11178 (3d ed. 2018). Ramsey pricing is named for Frank Ramsey, who developed the idea. F. P. Ramsey, *A Contribution to the Theory of Taxation*, 37 ECON. J. 47 (1927), https://doi.org/10.2307/2222721.

existing voluntary pricing models and enable them to be expanded into new domains.

Such an approach might be accepted by many consumers. Despite the overheated rhetoric around price tailoring, consumers do not *always* object to the personalization of price. Haggling is an age-old[8] form of price discrimination that many customers willingly tolerate or even enjoy. The difference is that consumers perceive themselves to be voluntary participants in the negotiation process, not unwitting marks being fleeced by a corporate algorithm.[9] Presumably, they also overwhelmingly believe (even though, statistically, they must often be wrong) that they are getting a better-than-average price. Optional price discrimination similarly extends control to consumers but, unlike haggling, can be structured in ways that ensure those consumers are made better off as a result.

The analysis here proceeds in three parts. Part II explains how price discrimination works, surveys the reasons for hostility to it, and outlines its potential advantages for consumers as well as sellers.[10] By offering alternative ways to cover fixed costs, price discrimination can generate benefits like broader access to goods and a wider variety of product choices. Part III reviews some existing forms of voluntary price discrimination that pursue these goals. Part IV examines how an optional approach to price discrimination might be extended into additional contexts. It discusses how to structure such an approach to mutually benefit consumers and firms, and considers the regulatory and facilitative role that government might play.

Although there are a variety of different forms that optional price discrimination might take, the approaches I have in mind here would give the consumer a genuine choice whether to participate in personalized pricing, and would involve specific, clear representations about the terms on which that pricing will be applied. Such clarity serves two

8. *See* Saul Levmore & Frank Fagan, *The End of Bargaining in the Digital Age*, 103 CORNELL L. REV. 1469, 1479 & n.17 (2018) (observing that "[h]aggling is as old as the Bible" and that the word's usage in the price context goes back "at least four hundred years").

9. *See, e.g.*, Brian Wallheimer, *Are You Ready for Personalized Pricing?*, CHI. BOOTH REV. (Feb. 26, 2018), https://www.chicagobooth.edu/review/are-you-ready-personalized-pricing [https://perma.cc/6NRW-C7JG] (quoting MIT's Catherine Tucker for the idea that "consumers respond better to differentiated pricing if they feel in control of the process").

10. I use the term "seller" here interchangeably with "producer" to refer to an entity that is both responsible for supplying the product or service and that has full discretion to set pricing policy. That's an obvious simplification: various facets of invention, production, marketing, and sales may be conducted by different parties. Nonetheless, if mutual gains from optional price discrimination are possible in the stylized two-party situations analyzed here, efficient contracts that disaggregate the supplying party should not undo those gains and could in some cases augment them. *See* discussion *infra* Part IV.C.3 (noting the possibility that a large retailer could facilitate bundle- or club-based forms of optional price discrimination that encompass multiple suppliers).

purposes, beyond the obvious one of letting consumers know what is on offer. First, it facilitates actions based on fraudulent misrepresentations if merchants provide misleading or false information about their pricing practices. Second, the existence of transparently presented and fully voluntary forms of personalized pricing may help to crowd out forms of price discrimination that do not share these attributes.

The approach to price discrimination developed here is optional in the sense of being voluntary for consumer-participants. It is also optional in a second sense: it contemplates enabling consumers to effectively write or exercise options to buy goods and services based on their valuations.[11] Such options could leave consumers—both collectively and individually—better off than under uniform pricing.[12]

II. Price Discrimination and Its Discontents

Recent waves of hostility against the possibility that data could enable new forms of price discrimination have emphasized the potential harms and inequities that might accompany the practice. There is also a longstanding literature discussing the efficiency advantages of price discrimination. This Part offers a brief overview of how price discrimination works, identifies some of the main arguments against it, and outlines its potential effects on efficiency and distribution. My goal in doing so is not to re-adjudicate price discrimination debates in all their particulars, but rather to identify potential gains as well as the sources of popular opposition—considerations that collectively chart out the parameters within which a voluntary price discrimination system would need to operate.

To preview the argument, price discrimination can make the provision of more kinds of goods and services possible, and to more consumers. It can reduce the deadweight loss otherwise associated with monopoly power. But it can also operate against the interest of consumers by extracting surplus from them and transferring it to sellers. As a result, whether one regards price discrimination as problematic has conventionally depended on whether one's normative vision of competition policy prioritizes the maximization of consumer surplus or the minimization of deadweight loss.[13] But the tension between

11. For other uses of options and related mechanisms in law, see generally Ian Ayres, Optional Law: The Structure of Legal Entitlements (2005).

12. This approach builds on long-established ideas in price theory, including "Pareto-improving nonlinear pricing," which allows consumers to choose between a uniform price and a price schedule with volume discounts, self-sorting into whichever pricing arrangement is more advantageous. *See* Wilson, *supra* note 7, at 62; Robert D. Willig, *Pareto-Superior Nonlinear Outlay Schedules*, 9 Bell J. Econ. 56 (1978), https://doi.org/10.2307/3003612 (showing how offering consumers a choice between a uniform price and a two-part tariff can be Pareto-improving).

13. *See, e.g.*, Sean P. Sullivan, *Lumps in Antitrust Law*, 2020 U. Chi. L. Rev. Online 78, 85–86 (discussing difficulties for antitrust analysis that stem from conflating these goals). The welfare implications of price discrimination also depend on whether

these goals is not inevitable. Some forms of price discrimination can make *all* consumers of a given good better off, both collectively and individually. The prospect of such Pareto improvements is precisely what makes optional alternatives feasible.[14]

A. *What Is Price Discrimination?*

Price discrimination, in the guise that provokes the most reflexive outrage, involves charging different customers different prices for the exact same good or service. In fact, price discrimination exists whenever buyers are charged "different *net* prices" for different varieties or models, after the cost to the producer of the differences are taken into account.[15] Thus, airline transportation involves price discrimination even if we see economy-plus as a different product from regular economy, or a ticket purchased on the day of the flight as a different product from one bought six weeks in advance. Volume and loyalty discounts also amount to price discrimination, albeit of a sort that does not tend to generate much angst.

Whether charging the same price for exactly the same product or a disproportionately different price for a slightly different product, the goal of the producer is the same: to extract as much surplus as possible from each buyer. As exploitative as this sounds, moving away from a uniform price can also facilitate more sales to more customers—potentially to everyone who values the good above its marginal cost of production.[16] The fact that a uniform price might leave some (or even

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one's social welfare function prioritizes the reduction of inequality, as certain forms of price discrimination will increase surplus for lower-income consumers while reducing it for higher-income consumers. *See* Jean-Pierre Dubé & Sanjog Misra, *Personalized Pricing and Consumer Welfare* (Nat'l Bureau of Econ. Rsch., Working Paper No. 23775, 2017), https://www.nber.org/system/files/working_papers/w23775/w23775.pdf [https://perma.cc/LS3P-6JEU]; Stefano DellaVigna & Matthew Gentzkow, *Uniform Pricing in U.S. Retail Chains*, 134 Q.J. Econ. 2011, 2075 (2019), https://doi.org/10.1093/qje/qjz019; *see also* Sullivan, *supra*, at 84–85 (observing that some forms of price discrimination benefit one group of customers while harming another, presenting "the philosophically difficult question of how different groups of consumers should be sliced or aggregated in computing changes in consumer welfare").

14. I use the phrase "Pareto improvements" loosely here, to refer to the impacts on participants within a particular market. *See supra* note 12 (citing and discussing similar usages). Spillovers among markets can create additional complications. *See infra* note 113.

15. Louis Phlips, *Price Discrimination*, *in* The New Palgrave Dictionary of Economics 10680, 10680 (3d ed. 2018); *see also* Daniel J. Gifford & Robert T. Kudrle, *The Law and Economics of Price Discrimination in Modern Economies: Time for Reconciliation?*, 43 U.C. Davis L. Rev. 1235, 1239–40 (2010) (observing that while lawyers use the term to refer to "a price difference," economists "mean that two or more similar goods are being sold at prices that bear different ratios to their marginal costs"); Richard A. Posner, *Oligopoly and the Antitrust Laws: A Suggested Approach*, 21 Stan. L. Rev. 1562, 1578 (1969), https://doi.org/10.2307/1227523 (defining price discrimination as "a pattern of selling in which the ratio of price to marginal cost is not the same for all sales of a commodity").

16. *See* Phlips, *supra* note 15.

all) would-be customers unserved underpins the well-recognized efficiency advantages of price discrimination, which we will examine in more depth below.[17] For now, it is sufficient to observe that price discrimination is typically associated with two effects: increased revenue for the seller, and an increased quantity of sales.

Because price discrimination entails charging higher-valuing consumers a higher (net) price than lower-valuing consumers, it requires not only heterogeneity in customer valuations but also some means of sorting the customers and charging them different prices. Two things are necessary to make any system of price discrimination work: (1) some method of finding out (or inferring) which consumers have higher or lower valuations; and (2) some way of keeping the higher-valuing consumers on board at the higher price.[18] The first of these is an informational requirement and the second is a behavioral requirement; both conditions may be met concurrently by the same sorting mechanism or addressed separately. Although we will start by considering how different forms of seller-imposed price discrimination grapple with these challenges, optional systems of price differentiation must satisfy these same two criteria in order to be successful.

The literature distinguishes between types or "degrees" of price discrimination, which address these requirements in different ways.[19] In first-degree price discrimination, also known as "perfect" price discrimination, each buyer is charged her full reservation price by the producer, so that the producer reaps all of the surplus.[20] First-degree price discrimination thus describes a stylized situation in which both criteria above—knowing everyone's individual valuations and getting everyone to pay them—have somehow been satisfied. In the real world, the reservation price of each individual buyer cannot be known, although the rise of data sets in the hands of sellers has made

17. *See* discussion *infra* Part II.C.

18. Although it is conventional to state the necessary conditions for price discrimination in terms of market power and the lack of opportunity for arbitrage between high- and low-valuing segments of the customer base, keeping customers on board at higher prices may be easier in some ways and harder in others than these standard criteria suggest. For reasons both altruistic and self-interested, some customers may be willing to voluntarily pay more than others under certain circumstances. *See infra* Part IV. At the same time, even a monopolist with airtight protections against arbitrage may be unable to successfully price discriminate due to consumer backlash. *See infra* note 74 and accompanying text.

19. These distinctions originate in A. C. PIGOU, THE ECONOMICS OF WELFARE ch. XVII § 5 (4th ed. 1932).

20. *See* Phlips, *supra* note 15, at 10680–81. It would be possible to have the full differentiation among buyers based on reservation prices that is associated with perfect price discrimination without the seller capturing the entire surplus. In other words, there are two aspects of "perfect" implicated in first-degree price discrimination, one involving the precision of the differentiation and the other involving the completeness of the seller's extraction based on it, but the two need not appear together.

closely approximating it increasingly feasible.[21] Instead, sellers typically rely on proxies for intensity of demand. Although the categories of second- and third-degree price discrimination are not always defined consistently, they roughly correspond to two ways of sorting buyers for differential pricing: by relying on a buyer's own purchasing choices (self-sorting), and by using some observable or verifiable attribute of the buyer (attribute-based sorting).[22]

Self-sorting can involve different versions of a product, volume discounts, loyalty programs, bundling, or tied products. Prices are facially uniform for each particular offering, but because different people buy different versions, amounts, or combinations of goods, they effectively receive different prices per unit. Thus, buyers reveal information about their type (high or low valuer) directly through their purchasing behavior, which proxies for the intensity of their demand. For example, some consumers may be willing to pay a premium to get a new book in hardcover when it is first published, while others are happy to wait for a paperback or a loaner copy from the library.[23] The products are distinct enough (given their temporal spacing) that they do not substitute for each other, so the marginal price difference charged for the immediately available book can far exceed the differences in production costs to bind the book in cloth rather than paper.[24] The different formats effectively sort the customers.

Similarly, a tied product can serve as a proxy for WTP.[25] For instance, if all users of a given printer must also buy ink cartridges from the same supplier, the good of "printing capacity" actually consists of

21. Scholars have noted the prevalence of price personalization in higher education, where the application process elicits a great deal of information. *See, e.g.*, TYLER COWEN & ALEX TABARROK, MODERN PRINCIPLES: MICROECONOMICS 284–85, 291 (5th ed. 2021) (suggesting that universities can closely approximate perfect price discrimination because of the quantity and detail of information they can collect from applicants); Joel Waldfogel, *First Degree Price Discrimination Goes to School*, 63 J. INDUS. ECON. 569 (2015), https://doi.org/10.1111/joie.12085 (studying person-specific pricing in a professional graduate program at a public university and finding that it was not revenue-maximizing).

22. Self-sorting generally corresponds to second-degree price discrimination, while attribute-based sorting generally corresponds to third-degree price discrimination. For taxonomic discussions, see, e.g., Stephen Enke, *Some Notes on Price Discrimination*, 30 CANADIAN J. ECON. & POL. SCI. 95 (1964), https://doi.org/10.2307/139172, Gifford & Kudrle, *supra* note 15, at 1241–42, and Ann Marsden & Hugh Sibly, *An Integrated Approach to Teaching Price Discrimination*, 10 INT'L REV. ECON. EDUC. 75, 76–78 (2011), https://doi.org/10.1016/S1477-3880(15)30027-X.

23. This is a standard example. *See, e.g.*, COWEN & TABARROK, *supra* note 21, at 283.

24. *See id*. ("Does it cost more to produce a hardback? Yes, but not much more, maybe a dollar or two.").

25. *See, e.g.*, *id*. at 288–89 (discussing HP's use of tying printers and ink); Ward S. Bowman, Jr., *Tying Arrangements and the Leverage Problem*, 67 YALE L.J. 19, 23–24 (1957), https://doi.org/10.2307/793947 (explaining how a tied product can be used as a "counting device" to facilitate price discrimination, and discussing (dated) examples like ink for mimeographs and punch cards for computers).

a printer plus a variable number of ink cartridges.[26] And because the latter varies by the intensity of customer use, a rough proxy for the degree to which customers value the printer, selling relatively expensive proprietary ink cartridges is an alternative to attempting to directly adjust the printer's price for different kinds of users.[27]

When price discrimination is based not on self-sorting but rather on consumer attributes, the buyer's level of demand is inferred from her group membership or some other observable characteristic. Standard examples of attribute-based sorting include senior discounts for movie admission and different electronic database prices for academic users than for commercial users.[28] Here, prices facially vary between groups but not within groups.[29] Big data introduces the possibility of refining prices based on observable characteristics until the tailoring approximates the first-degree case.[30] Where those observables include past purchasing behavior (or pre-purchase behavior, like navigating around product pages), the role of the consumer's choices in revealing information is similar to that associated with self-sorting.

Regardless of the informational approaches used, keeping high valuers on board at the higher price point depends on their lack of access to a more attractive price-product combination—whether from another firm, or from the same seller via an arbitrage opportunity. A more attractive alternative might come from a competing firm that can selectively undercut the price offered to the high valuers.[31] Accordingly, price discrimination is often associated with the seller hav-

26. COWEN & TABARROK, *supra* note 21, at 288 ("Think of HP as selling not printers and ink, but the package good, 'ability to print color photos.'").

27. *See id.*

28. *See, e.g.*, *id.* at 282.

29. Because demand will in fact vary within groups, some members in a given group will reap consumer surplus, unlike in the first-degree case, while others will be priced out of the market. *See* Phlips, *supra* note 15.

30. *See* Dubé & Misra, *supra* note 13, at 1 (describing "personalized pricing" based on data as "an extreme form of third-degree price discrimination that implements consumer-specific prices using a large number of observable consumer features") (footnote omitted). Work to date has shown mixed results on the impacts of such data-based pricing strategies. *Compare id.* (finding significant increases in profitability and potential consumer welfare gains from data-driven personalization in a study involving a large digital firm), *with* Louis-Daniel Pape et al., *Price Discrimination and Big Data: Evidence from a Mobile Puzzle Game* 38 (Nov. 24, 2021) (unpublished manuscript), https://doi.org/10.2139/ssrn.3952016 (finding that "a simple uniform pricing strategy may already guarantee most of the profit implied by elaborate forms of price discrimination").

31. To take a historical example, a telephone company that price discriminates by charging more for long-distance calls than for local calls (beyond any differences in costs) can only sustain that practice so long as no competitor can enter the long-distance market and provide cheaper calls to just that segment. *See, e.g.*, RICHARD R. JOHN, NETWORK NATION: INVENTING AMERICAN TELECOMMUNICATIONS 408–09 (1st Harvard University Press paperback ed. 2015) (discussing Bell's practice of using higher long-distance rates to keep local telephone service rates low and the challenges presented by long-distance entrants like MCI).

ing some degree of market power, whether in the form of a unique product, spatial advantage, legally protected monopoly, high entry costs, or otherwise.[32] But price discrimination is commonly observed even in the absence of market power, as competing firms adopt strategies to cover their fixed or common costs.[33]

Firms who wish to price discriminate must also address a second source of alternative, lower-cost supply: the firm's own offerings to its lower-valuing consumers. Arbitrage between the low- and high-valuing segments of the consumer base is a well-recognized threat to a price discrimination strategy.[34] If high valuers can simply buy from (or pose as) low valuers, the price discrimination scheme may unravel, absent some other incentive for high valuers to pay more. Spatially defined markets offer one possibility. If it costs something to travel to another market (in time or trouble), then it is possible to charge more in one location than the other, as long as the difference does not exceed transportation costs.[35]

"Hassle costs" can also separate more and less price-sensitive customers, as through the use of coupons or rebates.[36] Certain loyalty programs pair volume discounts with pointless tasks through which

32. Legally conferred market power—copyright protections for books, or patented components in tied ink cartridges—drove the self-sorting examples above. *See supra* notes 23–27 and accompanying text; COWEN & TABARROK, *supra* note 21, at 288 (noting that the patented component of the HP printer head is crucial to HP's strategy).

33. *See* Michael E. Levine, *Price Discrimination Without Market Power*, 19 YALE J. ON REGUL. 1, 17–19 (2002). Levine focuses on the example of airline ticket pricing, which involves dramatic and sustained price discrimination notwithstanding competition. *See id.* at 21–25.

34. Legal doctrines can impact the capacity of firms to counter this threat. For example, the Supreme Court held in *Impression Products, Inc. v. Lexmark International, Inc.* that patent exhaustion applies to both international and domestic sales; thus, patent holders cannot sell goods in a foreign market and use patent law to restrict resale to buyers in the United States. 137 S. Ct. 1523, 1538 (2017). That makes it more difficult for firms to pursue geographic price discrimination strategies in which goods are sold at lower prices in lower-income countries. *See, e.g.*, Daniel J. Hemel & Lisa Larrimore Ouelette, *Trade and Tradeoffs: The Case of International Patent Exhaustion*, 116 COLUM. L. REV. SIDEBAR 17 (2016); *see also* Lisa Larrimore Ouelette & Daniel Hemel, *Licensing in the Shadow of Impression Products*, STAN. L. SCH.: SLS BLOG (May 31, 2017), https://law.stanford.edu/2017/05/31/licensing-in-the-shadow-of-impression-products/ [https://perma.cc/H6Y8-P8X2] (discussing licensing as a workaround, but noting its potential limitations for goods like pharmaceuticals).

35. *See, e.g.*, Phlips, *supra* note 15, at 10680–81 (discussing this approach and its drawbacks); Levine, *supra* note 33, at 20 & n.42 (noting that markets may be segmented based on geography or, in some cases, language).

36. *See, e.g.*, Guillermo Marshall, *Hassle Costs and Price Discrimination: An Empirical Welfare Analysis*, 7 AM. ECON. J: APPLIED ECON. 123, 123–24 (2015), https://doi.org/10.1257/app.20130046 (observing that, "[t]o achieve sorting, firms often impose a hassle or effort cost to access a lower price," and studying the example of refillable soda bottles); Yuxin Chen et al., *Research Note—Price Discrimination After the Purchase: Rebates as State-Dependent Discounts*, 51 MGMT. SCI. 1131 (2005), https://doi.org/10.1287/mnsc.1050.0391 (noting the capacity of rebates to price discriminate).

motivated consumers can access better terms.[37] For instance, some frequent flyers embark on wasteful "mileage runs" in order to reach or retain a particular status tier for an upcoming year.[38] Other customers obtain lower effective prices by complaining frequently and demanding compensatory payments[39] or overusing return and exchange policies for products.[40] These efforts too are wasteful and costly, at least to the extent they exceed the level required to alert sellers to legitimate quality issues and to make customers whole as a result of true shortfalls.

Another separation tactic involves adding a feature to the lower-priced good that members of the higher-priced group will find distasteful.[41] One striking example involved a type of plastic, methyl methacrylate, that was used both for dentures (with few substitutes) and for industrial uses (with many substitutes).[42] Charging a much lower price to industrial users led to entrepreneurial efforts at arbi-

37. Some consumers undertake ordeal-like labors to access discounts. Consider David Phillips, the so-called "pudding guy," who racked up 1.2 million frequent flyer miles in a Healthy Choice Foods promotion by buying over 12,000 individual puddings at 25 cents each and submitting the proofs of purchase. Carla Herreria Russo, *Meet David Phillips, the Guy Who Earned 1.2 Million Airline Miles with Chocolate Pudding*, HUFFPOST, https://www.huffpost.com/entry/david-philipps-pudding-guy-travel-deals_n_577c9397e4b0a629c1ab35a7 (Oct. 3, 2016) [https://perma.cc/2L43-WLRF]. The use of hassle as a pricing or rationing device has received scholarly attention. *See, e.g.*, David A. Super, *Offering an Invisible Hand: The Rise of the Personal Choice Model for Rationing Public Benefits*, 113 YALE L.J. 815, 828 (2004) (observing that a possible technique to assess the intensity of demand for a welfare benefit program would be to "increase the transaction costs of applying for it or of continuing to receive it" such as by requiring extra visits or additional paperwork); Cass R. Sunstein, *Sludge and Ordeals*, 68 DUKE L.J. 1843, 1870–72 (2019).

38. These are wholly unnecessary flights that are booked, paid for, and actually flown (per program rules) in order to reach the necessary threshold. *See* JT Genter, *How and Why You Might Want To Book a Mileage Run*, POINTS GUY (Oct. 7, 2019), https://thepointsguy.com/guide/how-why-mileage-run/ [https://perma.cc/JT24-7BM4]; Yang Chen & Anton Ovchinnikov, *Quantifying Mileage Run*s (Aug. 6, 2019) (unpublished manuscript), https://doi.org/10.2139/ssrn.3431694.

39. *See* Meirav Furth-Matzkin, *The Distributive Impacts of Nudnik-based Activism*, 74 VAND. L. REV. EN BANC 469, 481 (2021); Tyler Cowen, Opinion, *How To Make Sure Your Complaint Is Heard*, BLOOMBERG (Dec 2, 2020, 8:00 AM), https://www.bloomberg.com/opinion/articles/2020-12-02/how-to-make-sure-your-complaint-is-heard.

40. *See, e.g.*, Tiffany Hsu, *L.L. Bean, Citing Abuse, Tightens Its Generous Policy on Returns*, N.Y. TIMES (Feb. 9, 2018), https://www.nytimes.com/2018/02/09/business/ll-bean-returns-policy.html (discussing L.L. Bean's recent policy change limiting returns to one year, citing customer abuse of the former unlimited policy).

41. *See generally* Raymond J. Deneckere & R. Preston McAfee, *Damaged Goods*, 5 J. ECON. & MGMT. STRATEGY 149 (1996), https://doi.org/10.1111/j.1430-9134.1996.00149.x (examining and citing examples of this strategy, which is known as "crimping the product"). Services, too, can be crimped in this manner. *See* Levine, *supra* note 33, at 24–27 (giving examples of intentionally slowed two-day delivery services designed to push the time-sensitive to pay more for overnight service, and Saturday-night-stay requirements for airline tickets that make the offering unattractive to business customers).

42. *See, e.g.*, COWEN & TABARROK, *supra* note 21, at 281.

trage—until the makers, Rohm and Haas, reportedly floated a rumor that the industrial version was laced with arsenic.[43] Less dramatic examples abound. For instance, IBM intentionally slowed down one model of laser printer in order to sell a speedier version to higher-valuing users.[44] More recently, Tesla used software coding to degrade the battery performance of its lower-priced model in order to charge much more for its higher-priced model.[45]

As these examples suggest, price discrimination often involves tweaking the menu of offerings so that high-valuing buyers do not *want* the lower-priced version. In this way, price discrimination can be made incentive compatible: the consumer would not prefer any other price-product combination.[46] Such approaches may be more acceptable to consumers because they do not entail paying different prices for the same thing. Nonetheless, some consumers may react negatively to certain manipulations, like sellers intentionally damaging or disabling features, or embedding noxious ingredients, in order to deter high valuers from purchasing cheaper versions.

Bundling, one of the most interesting ways firms can address the challenges of price discrimination, and one with particular relevance to optional models,[47] does not rely on any explicit separation of customers at all. Bundling works as a price discrimination mechanism when different customers value different portions of the bundle at higher or lower values—that is, when their valuations of the subcomponents are uncorrelated. In a classic paper, George Stigler discussed this approach as a potential rationale for requiring movie theaters to

43. *See, e.g.*, *id.* at 281–82. Accounts of this incident suggest there was some initial thought of *actually adding* arsenic to the industrial version, but the legal department reportedly vetoed the idea. *See id.* at 282; *see also* Deneckere & McAfee, *supra* note 41, at 160–61 (discussing this example and other instances of adulteration aimed at price discrimination).

44. *See* Deneckere & McAfee, *supra* note 41, at 153–54 (explaining that the only difference between the two printers was that IBM "added chips to the LaserPrinter E that serve[d] as counters or idlers, chips that perform[ed] no function other than to make the machine pause and hence print more slowly").

45. *See* Robert H. Frank, *Tesla's Tiered Pricing Is a Hurdle, but a Fair One*, N.Y. TIMES, (Oct. 27, 2017), https://www.nytimes.com/2017/10/27/business/teslas-pricing-hurdle-not-hindrance.html.

46. *See, e.g.*, Deneckere & McAfee, *supra* note 41, at 150–51 & 151 n.4 (describing second-degree price discrimination that involves self-sorting among menus as incentive compatible). For a technical discussion of "envy-free pricing, see Venkatesan Guruswami et al., *On Profit-Maximizing Envy-Free Pricing*", *in* PROCEEDINGS OF THE SIXTEENTH ANNUAL ACM-SIAM SYMPOSIUM ON DISCRETE ALGORITHMS 1164 (2005).

47. "Mixed bundling" allows consumers to choose between à la carte prices or bundled alternatives. *See* William James Adams & Janet L. Yellen, *Commodity Bundling and the Burden of Monopoly*, 90 Q.J. ECON. 475, 478 (1976), https://doi.org/10.2307/1886045 (distinguishing "mixed bundling" from "pure bundling" in which consumers are offered only the bundled package); *see also* discussion *infra* Part IV.C.3 (noting the potential for optional bundling).

"block book" a set of films,[48] and it has since been used to explain everything from journal subscriptions to streaming services.[49] Although every customer may pay the same amount for the bundle, each customer is effectively paying more for the portions that they value most highly and less for the rest of the package. The segmentation of customers into different price treatments for each component occurs implicitly and invisibly.

For example, some subscribers to Disney Plus highly value Pixar animated features while placing a low (but positive) value on some of the other content categories, such as the channel's extensive Star Wars collection.[50] For other subscribers, these valuations are inverted: Star Wars is the big-ticket draw, and the Pixar movies are just a nice extra. Without bundling, Disney Plus would have to price these components separately, and the uniform prices it would choose to maximize its profits would price the Pixar fans out of the Star Wars market and the Star Wars fans out of the Pixar market. With bundling, Disney Plus can charge both categories of customers a bit more than each would pay for their most favored content alone, which increases its profits and gives customers access to more content than would be possible through à la carte pricing.[51]

Notably, the broad requirement of keeping high valuers on board, essential to any price discrimination scheme, depends not only on their lack of access to more attractively priced offerings, but also on their normative acceptance of the firm's pricing protocols. Consumers who learn that a firm is price discriminating may resent it and view it as unfair, which may harm the seller's reputation and erode the willingness of customers to pay as much for the underlying goods as they

48. George J. Stigler, United States v. Loew's Inc.*: A Note on Block-Booking*, 1963 SUP. CT. REV. 152, https://doi.org/10.1086/scr.1963.3108731.

49. *See* Chris Dixon, *How Bundling Benefits Sellers and Buyers*, CDIXON BLOG (July 8, 2012), https://cdixon.org/2012/07/08/how-bundling-benefits-sellers-and-buyers [https://perma.cc/824C-UXVE]; Joel Waldfogel, *How Digitization Has Created a Golden Age of Music, Movies, Books, and Television*, 31 J. ECON. PERSPS. 195, 210–11 (2017), https://doi.org/10.1257/jep.31.3.195; Hal R. Varian, *Economics of Networked Information: Pricing Information Goods*, *in* SCHOLARSHIP IN THE NEW INFORMATION ENVIRONMENT 19, 23 (Carol Hughes ed., 1996); *see also* COWEN & TABARROK, *supra* note 21, at 289–91 (discussing and analyzing a variety of examples of bundling-as-price-discrimination, including software suites, cable television, buffets, and amusement parks).

50. DISNEY+, https://www.disneyplus.com [https://perma.cc/5N5P-DT92] (bundling, as of this Article's publication, Disney, Pixar, Marvel, Star Wars, and National Geographic content as part of a basic subscription to Disney Plus).

51. Indeed, the fact that a larger bundle offers more opportunities for such mutually beneficial implicit price discrimination provides an argument for greater consolidation of streaming options. *See* Dirk Auer, *Why There Needs To Be More, Not Less, Consolidation in Video Streaming*, TRUTH ON THE MARKET BLOG (Oct. 12, 2021), https://truthonthemarket.com/2021/10/12/why-there-needs-to-be-more-not-less-consolidation-in-video-streaming/ [https://perma.cc/LN7R-JA22]; *see also* LEE ANNE FENNELL, SLICES AND LUMPS: DIVISION AND AGGREGATION IN LAW AND LIFE 150 (2019) (making the case for larger bundles on these grounds).

otherwise would.[52] As a result, reputational concerns may keep firms from engaging in some of the most dreaded forms of price discrimination, including fully personalized pricing.[53]

B. *What's Wrong with It?*

There are three basic complaints about price discrimination that are useful to break apart, although they are often blended together by critics of the practice.[54] First, and most prominent, is the capacity of price-discriminating sellers to transfer surplus from consumers to themselves.[55] Call this "seller surplus seizure" or SSS. Second, consumers often object on horizontal equity grounds to being charged different prices than their fellow consumers for the same thing.[56] This is a problem of "buyer-buyer balance" or BBB. Third, consumers may bridle at the insidious nature of modern price discrimination, and especially the degree to which it relies on—and incentivizes—surreptitiously harvesting, aggregating, and deploying personal data.[57] Call this one "data-driven distress" or DDD. Each of these objections requires separate attention, but none presents an insurmountable obstacle to an optional system of price differentiation.

SSS depends on the seller having significant market power as well as considerable information about the valuations of the customers. This concern dissipates as markets grow more competitive, or if the potential for new entry exists. Thus, the fact that a firm is currently in a position to price discriminate does not mean that it can sustainably extract all surplus from buyers without being vulnerable to competi-

52. *See, e.g.*, Patrick R. Ward, *Rethinking the Efficiency of Price Discrimination* (July 22, 2019) (unpublished manuscript), https://doi.org/10.2139/ssrn.3652696; Oren Bar-Gill, *Algorithmic Price Discrimination When Demand Is a Function of Both Preferences and (Mis)perceptions*, 86 U. CHI. L. REV. 217, 227 (2019).

53. *See, e.g.*, Julio J. Rotemberg, *Fair Pricing*, 9 J. EUR. ECON. ASS'N 952 (2011), https://doi.org/10.1111/j.1542-4774.2011.01036.x (modeling the role of consumer anger in constraining pricing decisions); DellaVigna & Gentzkow, *supra* note 13, at 2071–72 (discussing "brand image concerns," including perceptions of unfairness as one explanation cited by industry participants for uniform pricing within a given retail chain's stores); *see also* Daniel Kahneman et al., *Fairness as a Constraint on Profit Seeking: Entitlements in the Market*, 76 AM. ECON. REV. 728 (1986) (examining fairness perceptions and their role in limiting price adjustments).

54. For an especially careful separation of distinct concerns, see Alexei M. Marcoux, *Much Ado About Price Discrimination*, 9 J. MKTS. & MORALITY 57, 58–59, 63–64 (2006) (setting aside, in an assessment of the fairness of price discrimination as between different consumers, issues surrounding technology and privacy, and concerns about "the fair division of the aggregate transactional surplus between aggregate consumer surplus and aggregate producer surplus").

55. *See, e.g.*, Woodcock, *supra* note 2, at 321–25 (discussing harm to consumers as a group that occurs if the firm can appropriate all of the surplus from trade).

56. *See, e.g.*, Marcoux, *supra* note 54, at 59 (unpacking "the view that price discrimination is unfair to some buyers as against others").

57. *See, e.g.*, Miller, *supra* note 2. One facet of this concern may be "aversion to surveillance." Bar-Gill, *supra* note 52, at 228 n.38.

tive pressures or new entry.[58] Limits on the amount of surplus that sellers can extract are not inconsistent with the existence of price discrimination, as the economics of regulated industries involving natural monopolies attests.[59] Similarly, the nondistribution requirement for nonprofits attenuates the surplus seizure concern when charities encourage forms of voluntary price discrimination.[60] And, most importantly for our purposes, sellers could choose to self-impose limits on the amount of surplus they will extract from buyers.[61]

The second of these concerns, BBB, involves the essence of price discrimination: charging different consumers different prices. As such, it cannot be designed around altogether. But not all methods of differentiating among customers draw equal ire. For example, consumers seem to object more strongly to price discrimination that involves the same price for the exact same thing than to price discrimination that charges a disproportionately high premium for a minor (but real) upgrade, or that slices customers into price classifications based on time of purchase or consumption.[62] Another factor that may ameliorate or override BBB concerns is the possibility that a given system of price discrimination could actually benefit *all* customers—high valuers as well as low valuers.[63]

Distributive considerations also interact with BBB concerns. Consumers may be less outraged if those receiving lower prices have lower incomes or wealth than they would be if people enjoying lower prices were wealthier than themselves.[64] The assumption that a uniform price is inherently fair—implicit in BBB critiques of price discrimination—is affirmatively rejected in many contexts, from sliding-scale

58. *See* Levine, *supra* note 33, at 13–14.

59. For example, Ramsey pricing limits producers' revenue to cost recovery (including a reasonable return on investment). *See, e.g.*, WILSON, *supra* note 7, at 98–122; Frank H. Easterbrook, *Contract and Copyright*, 42 HOUS. L. REV. 953, 964 (2005).

60. *See* discussion *infra* Part III.A.

61. *See* discussion *infra* Part IV.B.1.

62. The length of time and depth of the discount matters, however; some price drops can fuel severe customer backlash. One well-known example was Apple's decision to reduce the price of the original iPhone by $200 about two months after it was introduced. *See* Katie Hafner & Brad Stone, *IPhone Owners Crying Foul over Price Cut*, N.Y. TIMES (Sept. 7, 2007), https://www.nytimes.com/2007/09/07/technology/07apple.html; Rotemberg, *supra* note 53, at 965, 972–73. For a study examining negative consumer responses to downward price changes, see Eric T. Anderson & Duncan I. Simester, *Price Stickiness and Customer Antagonism*, 125 Q.J. ECON. 729, 754 (2010), https://doi.org/10.1162/qjec.2010.125.2.729 (finding that "lower prices lead to fewer purchases by some customers" and that "[t]his effect is strongest among customers who had recently paid a high price to buy an item on which the price is later lowered"—a group that "include[s] many of the firm's most valuable customers").

63. *See* discussion *infra* Part II.C.3. Although consumers will likely still compare their pricing treatment to that of other consumers, price differentiation may be easier to accept in the presence of salient and verifiable net benefits.

64. *See* Ward, *supra* note 52, at 28–31 (finding high-valuing consumers were somewhat more positively inclined toward price discrimination when a firm's motivation included enabling lower-income people to buy the product).

fees to taxation.[65] Notably, certain classifications associated with lower-income stages of the life cycle, like student and senior rates, seem to enjoy broad acceptance.[66] Forms of price discrimination that differentiate among consumers based on their elasticity of demand or their interest in buying the product, by contrast, may be viewed with more distaste.[67] Although these nuances merit close attention, they do not categorically rule out all forms of optional price differentiation.

The third concern, DDD, might be separately addressed through limits on data collection and use. Some such limits could make price discrimination less accurate, with ambiguous normative effects. By pushing firms to use rougher proxies, data limitations could cause some would-be buyers to be priced out by mistake, while other buyers would benefit from prices that grant them a larger share of surplus. Greater access to data might also enable firms to more effectively compete against each other for customers, which could limit the degree to which any given firm could use data to extract more surplus from its customers.[68] In an optional system, merchants might address DDD through self-imposed limits on how they will use data in pricing. Moreover, some forms of optional price discrimination would rely on buyer valuation statements rather than data aggregations.[69] Nonetheless, this is one facet of optional price discrimination that might affect even those consumers who do not opt for it, insofar as the potential to use data in pricing, even on an optional basis, could alter data collection practices.

As this brief overview suggests, popular objections to price discrimination are neither insubstantial nor insurmountable. Rather, they highlight concerns that any voluntary system would need to address.

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65. Indeed, a "fairness" criterion that requires uniformity may actually contribute to inequality. *See* DellaVigna & Gentzkow, *supra* note 13, at 2075–76 (noting how uniform pricing within a chain may lead to suboptimally low prices for wealthy consumers and suboptimally high prices for poor consumers); Dubé & Misra, *supra* note 13, at 5–6 (observing, in discussing a study in which firms of various sizes were the consumers, that the "fairness" of uniform pricing means giving up the opportunity to serve more customers and to move surplus from larger firms to those that are smaller and less advantaged).

66. *See* Rotemberg, *supra* note 53, at 953 (noting the prevalence of lower prices for such groups, which "are generally regarded as poor").

67. *See id.* (observing that "third-degree price discrimination that is based on differences in elasticities of demand is frequently regarded as unfair, and is sometimes deterred by negative customer reactions"); Ward, *supra* note 52, at 28–31 (finding no modulation of the affront customers felt upon learning of price discrimination when the firm's motivation included encouraging less interested customers to buy the product).

68. *See* Brian C. Albrecht, *Price Competition and the Use of Consumer Data* (Aug. 11, 2020) (unpublished manuscript), https://briancalbrecht.github.io/albrecht_price_competition_consumer_data.pdf [https://perma.cc/3BUG-W4KK]; Drew Fudenberg & J. Miguel Villas-Boas, *Price Discrimination in the Digital Economy*, *in* THE OXFORD HANDBOOK OF THE DIGITAL ECONOMY 254 (Martin Peitz & Joel Waldfogel eds., 2012), https://doi.org/10.1093/oxfordhb/9780195397840.013.0010.

69. *See* discussion *infra* Part IV.B.2.

To see what is at stake and why it might be worth developing optional approaches capable of meeting these objections, however, requires a closer look at the efficiency and distributive impacts of price discrimination.

C. *Efficiency and Distributive Effects*

Price discrimination is broadly associated in the academic literature with two effects that have dueling normative valences: increasing the total surplus to be enjoyed between buyers and sellers (by enabling more transactions), and altering the distribution of that surplus in ways that harm (some) buyers and further enrich sellers. This second effect is not inevitable, as we will see, but it does help to explain why sellers find price discrimination both economically attractive and reputationally risky.

1. The Price-Discriminating Monopolist

Textbook treatments of price discrimination typically introduce its efficiency and distributive effects by comparing a monopolist's adoption of a uniform monopoly price to that same monopolist's use of perfect (first-degree) price discrimination.[70] Both of these situations are contrasted with perfectly competitive conditions in which goods are priced at the marginal cost of production, every consumer who values the good above marginal cost buys it, and consumers collectively glean all of the surplus. A monopolist can capture a chunk of that surplus by charging a higher, revenue-maximizing uniform price and reducing the quantity sold. This is a bad result not only for consumers, but also for overall welfare. The producer gains surplus at the expense of consumers, but the amount that the producer gains is less than what the consumers lose. The difference is a deadweight loss, representing mutually beneficial transactions that do not occur.

Now suppose the monopolist can charge customers individualized prices that perfectly track their positions on the demand curve, so that every unit is sold at each customer's maximum WTP. Here, the quantity produced and sold is the same as it would be in a competitive market; the deadweight loss has disappeared. However, unlike in a competitive market, the producer captures the entire surplus. Price discrimination thus solves the core inefficiency of monopoly pricing, the restriction of supply, and every customer who values the good above its marginal cost can buy it. But it exacerbates the distributive effects of market power by enabling the seller to appropriate *all* consumer surplus. Whether this combination of effects looks like an improvement over single-price monopolization depends on the relative normative weight one places on consumer welfare versus efficiency.

70. *See, e.g.*, COWEN & TABARROK, *supra* note 21, at 259 fig.13.5, 285 fig.14.4.

The simplified image of price discrimination that emerges from this standard account—that it enhances efficiency but worsens distribution—begins to blur on closer inspection. Real-world price discrimination is neither perfect nor costless.[71] Firms often incur significant costs in their efforts to discern valuations and segment the market, as discussed above.[72] There may be other losses if customers are aware of the price discrimination and take steps to evade it.[73] In addition, even when price discrimination is successful, customers who pay more may resent it and suffer disutility, or even cease to buy the product in an effort to punish the perceived unfairness.[74]

If price discrimination often turns out to be less efficient than advertised, its distributive consequences are often less drastic than the simple monopoly account would suggest. Sellers engaging in price discrimination will rarely be able to capture anything close to the full surplus. Not only is the technology of price discrimination rough and imperfect at best, sellers seeking to separate customers into different price buckets may actually have to *reduce* prices for high valuers below the uniform monopoly price in order to keep them from defecting

71. Still, even imperfect price discrimination may outperform uniform monopoly pricing on efficiency grounds. *See* BORK, *supra* note 1, at 397–98 (discussing Joan Robinson's work as supporting this finding). *But see* Richard A. Posner, *The Chicago School of Antitrust Analysis*, 127 U. PA. L. REV. 925, 934–35 (1979), https://doi.org/10.2307/3311787 (interpreting Robinson's work to cast doubt on this conclusion, and observing that price discrimination might reduce rather than expand output under some conditions).

72. *See* discussion *supra* Part II.A.

73. *See, e.g.*, COWEN & TABARROK, *supra* note 21, at 279–81 (discussing international smuggling of the anti-AIDS drug Combivir from African nations, where it was being sold more cheaply, to European nations, where the price was higher); Wagner & Eidenmüller, *supra* note 2, at 587 (noting the potential for deadweight losses arising from consumers' defensive measures designed to maintain their privacy and thwart the price discrimination tactics of sellers); Jordan M. Barry et al., *To Thine Own Self Be True? Incentive Problems in Personalized Law*, 62 WM. & MARY L. REV. 723, 728–29, 764–65 (2021) (discussing consumers' efforts to convince algorithms that they are more price-sensitive than they really are, such as by checking Uber prices and then exiting the app without requesting a ride).

74. *See, e.g.*, Ward, *supra* note 52; Bar-Gill, *supra* note 52, at 227 ("A consumer who learns that she paid much more than another consumer for the exact same product would feel wronged, and such outrage is bad for business."); Barry et al., *supra* note 73, at 777–78 (describing backlash by customers against instances of price discrimination). *See generally* Kahneman et al., *supra* note 53 (examining when price adjustments will be viewed as unfair). It is possible that some consumers have become less sensitive to certain kinds of dynamic pricing in recent years. *See* Christopher Buccafusco et al., *The Price of Fairness*, 84 OHIO ST. L.J. 389, 468–69 (2023). Reactions to pricing are also heavily influenced by context and the availability of comparators. *See, e.g.*, Richard Thaler, *Transaction Utility Theory*, 10 ADVANCES CONSUMER RSCH. 229, 231–32 (1983) (discussing use of extra-large product sizes or package deals to thwart direct comparisons with the normal price for a good); Lan Xia et al., *The Price Is Unfair! A Conceptual Framework of Price Fairness Perceptions*, 68 J. MKTG. 1, 8–9 (2004), https://doi.org/10.1509/jmkg.68.4.1.42733 (suggesting that "perceptions of price unfairness can be mitigated by a decrease in the similarity of the transactions," and citing "product differentiation" as a key way to reduce perceived similarity).

to the lower-priced version.[75] Additionally, many sellers would face new entry by competitors if they consistently engaged in pricing that extracted all surplus (even if they have some degree of market power due to high entry costs or the current lack of close substitutes). These pressures, like the need to avoid customer resentment, may require price-discriminating firms to cede significant surplus to consumers.

A more foundational question lurks in the standard example, however: Why not just address the monopolist's market power head-on? That would seem to solve both the efficiency problem *and* the distributive problem. The answer to this question—that some forms of market power are desirable[76]—connects directly to something that this simplified story consciously omits: fixed costs.[77] The next Section turns to this issue.

2. Adding Fixed Costs

In many real-world settings, fixed costs are substantial. This is obvious in natural monopoly situations where a large upfront investment of infrastructure is necessary to provide a service, or in intellectual property contexts where a large initial investment is necessary to generate something new that then can be shared with multitudes at minimal cost. But it is also true of other goods and services that exhibit economies of scale or scope, and that therefore require significant outlays in order to be efficiently produced. What does the presence of large fixed costs mean for price discrimination?

Recall the efficiency advantage of price discrimination (relative to a uniform monopoly price) in the simple situation outlined above: extending access to all customers who value the good above marginal cost. In that example, just as much access could have been provided under perfect competition with a uniform price set at marginal cost, while granting all the surplus to the consumers. Fixed costs eliminate that shadow possibility. Where fixed costs are high, the average cost per unit is much greater than the marginal cost. If a uniform price were set at marginal cost, fixed costs could never be recovered (and hence would never be incurred).[78] Any uniform price that a firm

75. *See* Deneckere & McAfee, *supra* note 41, at 150 (explaining how a monopolist serving two categories of customers might need to "reduce the gap between the two monopoly prices" when introducing a lower quality version in order to keep the higher paying group from defecting—a pricing approach that can "be a strict Pareto improvement" that benefits the manufacturer and all the customers).

76. Market power may be necessary to incentivize costly up-front investments in intellectual property, for example, or it may be bestowed on natural monopolies with high fixed costs that would be inefficient to have multiple firms duplicate. *See, e.g.*, BORK, *supra* note 1, at 395.

77. Even producers without market power who have fixed or common costs must devise some way to cover them by charging some consumers more than the marginal cost of the product. *See* Levine, *supra* note 33, at 8–19.

78. *See, e.g.*, MICHAEL K. KELLOGG ET AL., FEDERAL TELECOMMUNICATIONS LAW 424–25 (1992) (discussing this problem in natural monopoly settings); Richard

selects above marginal cost will price some would-be consumers out of the market, even though they value the good above its marginal cost of production.[79] By enabling sellers to spread fixed costs in a manner other than a per-unit allocation, price discrimination can extend access to more consumers.[80]

Moreover, when fixed costs are very high, there may be *no* uniform price at which a given good can be produced, even though it would be worthwhile in the aggregate to consumers.[81] The average cost curve may lie above the demand curve at every point.[82] Suppose, for example, a good has fixed costs of $80, marginal costs of zero, and three potential purchasers who value it, respectively, at $70, $20, and $10. Charging everyone the average cost ($26.66) will not work because that lies above the valuation of two of the three customers. And charging the high-valuing customer her full valuation ($70) will not be sufficient to cover the production costs of $80. Yet the good is worth $100 in the aggregate, leaving a surplus of $20 to be gained from producing it, if the costs could be allocated differently.[83] In this context, price discrimination is essential to making the good available at all.[84]

A. Epstein & F. Scott Kieff, *Questioning the Frequency and Wisdom of Compulsory Licensing for Pharmaceutical Patents*, 78 U. CHI. L. REV. 71, 79 (2011) (arguing that "efforts to eliminate price discrimination could prevent the patentee from recovering the fixed costs of the original patented invention, with deleterious effects on innovation"); John F. Duffy, *The Marginal Cost Controversy in Intellectual Property*, 71 U. CHI. L. REV. 37, 40 (2004) (noting that under conditions of declining average costs, "if the market price of the good were driven to marginal cost, producers would be unable to recover their fixed costs and they would not enter the industry in the first place").

79. For example, suppose a seller has fixed costs of $40 and the marginal cost per unit is zero. A, B, and C are the only potential customers, and they value the good at $50, $40, and $10, respectively. Even though all three customers value the good above its marginal cost (which is zero), there is no uniform price that the seller can select that will both cover costs and enable C to acquire it. Here, C does not value the good above its average cost of production ($40 divided by 3 = $13.33). So the seller will have to charge a price of at least $20 to both A and B.

80. *See* Easterbrook, *supra* note 59, at 964–66; William W. Fisher III, *Property and Contract on the Internet*, 73 CHI.-KENT L. REV. 1203, 1234–40 (1998).

81. *See* Easterbrook, *supra* note 59, at 965 (observing that one possible outcome of not allowing price discrimination to a database maker, ProCD, is that "[l]ack of price discrimination may make it impossible to recover the costs of creating the database, and the product won't be sold"); JOAN ROBINSON, THE ECONOMICS OF IMPERFECT COMPETITION 203 (2d ed. 1969) ("[S]ince average revenue is greater under price discrimination than under simple monopoly, . . . there may be cases in which no output would be produced at all if price discrimination were not possible.").

82. *See, e.g.*, ROBINSON, *supra* note 81, at 203. For a graph depicting this situation, see Joshua Farley & Ida Kubiszewski, *The Economics of Information in a Post-Carbon Economy*, *in* FREE KNOWLEDGE: CONFRONTING THE COMMODIFICATION OF HUMAN DISCOVERY 199, 209 fig.1 (Patricia W. Elliott & Daryl H. Hepting eds., 2015).

83. *See* JOEL WALDFOGEL, THE TYRANNY OF THE MARKET: WHY YOU CAN'T ALWAYS GET WHAT YOU WANT 24–25 (2007) (providing similar numeric examples).

84. *See, e.g.*, WILSON, *supra* note 7, at 121 (explaining how nonlinear pricing can supply goods and services where there is no uniform price that can do so); R. H. Coase, *The Marginal Cost Controversy*, 13 ECONOMICA 169, 180–81 (1946), https://doi.org/10.2307/2549764 ("It has long been known to economists that in cases in which

The efficiency advantages of price discrimination thus fall into two basic buckets. First, it can expand the quantity sold. This translates into wider access to goods and services for people with a lower WTP (often the product of lower income and hence lower ability to pay).[85] Consider a picture book for children that costs $5,000 in fixed costs to produce, with each copy costing $1 to print and bind. Suppose there are only two types of customers, libraries and parents, and that the former have a much higher WTP than the latter.[86] If a uniform price is selected, it will have to be enough to cover the pro-rata share of the fixed costs plus the marginal cost for each copy.[87] But suppose that libraries, although less numerous than parents, have less elastic demand for a new picture book of this type and would pay much more for it. Raising the price for libraries drops the price for parents and potentially allows many more of them to buy the book than could under a uniform price.[88]

The second advantage comes from expanding the frontier of what can be produced.[89] When fixed costs are large, the ability to spread them in a manner that varies on a per-unit basis may be essential to producing a good or service—or a particular version, variety, color, flavor, or size thereof—at all.[90] Suppose that our picture book is a niche offering, of interest to only a small segment of the population. There may be no uniform price for the book that would actually recover costs because most of the people who are interested in it have a low WTP and only a few would pay a great deal for it. Without the ability to aggregate the low amounts from everyone who would pay a little and the higher amounts from those who would pay a lot, there is no way to profitably produce the book. If the aggregate demand is actually great enough to support it, then there is a welfare loss by not producing it.[91] Although the non-production of a niche picture book

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the demand curve lies at all points below the average cost curve, it may be possible, by means of price discrimination, to raise the average revenue sufficiently to bring it up to average cost.").

85. *See, e.g.*, Fisher, *supra* note 80, at 1238–39.

86. *See, e.g.*, *id.* at 1236–38.

87. *See, e.g.*, Easterbrook, *supra* note 59, at 964–65.

88. This example assumes away the possibility of arbitrage—here, parents selling their low-priced copies to libraries. *See, e.g.*, *id*. at 965.

89. Put another way, price discrimination can improve efficiency not only on the intensive margin by increasing the number of units of existing products that are sold, but also on the extensive margin by adding new products to the world.

90. *See* WALDFOGEL, *supra* note 83, at 13–20 (discussing the relationship between fixed costs and the number of different varieties, such as shirt colors, that a market can support); *see also id.* at 23–38 (explaining how untailored pricing fails to account for intensity of preferences and can lead to underprovision of goods valued in excess of their cost, where high fixed costs are present). To maximize profits, producers will gravitate to fewer varieties aimed at the most mainstream tastes. *See id.* at 18–20; *see also id*. at 119–20 (discussing Henry Ford's famous refusal to customize the Model T or offer it in any colors other than black).

91. *See, e.g.*, Easterbrook, *supra* note 59, at 965.

may seem like nothing to get worked up about, the same principle applies to other quite momentous niche goods, like a drug to treat a rare disease.[92]

Another way to put the point is to observe that there are nonrival or public good aspects to the availability of a particular product; its existence benefits everyone who is willing to pay the marginal cost for a given copy of it.[93] Even though each copy costs only a small amount to make, a large lump of investment is necessary to produce the thing at all. And in some cases, that lump cannot be recovered, and hence the product cannot be made, unless its burden can be allocated unevenly. Indeed, uneven allocation standardly occurs in the production of public goods, whether by public entities (supported by taxes that are usually keyed in some manner to ability to pay) or by private entities (where contributions amount to something akin to price discrimination, voluntarily adopted).[94] The capacity to charge different amounts to different consumers offers another way to cover fixed costs.[95]

Despite its reputation for unfairness, price discrimination has the potential to deliver more egalitarian distributive consequences than would a uniform price (assuming there is some uniform price at which a given good could be produced).[96] Axiomatically, uniform prices

92. *See* COWEN & TABARROK, *supra* note 21, at 287–88 (discussing pharmaceuticals and other industries with high fixed costs, and providing the example of a rare versus common disease to illustrate the implications of having a smaller or larger market over which to spread those costs).

93. *See, e.g.*, Avner Ben-Ner, *Reflections on the Future Evolution of Social, Nonprofit and Cooperative Enterprise*, 89 ANNALS PUB. & COOP. ECON. 109 (2018), https://doi.org/10.1111/apce.12196.

94. *See, e.g.*, Hansmann, *supra* note 3; Alain Marciano, *James Buchanan: Clubs and Alternative Welfare Economics*, 35 J. ECON. PERSPS. 243, 251–53 (2021), https://doi.org/10.1257/jep.35.3.243 (connecting James Buchanan's theory of clubs to the idea of noncoercive individualized prices for public goods).

95. As the reference to public goods suggests, another alternative would be for the government to cover fixed costs, which would then be funded by taxes. *See* Coase, *supra* note 84 (discussing and criticizing an approach supported by Hotelling, Lerner, and others in which fixed or common costs would be funded through taxation, leaving consumers to cover only marginal costs). Coase instead advocated a multi-part pricing scheme in an effort to avoid the demand revelation and distributive implications of funding fixed costs through taxation. *Id.*; *see also* WALDFOGEL, *supra* note 83, at 131–46 (discussing products in certain industries that are subsidized by government, such as less popular airline routes and certain pharmaceuticals); Henry Hansmann, *Nonprofit Enterprise in the Performing Arts*, 12 BELL J. ECON. 341, 352–60 (1981) (discussing subsidies in the context of performing arts).

96. *See, e.g.*, DellaVigna & Gentzkow, *supra* note 13, at 2075–76 (discussing the potential for uniform prices to increase inequality); Juan M. Elegido, *The Ethics of Price Discrimination*, 21 BUS. ETHICS Q. 633, 638 (2011), https://doi.org/10.5840/beq201121439 ("Speaking generally, as price discrimination redistributes income from less price-sensitive to more price-sensitive groups, and as the former are often the wealthier consumers, in many occasions, price discrimination will have positive distributional effects.").

grant more consumer surplus to those with higher valuations.[97] Because WTP requires ability to pay, high valuations tend to correlate with higher wealth.[98] Where this correlation holds, uniform pricing operates in a regressive fashion, granting more surplus to those in a position to pay more, and delivering less surplus to those who have less ability to pay.[99] By expanding access and changing the way surplus is distributed, price discrimination can make markets more progressive.[100]

To be sure, perfect price discrimination under monopoly conditions would extract all surplus from all buyers, which might not seem like much of a distributive improvement, assuming that sellers tend to be wealthier on average than their consumers.[101] But if we posit some constraint on the seller's capacity to extract surplus (whether regulatory, reputational, competitive, or otherwise), price discrimination could shift the allocation of surplus among consumers in a progressive direction. Indeed, the criteria for allocating fixed costs across the con-

97. *See* Marcoux, *supra* note 54, at 61 (observing that "a unitary price affords *unequal degrees of utility enhancement* to buyers—some derive more utility, and others less, when paying the same price," and noting that the surplus derived by different consumers can only be equalized through price discrimination).

98. WTP can be helpfully disaggregated into two components: one that tracks the amount of utility one loses by giving up a sum of money to acquire something, and the other that tracks the utility received from the acquired item. Jerod Coker & Jean-Manuel Izaret, *Progressive Pricing: The Ethical Case for Price Personalization*, 173 J. BUS. ETHICS 387, 389 (2021), https://doi.org/10.1007/s10551-020-04545-x. Wealth heavily impacts the first component because of the diminishing marginal utility of money. The second component, how much utility one gets from an acquired item, need not correlate with wealth. Thus, a person with higher wealth who gets the same utility from a given item as a person with lower wealth would have a higher WTP, because the dollars spent mean less in utility loss. But a lower-income person who derives enormous utility from a given item might have a higher WTP than a wealthy person, even though she would have to take a much larger utility hit to pay for it. *See id*. at 394–95 (discussing the different normative implications for high WTPs that are a function of higher wealth and those that are a function of greater utility from the item in question). Normative concerns may at times cut in favor of *lower* prices for those whose price-inelasticity is driven by their intense demand for a given item. *See, e.g.*, ROBERT COOTER & THOMAS ULEN, LAW AND ECONOMICS 518–20 (6th ed. 2012) (discussing a program implemented in the United Kingdom and other countries whereby drug addicts (who have very inelastic demand) can register their addictions and receive drugs legally at a lower price, in an effort to reduce the social costs of their addictions); Fisher, *supra* note 80, at 1239 n.86 (raising the question of how price discrimination for intellectual property might impact those with very high valuations, including those such as critics who would make transformative use of the work).

99. *See, e.g.*, Coker & Izaret, *supra* note 98, at 389–90.

100. *See, e.g.*, *id.* at 390 (arguing that "Progressive Pricing," in which those with a higher WTP face higher prices, "is both more efficient *and* equitable, meaning it is socially desirable whether one is a strict utilitarian, egalitarian, or like many normative economic analyses, somewhere in the middle").

101. *See, e.g.*, Jeffrey Moriarty, *Why Online Personalized Pricing Is Unfair*, 23 ETHICS & INFO. TECH. 495, 497 n.4 (2021), https://doi.org/10.1007/s10676-021-09592-0. Even here, however, the expansion of output benefits those with lower valuations, who are likely to be less wealthy. *See* Fisher, *supra* note 80, at 1238.

sumer base might be explicitly distributive in nature.[102] Price discrimination might, for example, be keyed to geography, with lower prices in lower-income areas,[103] or it might be keyed to income, as already occurs with sliding-scale fees and tax-funded public goods.[104]

The distributive effects of broadened access and greater product variety also bear emphasis. As Joel Waldfogel has emphasized, product markets, like politics, can exhibit a "tyranny of the majority": where fixed costs are high and prices cannot be customized, the market may gravitate to the most mainstream offerings.[105] Although many kinds of niche markets might exist, it is worth noting that some goods and services might be more heavily used by members of a particular racial, ethnic, or gender identity group. Such goods may be unavailable in markets where the group's representation is relatively small, potentially imposing disparate impacts on historically marginalized groups.[106] Finding new ways to allocate fixed costs could facilitate more inclusive options. At the same time, it is crucial to recognize and guard against the potential for price differentiation to harm consumers based on their protected characteristics.[107]

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102. Ramsi Woodcock has pushed this point further by arguing that regulators should compel firms to personalize prices in a way that shifts money away from wealthier people and toward less wealthy people. Ramsi A. Woodcock, *Personalizing Prices To Redistribute Wealth in Antitrust and Public Utility Rate Regulation*, 2022 WIS. L. REV. 1408. My approach similarly recognizes the capacity of price discrimination to achieve distributive gains but relies on optional alternatives to make this possible.

103. *See* Jean-Pierre Dubé, *Is a Fair Price the Same Price for All?*, CHI. BOOTH REV. (Sept. 18, 2020), https://www.chicagobooth.edu/review/fair-price-same-price-all [https://perma.cc/H3UY-G48Y] (suggesting personalized pricing for healthy foods, "offering products to stores located in areas of all income levels but charging prices that meet the abilities of customers to pay").

104. In some instances, price discrimination might support the production of consumption goods that embed a public good component in addition to a consumable component (for example, humanely raised beef or fair trade coffee). *See, e.g.*, Anup Malani & Eric A. Posner, *The Case for For-Profit Charities*, 93 VA. L. REV. 2017, 2063–64 (2007) (discussing why, due to economies of scope, fair-trade coffee might be more efficiently produced by a for-profit firm, and examining ways to break out the charitable portion of the transaction).

105. WALDFOGEL, *supra* note 83, at 18–20. To be sure, technology that allows sellers to locate and aggregate more customers with unusual tastes (as online shopping does) can counter this tendency and facilitate a "long tail" of offerings. *See* CHRIS ANDERSON, THE LONG TAIL: WHY THE FUTURE OF BUSINESS IS SELLING LESS OF MORE (1st paperback ed. 2008). But where goods are necessarily local (as they are for services) or there are simply not enough customers anywhere to support a given good at a uniform price, the problem remains.

106. *See, e.g.*, WALDFOGEL, *supra* note 83, at 18–20; Nancy Leong, *Enjoyed by White Citizens*, 109 GEO. L.J. 1421, 1451, 1457–61 (2021) (detailing how product offerings fail to equally serve people of color).

107. The concern that merchants could use price personalization to exploit people of color is a very real one. Dual housing markets, redlining, and reverse redlining stand as reprehensible examples of price tailoring keyed to a racialized geography. The rising use of algorithms in pricing heightens concerns about discrimination and calls for nuanced attention to the need for effective legal tools to combat it. *See, e.g.*,

In sum, price discrimination might have a variety of distributive effects, some of which would represent improvements over uniform pricing. But much depends on how a particular pricing protocol is designed and carried out, as well as the market conditions and other constraints that sellers operate under. Moreover, one distributive issue is central to the viability of any optional model: whether high valuers can reasonably expect to be made better off through price differentiation. The next Section takes up this question.

3. Benefits for High Valuers

Although it is straightforward that producers and low-valuing consumers can benefit from price discrimination—the former by capturing more surplus, the latter by obtaining access to goods that they could not purchase at a uniform price—the impact on high valuers is somewhat more ambiguous. Because keeping them on board at the higher price is a core concern under any form of price discrimination and an indispensable ingredient in any optional model, it is worth specifying the ways in which high valuers, too, might be made better off through price discrimination. This may seem counterintuitive, especially for consumers who are prone to adopting a zero-sum mindset,[108] but it follows from the fact that price discrimination can make possible a larger set of transactions and thereby generate more total surplus to be shared among market participants.

Most obviously, high valuers benefit when price discrimination makes (or keeps) a particular product available that would otherwise not be produced (or would be discontinued) due to fixed production costs that cannot be covered through any uniform price.[109] Consider, for example, drugs to treat unusual illnesses, or less-popular clothing sizes. For those able to pay more, ensuring the availability of the item is more important than getting a lower price, especially when one considers the time and effort associated with searching and waiting for less commonly found goods. The same point applies to services. A standard example in the literature is a doctor who can only cover the costs of practicing in a remote area if she charges the community's few

Talia B. Gillis & Jann L. Spiess, *Big Data and Discrimination*, 86 U. CHI. L. REV. 459 (2019).

108. *See* Samuel G. B. Johnson et al., *Win–Win Denial: The Psychological Underpinnings of Zero-Sum Thinking*, 151 J. EXPERIMENTAL PSYCH.: GEN. 455 (2022), https://doi.org/10.1037/xge0001083 (finding in experimental studies that asked participants to read about simple, voluntary transactions over goods and services that many participants did not believe both parties were made better off, and were less likely to see the buyer as having been made better off).

109. *See, e.g.*, ROBINSON, *supra* note 81, at 203–04; *see also* COWEN & TABARROK, *supra* note 21, at 287–88 (explaining that the capacity of price discrimination to increase the size of the market, and hence enhance the viability of products and the returns to innovation, can benefit both those with a lower WTP and those with a higher WTP).

wealthy patients much more than she charges the other members of the community, who could not afford to pay average costs.[110]

Less obvious are the ways in which high valuers can benefit when price discrimination enables lower valuers to purchase the good at a lower price, even when there is some uniform price at which the good could be provided to the high valuers. Consider, for example, goods that exhibit network effects. Such goods become more valuable to each user as more users consume the product. Telephones are a standard example: any mode of communication becomes more useful as more people can be reached through it. Likewise, smartphones support a range of interactive apps (messaging, ride hailing, electronic payments) that depend on widespread adoption for their usefulness.[111] As Robert Wilson has noted, price discrimination makes it possible for a network good to more readily reach the necessary critical mass of users.[112] Both high valuers and low valuers contribute to this result. Those who pay more can get a network good off the ground, but those who pay less help it achieve viable scale.

Price discrimination can also benefit high valuers who would be willing to fund a good entirely on their own, if it enables lower valuers to pick up *some* (though a smaller share) of the fixed costs.[113] For example, opening up a boat tour with a fixed operating cost to additional last-minute guests at a lower price could reduce the prices borne by those who signed up early and would have been willing to cover the full cost on their own, even if the latter continue to bear a

110. *See* Elegido, *supra* note 96, at 641 (presenting and discussing this "well-worn example").

111. From this standpoint, early adopters of the iPhone should have been pleased, not enraged, when Apple dropped the price of the device after just a couple of months. *See supra* note 62 and accompanying text. By making the iPhone broadly accessible at a lower price point, the returns to iPhone ownership likely increased.

112. WILSON, *supra* note 7, at 121–22.

113. This observation is related to a broader point about economies of scale. When there are unexploited economies of scale, expanding sales of a given good benefits existing consumers of that good because the costs of production are spread across a broader base—assuming the associated savings are passed along. *See* KELVIN LANCASTER, VARIETY, EQUITY, AND EFFICIENCY: PRODUCT VARIETY IN AN INDUSTRIAL SOCIETY 332 (1979); *see also* JONATHAN A. KNEE, THE PLATFORM DELUSION: WHO WINS AND WHO LOSES IN THE AGE OF TECH TITANS 23 (2021). Price discrimination can make this expansion possible under more circumstances. There is a trade-off, however, if the new customers drawn in by the lower price stop consuming some other good for which their purchases were contributing to economies of scale and reducing costs for their existing co-consumers. For this reason, "a coalition of all the consumers receiving the same good has an interest in reducing the degree of variety in the economy, *provided that the good they receive is not eliminated*." LANCASTER, *supra*, at 332. More broadly, consideration of other markets complicates the distributive and efficiency implications of price discrimination. *See, e.g.*, Aaron S. Edlin et al., *Is Perfect Price Discrimination Really Efficient?: Welfare and Existence in General Equilibrium*, 66 ECONOMETRICA 897 (1998), https://doi.org/10.2307/2999577; Camelia Bejan, *On the Inefficiency of Perfect Price Discrimination*, 208 ECON. LETTERS 110084 (2021), https://doi.org/10.1016/j.econlet.2021.110084.

much larger share of the fixed costs.[114] Similarly, first-class passengers can benefit from the existence of coach-class passengers if the latter pitch in even part of the fixed costs of operating a large jet airplane.[115] This assumes, however, that the additional contributions to fixed costs (or some portion of them) are passed along to the high valuers in the story rather than being appropriated by the seller.[116] Here, we see how restrictions on seller surplus (whether self-imposed or otherwise) may be instrumental to producing gains for high valuers.[117]

Repeat play and bundled forms of price discrimination offer additional opportunities for reciprocal benefits. A consumer who pays a higher price on one occasion might be more than compensated by paying a lower price on other occasions. Bundling takes this reciprocity point to its logical conclusion, embedding price discrimination within a single transaction so that the overall price does not vary even though the mix of implicit prices that each person pays for parts of the bundle does. I will consider below how extending this notion of reciprocal benefits beyond explicit bundling opens up more opportunities for voluntary forms of price discrimination.[118]

III. Self-Imposed Price Discrimination

Despite potential benefits in terms of both efficiency and distribution, consumers tend to react negatively to the idea of price discrimination.[119] It might seem odd to suggest that people would choose to

114. Suppose, for example, that a boat touring company can only cover its expenses if it clears $400 in tickets, which equates to an eight-person minimum at $50 each or a $400 whole-boat charter price. A couple purchasing a whole-boat charter would still pay less if another couple joined them, even if the second couple did so at the $50 per person rate, so long as the savings were passed along.

115. This assumes that the first-class passengers would be worse off in some way in a smaller plane that contained only a first-class cabin, whether because the per-ticket price would be higher due to diseconomies of scale or because it would be slower, less safe, or less comfortable. Of course, some first-class passengers may enjoy the feeling of superiority that comes from the existence of a coach class, quite apart from any amounts that the coach passengers may contribute to fixed costs. I thank Dhammika Dharmapala for discussions on these points.

116. *See* Robinson, *supra* note 81, at 206 (outlining this cost-sharing argument in favor of price discrimination, and observing that it "would be valid if the monopolist was limited to earning a certain fixed profit" but would not hold under conditions where the monopolist maximizes profit); *see also id.* at 204–06 (discussing instances in which an increase in output made possible through price discrimination would decrease the price in the higher-priced market as a result of decreasing marginal costs).

117. Of course, high valuers might be altruistic or enjoy feelings of esteem or magnanimity in paying a larger amount to extend access to others. *See infra* note 127 and accompanying text. But it is not necessary to go beyond rational self-interest to see how high valuers might benefit from price discrimination that makes goods more widely available to others, even at a much lower price.

118. *See* discussion *infra* Part IV.C.3.

119. Notably, this reflexive negative reaction is primarily limited to particular forms of price discrimination, namely different prices for exact equivalents, especially where the differential is imposed surreptitiously.

be subject to it. But there are many existing models in which people voluntarily do what amounts to the same thing: take on a larger-than-proportionate share of fixed costs in order to ensure that a good or service gets produced in the first place, reaches more people more affordably, or both.[120] Indeed, some critics of price discrimination argue that people ought to be able to opt out of it—which implies the opposite possibility of opting (or staying) in.[121] The Sections below comprise a nonexhaustive survey of some of the existing approaches, with an eye to providing proof of concept.

A. *Nonprofits and "Voluntary Price Discrimination"*

Nonprofits provide familiar examples of people voluntarily pitching in larger amounts to support the availability or wider accessibility of a given good. Many nonprofits produce goods that require a significant minimum scale but that can (or must) be made available to additional people at little or no marginal cost. Some of these are traditional public goods that are both nonrival and nonexcludable (like habitat restoration), while others (like operas, museums, or zoos) involve easy exclusion but have a significant nonrival component that allows them to be extended to larger audiences at low marginal cost once the (high) fixed costs are covered. Some of these goods cannot be provided at all unless different consumers contribute different amounts, even though aggregate demand exceeds total costs. For goods with a direct consumption component, ticket prices may be tiered so that some patrons pay more, but there are limits to how much can be recouped through this approach.[122] Instead, funding typically comes in larger chunks from donors, while ticket prices remain below average cost.[123]

120. Another commonly observed category of voluntary payments, tipping, seems to be primarily directed at other ends, such as helping out the server, recognizing or encouraging better service, complying with norms, or signaling something about oneself to the server or to other members of one's party. *See, e.g.*, Stephen G. Saunders & Michael Lynn, *Why Tip? An Empirical Test of Motivations for Tipping Car Guards*, 31 J. ECON. PSYCH. 106, 107–08 (2010), https://doi.org/10.1016/j.joep.2009.11.007. However, assuming that tipping accompanies lower wages than would otherwise be required to supply the service, tips do represent a voluntary mechanism for allocating a portion of the service's shared production costs among customers.

121. For discussion of an opt-out approach, see Wagner & Eidenmüller, *supra* note 2, at 590–92. Of course, an opt-in model might yield different results than an opt-out model due to the stickiness of defaults, but it would be incoherent to enable an election from either baseline unless both choices were viable for at least some consumers under some circumstances.

122. *See* MOORE, *supra* note 3, at 120; Hansmann, *supra* note 95, at 343–44.

123. Hansmann, *supra* note 95, at 344 (observing that "even if it is difficult to establish effective price discrimination via ticket pricing, it is still possible to ask individuals simply to *volunteer* to pay an additional amount if the value they place upon attendance exceeds the price charged for admission").

Henry Hansmann analyzes this funding and pricing strategy as a form of "voluntary price discrimination."[124] Donors' motivations for paying a larger share may be primarily to ensure that a good they value consuming will be available. Where fixed costs are large, there may be no uniform price that will suffice to cover all of the costs, even though total benefits to consumers exceed total costs. As Hansmann explains, "it appears likely that for most productions staged by nonprofit performing arts groups the demand curve lies below the average cost curve at all points, so that there exists *no* ticket price at which total admission receipts will cover total costs."[125] Similarly, Bruno Frey and Stephan Meier observe that "[m]ost museums face a demand curve lying below the average cost curve. This makes it impossible to set a price at which total admission receipts cover the total costs of the museum."[126] In these cases, donors act as rational consumers willing to self-inflict price discrimination in order to ensure that a good they want to consume is made.

Of course, some donors may have altruistic or redistributive motivations and wish for others of less means to enjoy cultural (or other) goods that they find meaningful.[127] Thus, even if there were enough people willing to pay sky-high ticket prices to fund a small theater company, many of those elite patrons might prefer to pay more so that the theater can be made realistically available to more income groups. Here, voluntary price discrimination not only enables more goods to be provided but also lets their availability be extended in ways that might not be possible without this self-imposed form of price discrimination. These, of course, are the same advantages noted earlier for price discrimination in the context of private goods.

In Hansmann's analysis, the nondistribution constraint that applies to nonprofits, which keeps the producers from simply appropriating the excess funds for themselves, makes this strategy viable.[128]

124. Hansmann, *supra* note 3, at 856, 859–60; Hansmann, *supra* note 95, at 344; *see also* Mark P. Gergen, *The Case for a Charitable Contributions Deduction*, 74 VA. L. REV. 1393, 1440–41 (1988) (noting that "[v]oluntary giving permits informal price discrimination in which the rich pay more and the poor less to support a church"); Bruce Chapman, *Between Markets and Politics: A Social Choice Theoretic Appreciation of the Charitable Sector*, 6 GEO. MASON L. REV. 821, 840–62 (1998) (discussing charitable giving as a form of voluntary price discrimination, and noting the role of reciprocity and the capacity to reduce costs for others as motivators).

125. Hansmann, *supra* note 95, at 343.

126. Bruno S. Frey & Stephan Meier, *The Economics of Museums*, *in* 1 HANDBOOK OF THE ECONOMICS OF ART AND CULTURE 1017, 1026 (Victor A. Ginsburgh & David Throsby eds., 2006).

127. *See* Hansmann, *supra* note 95, at 342 (noting this possibility, but expressing skepticism about it in the performing arts context, where "the vast majority of people who attend the performing arts are quite well-heeled").

128. Hansmann, *supra* note 3, at 859 (observing that in the case of performing arts productions, which have high fixed costs, "[t]he nonprofit firm provides a vehicle—through the trust engendered by the nondistribution constraint—whereby the audience's willingness to pay more than the ticket price can be tapped, and this is the key

Hansmann further suggests that the nondistribution constraint, and its facilitation of this voluntary price discrimination strategy, helps to explain why nonprofit involvement in supporting the performing arts increased as the fixed costs associated with these endeavors rose.[129] Here, Hansmann assumes that for-profit firms, lacking the nondistribution constraint, would be unable to capitalize on voluntary price discrimination, at least in contexts where the connection between greater payments and results is opaque.[130] Although I will question that assumption below,[131] it is clear that nonprofits are able to innovate with voluntary pricing models across a range of contexts, including ones that blend a nonrival public good with a private consumption good.

For example, the Shedd Aquarium in Chicago offers a "Kayak for Conservation" program for which participants can pay any amount from $20 to $100 per person to participate in a kayaking tour.[132] The good provided to participants is both rival and excludable—if I occupy a kayak, you can't—but there are some fixed costs of setting up the program and some broad nonrival and nonexcludable goals, such as educating people about the Chicago River and current efforts to improve its biodiversity.[133] The pay-what-you-can interface notes that the program costs $45 per person to operate, providing a mental anchor a bit below the midpoint of the price range. Those who pay more than this amount have some assurance that Shedd will put their extra dollars back into the program (or into *some* Shedd program).

Whenever goods have a large nonrival component (corresponding to high fixed costs), differential pricing may be necessary for private provision to occur at all, or at optimal levels.[134] The nonprofit organization offers a format through which such price differentiation may proceed by alleviating one barrier, the fear of expropriation by suppliers, through the nondistribution constraint and other forms of control

to survival in many cases"). In other words, the donor can be sure the funds will go to providing the nonprofit service, even if the extra dollars may cross-subsidize its provision to other consumers. *See id.* at 877.

129. Hansmann, *supra* note 95, at 346 ("The nonprofit firm, through its access to voluntary price discrimination, is viable in segments of the performing arts market where for-profit firms cannot survive."); Hansmann, *supra* note 3, at 858 n.70 (connecting the increase in nonprofits in the arts to rising fixed costs).

130. Hansmann, *supra* note 95, at 346 (noting the assurance provided by the nondistribution constraint, and observing that "[w]ith a profit-seeking organization it is difficult to obtain such assurance where, as with the performing arts, the connection between an individual contribution and increased production of services is not directly observable").

131. *See* discussion *infra* Parts III.B–C.

132. *Kayak for Conservation*, Shedd Aquarium, https://www.sheddaquarium.org/programs-and-events/kayak-for-conservation (last visited Dec. 20, 2022).

133. *See id.*

134. *See, e.g.*, Avner Ben-Ner & Theresa Van Hoomissen, *Nonprofit Organizations in the Mixed Economy: A Demand and Supply Analysis*, 62 ANNALS PUB. & COOP. ECON. 519, 529–30 (1991), https://doi.org/10.1111/j.1467-8292.1991.tb01366.x.

and transparency.[135] Free rider problems may remain, but the nonprofit can serve as a coordinating platform for fostering cooperative norms—a job made easier by tax benefits.[136] Moreover, an established nonprofit is able to demonstrate its ability to reliably attract a sufficient chunk of support to carry out its high-fixed-cost programs, which can help to alleviate donors' fear of futile (below-threshold) contributions.[137] Meanwhile, the nondistribution constraint assures donors that their excess contributions will be poured back into some combination of quality improvements, new endeavors along similar lines, or expanded access to existing products.[138]

B. *Moving Beyond Nonprofits*

If nonprofits successfully rely on voluntary price discrimination, might the model be expanded to other contexts, including for-profit firms? There are at least two facets to this inquiry: whether such an approach is feasible, and whether it would be of any value. Although doubts have been raised on both scores, there are also some real-world examples that suggest at least some interest in, and potential for, such models.

1. Feasibility

As noted above, any system of price discrimination must find some way to meet the twin challenges of determining relative valuations and keeping the higher valuers on board at a higher price point.[139] Voluntary systems typically rely on self-disclosure of valuations and self-selection into higher price tiers. Nonprofits have some special advantages in inducing these behaviors. Apart from the tax benefits that give nonprofits a leg up in attracting donations, the nonprofit form comes with some built-in reassurances about where the extra money will go, as well as some useful mechanisms for coordinating donative

135. *See* Hansmann, *supra* note 95, at 345–46; *see also* Ben-Ner, *supra* note 93, at 114 (observing that the nondistribution constraint provides a partial solution, but one that "is rarely sufficient because enforcement of non-distribution of profits is limited," leading donors to demand "some control over the enterprise, usually through seats on the board of trustees").

136. *See* Hansmann, *supra* note 95, at 344. These tax motivations are surely significant for large donors, but presumably much less so for smaller ones (especially given the high percentage of the population that does not itemize). Social events and recognition may serve as independent motivations or as a way of solidifying giving norms. *See, e.g.*, *id.*, at 344 n.10; COWEN & TABARROK, *supra* note 21, at 294 ("[I]f you make a $120 donation per year [to the Kennedy Center], you are allowed to go to a small room before the concert and drink free coffee and eat free cookies. If you make a donation of $1,200 per year, you are allowed to go to a *different* small room before the concert and drink the *same* free coffee and eat the *same* free cookies.").

137. For other ways of meeting this concern, see *infra* note 158 and accompanying text.

138. *See, e.g.*, Hansmann, *supra* note 95, at 346.

139. *See supra* note 18 and accompanying text.

behavior.[140] For this reason, the literature has generally expressed skepticism about the potential for extending voluntary models beyond the nonprofit context.[141]

Where for-profit businesses are involved, distrust is likely to run high about whether the extra payments would really be used to expand availability or quality of the good, especially where information asymmetries are great.[142] As a result, buyers will be reluctant to reveal their private valuations, recognizing that a profit-seeking firm has every incentive to exploit that information and extract all of the surplus for itself.[143] Avner Ben-Ner and Theresa Van Hoomissen conclude that "unless the [for-profit] firm consents to reveal its private cost information (accounts or audits) and make monitorable and enforceable contractual agreements on the basis of both demand *and* cost information, stakeholders will not reveal their preferences to a for-profit firm."[144] Ben-Ner and Van Hoomissen suggest that these conditions could not be met outside of unusual situations involving a single large stakeholder.[145]

Yet it remains possible that for-profits could provide sufficient assurances and transparency to make a voluntary price discrimination approach viable. After all, nonprofits do not provide perfect transparency or full assurances about their use of funds. What seems most essential is devising ways to communicate to high valuers the benefits that price discrimination holds for them, and to commit to pricing structures that will deliver those benefits.[146] But the question remains whether the cost of for-profits doing so is justified.

2. Usefulness

Regardless of feasibility, is there any marginal value associated with extending voluntary price discrimination beyond nonprofits? One form of the inquiry runs like this: If voluntary price discrimination would really produce gains in a given sector, wouldn't firms already be using the nonprofit form to achieve those gains?[147] Not necessarily. Nonprofit status is a bundled choice that links together a variety of constraints, which might be sought or avoided for reasons unrelated to a desire for price differentiation.[148] The fact that a firm does not or

140. *See supra* Part III.A.

141. *See supra* notes 128–35 and accompanying text.

142. Ben-Ner, *supra* note 93, at 113.

143. *Id.*; Ben-Ner & Van Hoomissen, *supra* note 134, at 530.

144. Ben-Ner & Van Hoomissen, *supra* note 134, at 530 (citation and footnote omitted).

145. *See id.* at 530 n.14.

146. *See supra* Part II.C.3 (discussing benefits of price discrimination for high valuers).

147. *See* Ben-Ner, *supra* note 93.

148. *Cf.* Malani & Posner, *supra* note 104.

cannot choose this organizational form does not necessarily mean that it could not better serve its customers with price discrimination.[149]

A second reaction might be that if for-profit firms could usefully rely on voluntary price discrimination, they would already be doing it. To the extent we do not see this model well-represented, can we assume it would have no benefits? Perhaps for-profit firms already employ ordinary (involuntary) forms of price discrimination to such an extent that voluntary measures would provide few marginal gains. Or perhaps firms assume that customers would be uninterested in do-it-yourself price discrimination. This latter assumption might arise either from observed reactions to the threat of price personalization or from the lack of any good method (analogous to the nondistribution constraint) to precommit to using differentiated prices in particular ways. Yet there might be ways of addressing these barriers.

In fact, as discussed below, there has been scattered experimentation with voluntary price discrimination alternatives outside of the nonprofit structure, although not all these attempts have been successful.[150] These efforts suggest that there is some interest in this family of approaches, even if the best mechanisms for carrying it out may not have yet been discovered.

In what domains might such voluntary price discrimination prove most useful? High fixed costs, economies of scale, and nonrival aspects of goods are all related concepts that describe a cost and benefit structure that may benefit from, or indeed require, price differentiation. Such domains often involve low or even zero marginal costs for additional units of a good, sharpening the possibility that a uniform price will fail to generate sufficient returns to justify a good's production, or will fail to serve all those with valuations above marginal cost. Intellectual and creative endeavors are obvious examples. Other contexts might include those for which large fixed investments are needed to serve a relatively small (perhaps geographically constrained) market, such as less popular airline routes or other products that have attributes of a natural monopoly.

An alternative to both nonprofit and for-profit voluntary pricing structures would be government provisions—or subsidies sufficient to cover the fixed cost component.[151] For example, subsidies have been used to help cover the cost of otherwise underserved airline routes

149. For similar reasons, a hybrid organizational form may not suit a particular entity's needs. *See, e.g.*, Michael Rushton, *Hybrid Organizations in the Arts: A Cautionary View*, 44 J. ARTS MGMT. L. & SOC'Y 145 (2014), https://doi.org/10.1080/10632921.2014.936075.

150. *See* discussion *infra* Part III.C.

151. *See supra* note 95 and accompanying text. Taxes could, in theory, be personalized to the same degree as product prices. *See, e.g.*, Barbara H. Fried, *The Puzzling Case for Proportionate Taxation*, 2 CHAP. L. REV. 157, 168–72 (1999) (discussing the Lindahl tax, which is keyed to each individual's WTP).

and the development of pharmaceuticals for rare conditions.[152] Price differentiation can also be governmentally constrained in regulated industries to ensure consumers are benefited (e.g., through Ramsey pricing or two-part tariffs).[153] But both subsidies and price controls introduce coercion (the former through the tax system, the latter directly), which introduces its own costs and concerns.

While none of this proves that gains are uniquely available through opt-in models provided by for-profit firms, there are enough limits and disadvantages associated with other options to leave it an open question. To this we can add the observed existence of at least some real-world examples, as the next Section explains.

C. *Existing Voluntary Models (Beyond Nonprofits)*

Can noncoercive, opt-in forms of price discrimination thrive outside of the nonprofit model? We can start by defining terms.

1. The Many Varieties of Voluntary

Opting into price discrimination might mean many different things. At one end of the spectrum are fully unconstrained pay-what-you-want models in which the individual simply chooses how much (if anything) to pay for or contribute to a particular good, with or without information about how much others are paying or contributing. At the other end of the gamut, we might imagine a consumer consciously choosing to subject herself to a "black box" pricing methodology that uses a wealth of data to very accurately estimate her WTP. In between are many possible mixes of structure (on the part of the seller) and control (on the part of the buyer). For example, a seller might provide suggested prices or price menus, and a buyer might choose among them. Or a buyer might declare herself willing to pay up to a stated valuation but condition the transaction and its price on some other factor, such as how many others have contributed.

Depending on how one defines terms, it is possible to see a great deal of existing price discrimination as voluntary in some sense. Indeed, an entire category of price discrimination relies on self-sorting by consumers, who may, for example, opt for particular bundles or quantities, or choose among different versions of the same basic product.[154] Further, consumers may patronize (or avoid) a particular seller based on pricing practices that generate particular cross-subsidies—a sort of large-scale opt-in (or opt-out) decision. Consumers may also

152. *See, e.g.*, WALDFOGEL, *supra* note 83, at 131–46.

153. *See supra* note 7 and accompanying text (defining Ramsey pricing). A two-part tariff is a related approach in which the first portion goes to a share of fixed costs and the second goes to cover marginal costs associated with the purchased units. *See, e.g.*, Coase, *supra* note 84; Gifford & Kudrle, *supra* note 15, at 1248–49.

154. Mechanisms based on self-sorting are generally defined as "second degree" price discrimination. *See supra* note 22 and accompanying text.

join clubs in which contributions to fixed costs vary, so some members bear a larger share of the total.[155]

Although the voluntariness of any pricing regime will always depend on the other alternatives, customers are often active participants in determining the types of prices they will confront. My point is not to stretch the notion of voluntariness beyond recognition, but rather to suggest that it is less a binary than a continuum, and that some points along it are already familiar and enjoying apparent widespread acceptance by buyers and sellers. The following Sections offer a non-exhaustive set of examples.

2. Patronage for Creative Projects

Intellectual property has a cost structure that lends itself to price discrimination (or, put another way, can suffer from constrained production where price discrimination is unavailable). The fixed costs of creating new content are typically high relative to the marginal costs of making content available to additional users. Some familiar platforms offer ways for people to back creative projects and thereby make their production possible. Contributors receive copies of the content (and sometimes additional perks at certain contribution tiers) but do not get an equity stake in the creative product itself, nor any control over it.[156]

Kickstarter is a familiar example of this approach: creators set funding goals and define the rewards that go with different tiers of contribution, and projects are funded on an all-or-nothing basis.[157] Contributions are returned to contributors if the goal is not reached—a feature that alleviates concerns about making a futile contribution to a step good that never manages to reach the necessary threshold for production.[158]

155. *See* James M. Buchanan, *An Economic Theory of Clubs*, 32 ECONOMICA 1 (1965), https://doi.org/10.2307/2552442. The choice to move into or remain in a particular political jurisdiction could also be construed as acceding to the way in which the funding of public goods is allocated among residents, subject to many caveats. *See* Charles M. Tiebout, *A Pure Theory of Local Expenditures*, 64 J. POL. ECON. 416 (1956), https://doi.org/10.1086/257839.

156. Equity stakes are best understood as a funding mechanism that allocates risk in a particular way, not a pricing mechanism. Although equity funding, like debt funding, can be a way to gain sufficient liquidity to produce creative content, it should only be supplied under circumstances where the expected returns would repay the investment. That is, there must be enough actual customers buying the content to cover its cost, one way or another.

157. *What Are the Basics?*, KICKSTARTER: KICKSTARTER 101, https://help.kickstarter.com/hc/en-us/articles/115005028514-What-are-the-basics- (last visited Dec. 20, 2022).

158. *See id.* Funding approaches with this feature go by a variety of names, including "provision-point mechanisms" and "assurance contracts." *See, e.g.*, Ayres, *supra* note 4, at 3–4; Lee, *supra* note 4, at 1140 n.11, 1147–55; Alexander Tabarrok, *The Private Provision of Public Goods Via Dominant Assurance Contracts*, 96 PUB. CHOICE 345 (1998).

Patreon, by contrast, lets donors ("patrons") contribute to *ongoing* content creation through payments that are made per month or per content item (like a video, blog post, or song).[159] Where Kickstarter funds lumpy projects on an all-or-nothing basis, Patreon creates a pool of customers who make advance purchases of not-yet-created products. Stephen King's iterated crowdfunding of his novella, *The Plant*, operated on a similar principle: King promised to write each new chapter if the payment per download for the prior chapter averaged 75 cents.[160] Here, a voluntary payment model for accessing the existing chapters doubled as a mechanism for funding the creation of future content—but ultimately ran aground before the book was completed.[161]

3. Pay What You Want

Pay-what-you-want ("PWYW") models have been used in a variety of charitable and creative contexts, as well as in some commercial enterprises like Panera's Community Cafes. Some of these attempts failed (Panera's last PWYW cafe closed in February 2019).[162] Radiohead's famous PWYW campaign for its album *In Rainbows* received mixed reviews, but similar models have proliferated in the music context.[163]

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159. *What Is Patreon?*, PATREON: PATREON SUPPORT, https://support.patreon.com/hc/en-us/articles/204606315-What-is-Patreon- (last visited Dec. 20, 2022).

160. *See* Glynn S. Lunney, Jr., *Copyright, Private Copying, and Discrete Public Goods*, 12 TUL. J. TECH. & INTELL. PROP. 1, 23–24 (2009) (describing King's approach).

161. *Id.*

162. Brenna Houck, *Panera's Utopic Pay-What-You-Want Restaurant Dream Is Dead*, EATER (Feb. 5, 2019, 5:16 PM), https://www.eater.com/2019/2/5/18212499/panera-cares-closing-pay-what-you-can-restaurant [https://perma.cc/TX5A-JP24]. Although the cafes operated for nine years, the model ultimately proved unsustainable. *Id.* At the Portland location, for example, high schoolers reportedly "mobbed the cafe daily, ordering multiple meals and not paying for them," in addition to greater-than-expected utilization by homeless patrons. Larry Bingham, *Panera Cares Pay-What-You-Can Cafe Learns About Entitlement*, *Feeding Hungry*, OREGONIAN (Feb. 13, 2013, 2:56 PM), https://www.oregonlive.com/portland/2013/02/panera_cares_pay-what-you-can.html [https://perma.cc/RX3E-KGUG].

163. *See, e.g.*, Eric Garland, *The 'In Rainbows' Experiment: Did It Work?*, NPR: MONITOR MIX (Nov. 16, 2009, 10:00 PM), https://www.npr.org/sections/monitormix/2009/11/the_in_rainbows_experiment_did.html [https://perma.cc/C6X9-ENBE]. For studies prompted by this trend, see, for example, Simon Waskow et al., *Pay What You Want! A Pilot Study on Neural Correlates of Voluntary Payments for Music*, 7 FRONTIERS PSYCH., no. 1023, July 2016, at 1, https://doi.org/10.3389/fpsyg.2016.01023, Leah Belsky et al., *Everything in Its Right Place: Social Cooperation and Artist Compensation*, 17 MICH. TELECOMMS. TECH. L. REV. 1 (2010), and Tobias Regner & Javier A. Barria, *Do Consumers Pay Voluntarily? The Case of Online Music*, 71 J. ECON. BEHAV. & ORG. 395 (2009), https://doi.org/10.1016/j.jebo.2009.04.001. Not all firms that tried this model have stuck with it. Magnatune, which previously offered a PWYW option, *see* Regner & Barria, *supra*, has since shifted to an "unlimited access" subscription model. *See* John Buckman, *New Business Model for Magnatune*, MAGNA-

The willingness of consumers to pay often significant amounts in settings where it is not required presents an interesting puzzle. Klaus Schmidt and coauthors used a number of laboratory experiments to examine what might motivate such consumers and found that "positive payments are mainly driven by (outcome-based) social preferences such as altruism or inequity aversion and by the strategic motive to keep the seller in business."[164] In some contexts, such payments may also allow the buyer to make a statement in favor of creative independence, or against corporate content control.

While some PWYW models are completely unstructured, others include a suggested price or constrain the possible payment options.[165] For example, the clothing retailer Everlane previously offered "Choose What You Pay" sales, which allowed customers to choose among three listed prices for each marked-down item.[166] Everlane explained each of the prices: the lowest just covered Everlane's production and shipping costs for that item; the middle price also included an amount for overhead for Everlane's team; and the highest price included the above components along with an extra amount earmarked for future product development and growing the business.[167] Everlane advertises an ethos of "radical transparency" and routinely provides a detailed breakdown of the cost components for each of its items, making it unusually well-positioned to credibly offer choices for sales items that build on these disclosures.[168]

4. Menus

Sellers often offer a slate of different pricing alternatives among which customers can choose. Although the choice between higher and lower prices is rarely as explicit as in the Everlane example above, customers armed with private information about their usage patterns can make elections that produce price discrimination. These kinds of

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TUNE BLOG (Mar. 17, 2010, 7:51 AM), https://blog.magnatune.com/2010/03/new-business-model-for-magnatune.html [https://perma.cc/4KBY-QK9Z].

164. Schmidt et al., *supra* note 5.

165. *See* Giandomenico Di Domenico et al., "*I Will Pay You More, as Long as You Are Transparent!": An Investigation of the Pick-Your-Price Participative Pricing Mechanism*, 147 J. BUS. RSCH. 403, 405 (2022), https://doi.org/10.1016/j.jbusres.2022.04.037 (distinguishing a "Pick-Your-Price" approach, which "involves constraints on permitted prices, in the form of a pre-defined set of choices," from PWYW models that place no constraints on the transaction price).

166. Although Everlane no longer offers these sales, the pricing model drew press attention as recently as 2020. *See, e.g.*, *These 3 Brands Succeed by Letting Customers Pay What They Want*, BREAD PAY: BLOG (Feb. 21, 2020), https://www.breadpayments.com/blog/these-3-brands-succeed-by-letting-customers-pay-what-they-want/ [https://perma.cc/9MQN-U3PA].

167. *See id.*

168. *See id.*; *About*, EVERLANE, https://www.everlane.com/about (last visited Dec. 20, 2022) (describing prices as "Radically Transparent"); *see also* Di Domenico et al., *supra* note 165 (investigating the significance of transparency about price components in a Pick-Your-Price context).

alternatives have the potential to make consumers better off. For example, Pareto-improving nonlinear pricing models allow each customer to choose between a uniform price and a pricing schedule with volume discounts built in, and in theory, a customer would always choose in the way that makes her better off.[169]

Of course, cognitive biases and poor predictions about oneself can get in the way, as has been famously demonstrated in the context of gym memberships.[170] Some customers simply prefer an "all you can eat" model for mental accounting reasons even when they are very unlikely to end up as well off under it as they would with à la carte pricing.[171] The potential for even voluntary pricing options to systematically disadvantage consumers who misperceive their options or their future behavior raises important normative questions. Making price discrimination alternatives transparent addresses some concerns, but the form that transparency takes and the way in which menus are structured remain important.

Many forms of price discrimination that might loosely be described as voluntary take the form of volume discounts of various sorts, including those that are administered through frequent flyer and other loyalty programs. Concerns about these programs sometimes cite a "suction effect" that induces the buyer to keep buying from the same supplier as she nears the target for a particular reward, as those near-threshold units have a much lower effective unit price (assuming the threshold is ultimately reached).[172] In a competitive market, rivals could provide incentives to counter this effect (as through switching bonuses),[173] but it may nonetheless produce a degree of lock-in.

5. DIY Price Discrimination (Buying More or Paying More)

Sometimes it is evident that a given good or service will not be provided at all, or will be discontinued, if it cannot be provided at sufficient scale. Customers (or other interested parties) who want the product to exist, or to continue existing, can help to meet that minimum efficient scale in a number of ways, even if the supplier has not

169. *See* WILSON, *supra* note 7, at 62; Willig, *supra* note 12, at 56–58.

170. *See* Stefano DellaVigna & Ulrike Malmendier, *Paying Not to Go to the Gym*, 96 AM. ECON. REV. 694 (2006), https://doi.org/10.1257/aer.96.3.694.

171. *See, e.g.*, Drazen Prelec & George Loewenstein, *The Red and the Black: Mental Accounting of Savings and Debt*, 17 MKTG. SCI. 4, 20–22 (1998) (citing KENNETH E. TRAIN, OPTIMAL REGULATION: THE ECONOMIC THEORY OF NATURAL MONOPOLY (1991)), https://doi.org/10.1287/mksc.17.1.4 (discussing "flat-rate bias").

172. For discussion and critique of the "suction effect" analysis, see Gifford & Kudrle, *supra* note 15, at 1282–88. *See also* Christiaan Behrens et al., *From Silver to Platinum: The Effect of Frequent Flyer Tier Levels on Airline Demand* (Tinbergen Inst., Discussion Paper No. 2021-077/VIII, 2021), https://doi.org/10.2139/ssrn.3914811 (empirically examining demand effects of airline loyalty tiers).

173. *See* Gifford & Kudrle, *supra* note 15, at 1282–88.

set up any obvious means by which to do so.[174] In *Boom Town*, Sam Anderson explains how Stanley Draper, a city booster and civic leader, sought to ensure Oklahoma City was among the first wave of cities to be supplied with air mail service.[175] A certain minimum volume (or, more precisely, weight) was necessary to make the grade as an air mail route. Draper got it: he began mailing bricks all over the country.[176]

Consuming more of a particularly favored good can be a way to try to tilt the balance in favor of its long-term availability, although people often do not realize how precarious the situation is until it is too late. I doubt I am the only customer who would have bought more of some product, or gone more often to a local restaurant, had I known it was on the brink of disappearing. During the pandemic, this issue became especially salient; the purchase of gift cards offered a way to "consume more" than one was able to accomplish personally, often with the express idea of helping small business owners weather the storm.[177]

Even if a product will be supplied at some level in any event, a customer or other stakeholder may be interested in changing the allocation of fixed costs in order to bring the price closer to marginal cost for other purchasers. For instance, some academic publishers offer an option for an author to pay to make the publication of her work "open access" on a digital platform, and thus available at its marginal cost ($0) to anyone who wants to read it.[178] This payment presumably provides the publisher with sufficient cost coverage to allow the rest of the world to enjoy the work for free. Another possibility is a payment by the author to reduce the price per volume of an academic book, again with the aim of getting the book into more hands by changing the way that fixed production costs are covered.

Many people opt into more expensive versions of essentially similar products (e.g., higher trim levels on a car, first-class plane tickets, bet-

174. Petitions and protests over product discontinuances also occasionally surface, with mixed results. *See* Kristina Manente, *Pop-Tart Flavors You'll Sadly Never Get to Try Again*, MASHED (Apr. 2, 2020, 3:21 PM), https://www.mashed.com/198761/pop-tart-flavors-youll-sadly-never-get-to-try-again/ [https://perma.cc/R4CJ-87VC] (discussing the results of consumer discontent over the discontinuance of various Pop-Tarts flavors, including a rare successful effort that temporarily brought back Frosted Chocolate Vanilla Crème Pop-Tarts and a failed petition to bring back Strawberry Cheese Danish Pop-Tarts).

175. SAM ANDERSON, BOOM TOWN 177 (2018).

176. *Id.* ("[N]o note, no explanation, just a brick.").

177. Some enterprises will ask for extra donations to stay afloat. Examples have long been observed in the publishing industry, where niche or partisan publications have found themselves unable to survive on ad revenues. C. Edwin Baker, *Advertising and a Democratic Press*, 140 U. PA. L. REV. 2097, 2170 n.261 (1992).

178. For a recent analysis of this approach to scientific publishing, including results of a field experiment examining a PWYW model, see Lucas Stich et al., *Paying for Open Access*, 200 J. ECON. BEHAV. & ORG. 273 (2022), https://doi.org/10.1016/j.jebo.2022.05.023.

ter theater seats). Although this is likely primarily for the enhanced consumption value associated with those features, it might at times be understood (for at least some consumers) as a conscious choice to pay more in order to expand access or fund additional product development. Robert Frank made this point about Tesla's tiered pricing, which involved the company disabling part of the battery capacity of its lower-priced model:

> Tesla was transparent in its portrayal of its offerings. It told buyers that the premium prices for the unrestricted models were for software upgrades that unlocked the potential of the discount models' batteries. Buyers who chose premium models might reasonably be viewed as having made voluntary contributions to the company's development costs.[179]

Whether or not one agrees with this characterization, it would not be irrational for consumers to make such voluntary contributions if it helped to support the existence of a product that would otherwise never be developed.

6. Haggling and Demand Revelation

Pricing protocols that involve individual negotiation represent forms of price discrimination that large sectors of the population appear to accept or even embrace, despite evidence that they systematically operate to the disadvantage of some groups of consumers.[180] Haggling is most commonly employed in the United States for unique goods (like homes) and for specific categories of costly fungible goods (notably cars).[181] What is striking about this form of price discrimination is the apparent belief on the part of most participants that they are obtaining a better deal than others; hagglers do not, by and large, consciously seek to help keep suppliers in business or to benefit other purchasers. Whether or not this form of price discrimination can be understood as truly voluntary (which may depend on whether it's possible to obtain some version of the good through a haggle-free option—e.g., a Saturn), it does actively involve the buyer.

The goal of the seller in these settings is to determine, and extract, the buyer's reservation price, while the buyer attempts to determine the seller's; each tries to appropriate all the surplus. Parties may waste a great deal of time and energy wrangling over price and attempting to send each other false signals; ultimately, they may fail to arrive at a mutually beneficial deal even though one exists.[182] Because uniform

179. Frank, *supra* note 45.

180. *See* Ian Ayres, *Fair Driving: Gender and Race Discrimination in Retail Car Negotiations*, 104 HARV. L. REV. 817 (1991).

181. Services may also be priced through a haggling-like dynamic. *See* Levmore & Fagan, *supra* note 8 (discussing a variety of examples, including law school tuition and negotiated wages).

182. *See, e.g.*, *id.* at 1472–87 (discussing the costs of haggling).

prices pre-divide the surplus in a definitive, take-it-or-leave-it manner, the low-tech solution of a simple price tag can dramatically reduce transaction costs.[183] But this solution has hidden costs in the form of goods that do not get produced and transactions that do not occur.[184] Haggling, for all its inefficiency, tries to overcome that problem through a process that is aimed (albeit not always successfully) at discovering relative reservation prices.

Online markets can replace static, physical price tags with dynamic, personalized ones that are equally non-negotiable but that are tailored more closely to individual demand.[185] But the problem of demand revelation remains acute. Scholars have devoted a great deal of attention to devising mechanisms for eliciting valuations in contexts involving unique goods where surplus is up for grabs (as in the case of land assembly), although the use of these approaches in the real world has been limited and not especially promising.[186]

In consumer retail contexts, explicit demand revelation mechanisms are rare outside of auction settings. Priceline has discontinued its "Name Your Own Price" feature for hotels, flights, and auto rentals, which represented one of the few examples of this approach in the wild.[187] Nonetheless, there are some demand revelation mechanisms

183. John Wanamaker was among the first to employ price tags in his store, along with a no-haggling ethos that ensured each customer paid the same price. *See* NICOLE C. KIRK, WANAMAKER'S TEMPLE: THE BUSINESS OF RELIGION IN AN ICONIC DEPARTMENT STORE 76 (2018). This practice was reportedly a response to the unsavory bait-and-switch practices that were prevalent at the time, and part of "Wanamaker's efforts to infuse business with Christian values." *Id*.

184. *See* discussion *supra* Part II.C.2.

185. *See* Bar-Gill, *supra* note 52, at 218 (discussing examples of dynamic pricing, including one firm's experimentation with digital price tags, which interacted with users' smartphones, in its physical stores).

186. For instance, the idea of basing involuntary transactions on self-assessed valuations has ancient origins and has been discussed actively for decades. *See, e.g.*, ERIC A. POSNER & E. GLEN WEYL, RADICAL MARKETS: UPROOTING CAPITALISM AND DEMOCRACY FOR A JUST SOCIETY 55–62 (2018) (discussing the intellectual history of this approach); Daniel M. Holland & William M. Vaughn, *An Evaluation of Self-Assessment Under a Property Tax*, *in* THE PROPERTY TAX AND ITS ADMINISTRATION 79, 81–115 (Arthur D. Lynn, Jr. ed., 1969) (analyzing self-assessment proposals by Arnold Harberger and Nicholas Kaldor, among others); Saul Levmore, *Self-Assessed Valuation Systems for Tort and Other Law*, 68 VA. L. REV. 771 (1982); Lee Anne Fennell, *Revealing Options*, 118 HARV. L. REV. 1399 (2005); T. Nicolaus Tideman, Three Approaches to Improving Urban Land Use (June 1969) (Ph.D. dissertation, University of Chicago) (on file with author). For Taiwan's experience with a self-assessment system that determined both property tax liability and condemnation compensation, see Yun-chien Chang, *Self-Assessment of Takings Compensation: An Empirical Study*, 28 J.L. ECON. & ORG. 265 (2012), https://doi.org/10.1093/jleo/ewq013.

187. This mechanism allowed customers to make binding offers at any price they wished, but the seller could choose whether to accept or reject the offer. *See* Klaus Wertenbroch & Bernd Skiera, *Measuring Consumers' Willingness to Pay at the Point of Purchase*, 39 J. MKTG. RSCH. 228, 239 (2002), https://doi.org/10.1509/jmkr.39.2.228.19086 (discussing Priceline's model and observing that it is not incentive compatible because bidders must pay their bid amount, which leads them to understate their WTP in hopes of getting at least some surplus).

that have been used in experimental settings that might be adapted for real-world use in consumption contexts where WTP is presently imperfectly proxied through other means.[188] Although the use of such technologies would likely activate consumer fears about price personalization, finding ways to give the consumer greater control over the process could counteract those worries.

IV. Making Price Discrimination Optional

So far I have suggested that price discrimination can have efficiency and distributive benefits, and that, despite being despised and resented in some contexts, it is tolerated or even embraced in others. This last Part will consider the prospects for expanding voluntary price differentiation into additional domains. In considering these possibilities, it matters what the other alternatives are understood to be. Although uniform pricing is often the unstated default and benchmark for comparison, price discrimination is already ubiquitous and likely to become more so with increases in the collection and aggregation of consumer data. Optional price discrimination could offer a means of capturing the advantages of price differentiation and redirecting the wasted energy that might otherwise go into sellers devising ever-more-subtle forms of involuntary price discrimination and consumers expending increasing amounts of time and energy to avoid them.

I start with some thoughts on what sorts of price discrimination consumers are likely to find acceptable in an optional format, and why sellers might be interested in providing this alternative. I then turn to how these kinds of approaches might be operationalized. Finally, I address how government might be involved.

A. *Customer Acceptance and Seller Interest*

We have seen that price discrimination can bring gains to both buyers and sellers. But it is not guaranteed to benefit all buyers, and it could harm some of them relative to a uniform price. Sellers, too, may worry about consumer backlash, reputational harm, or legal liability associated with pricing protocols. For a voluntary system of price discrimination to gain traction, it must benefit both parties to any given transaction, at least in expectation. That will require measures to protect both buyers and sellers against sources of loss. It also will likely require thoughtful rebranding—as Frank has noted, the term "price discrimination" is one that "makes it almost impossible for neutral observers to approve."[189]

188. For example, one well-known valuation elicitation mechanism is the Becker-DeGroot-Marschak ("BDM") method, developed in Becker et al., *Measuring Utility by a Single-Response Sequential Method*, 9 Behav. Sci. 226 (1964), https://doi.org/10.1002/bs.3830090304. *See also* discussion *infra* Part IV.B.2 (describing this mechanism and explaining how it might be adapted for optional price discrimination).

189. *See* Frank, *supra* note 45.

Consistent with the earlier list of normative concerns, customers may bridle at price discrimination based on how much surplus it grants to sellers (SSS), the relative benefits (in surplus or lower prices) that it bestows on other buyers (BBB), or the data-intensive means through which it is carried out (DDD). Customers will only opt into price discrimination if sellers can successfully address all these concerns. Beyond that, customers must anticipate receiving some benefit for themselves that is unavailable through traditional pricing methods in order to be induced to experiment with a new pricing structure.

Sellers, for their part, will only be interested in offering a voluntary price discrimination alternative if they anticipate being able to provide these assurances, cover all of their costs (including a reasonable return on investment), and avoid incurring new losses due to customer backlash or legal liability. Sellers will also require that their anticipated profits and risks under the optional price discrimination approach compare favorably to what they could obtain under more traditional uniform pricing or existing (or forthcoming) forms of involuntary price discrimination. Both parties, in short, need to perceive the pricing mechanism as beneficial, fair, and safe. We have seen contexts in which nonprofits can provide these assurances, as well as some limited examples outside of the nonprofit form.

Axiomatically, the dual requirements of sellers and buyers can only be met if an optional price discrimination alternative expands the total surplus that is available for the parties to share, relative to other options. It could do so by increasing the precision with which price discrimination is carried out or reducing its collateral costs (including resentment by customers). If a pricing methodology would in fact increase the pool of available surplus, the ability of parties to access that surplus (without entirely depleting it in the process) depends on the presence of certain safeguards, which I will state here abstractly, and then flesh out more concretely in the subsequent Section.

Broadly, buyers will require some assurance that any extra increment they pay through optional price discrimination will go to ends that they find acceptable. Acceptable ends could include keeping a highly valued or niche good available (for oneself and for other consumers), helping more people (particularly lower-income people) obtain access to the good,[190] or helping a valued firm stay in business and treat its workers fairly.[191] By contrast, customers generally would not want price enhancements to simply enable the seller to reap larger

190. *See* Ward, *supra* note 52 (finding somewhat more favorable responses to price discrimination when it was used to lower the price for low-income people); DellaVigna & Gentzkow, *supra* note 13, at 2072 (suggesting that a pricing model that involved "giving discounts to poorer consumers and raising prices on wealthier consumers" would be "less likely to cause a public relations outcry than the reverse").

191. *See* Buccafusco et al., *supra* note 74, at 395–96, 424 (finding in an experimental study that there was a significant reduction in perceptions of unfairness when a price increase in hand sanitizer during a pandemic was paired with a rationale stating that

profits or to cross-subsidize free riding by co-consumers who in all fairness ought to pay more. In order to provide customers with a plausible narrative that would attract their participation in a price differentiation approach, sellers must build in some credible checks designed to ensure basic fairness between buyer and seller, as well as among buyers.

Research on perceptions of fairness suggests that price increases are viewed as more acceptable when they correspond to cost increases for the seller rather than efforts to glean additional profits.[192] By extension, we might imagine that buyers would be more willing to voluntarily participate in a price discrimination scheme if sellers were constrained to use the proceeds to cover costs, with excess receipts either returned or put into some other form that the buyer could enjoy in the future (guaranteed continued existence of the product, product improvements, or credits against further purchases). The functional goal is simple: preventing the seller from using a price discrimination system to exploit customers and enrich itself.

In addition to the anti-exploitation check just discussed, consumers will demand some form of sucker-proofing that keeps them from being exploited by free-riding co-consumers. This objective is trickier because one of the key advantages of price discrimination is precisely its capacity to enable more consumers to obtain the good in question at lower cost. Expressly redistributive sentiments may be a large part of the motivation for a buyer's participation in price discrimination.[193] All the same, customers might worry about excessive free riding by other high valuers. The problem is partly practical: if everyone does that, the system collapses and the hoped-for benefits of continued availability and broadened access (to lower valuers) will not materialize. But there is also a strong aversion to being played for a sucker, independent of outcomes.[194] Again, we can state the functional goal: providing some assurance that customers will not be systematically suckered vis-à-vis other customers (that is, made to redistribute in ways that they do not find appealing).

Distinct from these concerns is an effect that has been observed in experimental studies of PWYW schemes: the possibility that people

"[a]ll profits from these price increases will be used to provide paid leave to workers affected by Covid-19").

192. Kahneman et al., *supra* note 53, at 732–36.

193. This is apparent in the nonprofit context, and it is not addressed by the nondistribution constraint (which just constrains those who control the organization from appropriating surplus for themselves, not from reconveying it to the consumers of its goods as part of its mission). For example, Lincoln Park Zoo in Chicago prominently emphasizes on its website that donations and memberships enable it to offer free admission to everyone, every day. *Join & Give*, LINCOLN PARK ZOO, https://www.lpzoo.org/join/ [https://perma.cc/QQC2-WEQQ]. Free riding by the general public is not an unintended consequence; it is the whole point.

194. *See, e.g.*, Tess Wilkinson-Ryan & David A. Hoffman, *Breach Is for Suckers*, 63 VAND. L. REV. 1003 (2010).

confronted with the chance to pay less will decide not to buy at all. Ayelet Gneezy and coauthors ran an experiment in which people on a boat tour had an opportunity to purchase a photo under various pricing regimes: a $15 fixed price, a $5 fixed price, and a PWYW price.[195] Although the number of people willing to purchase photos when the price was $5 was greater than when it was $15 (unsurprisingly), fewer were willing to purchase it under a PWYW regime than were willing to pay $5 as a fixed price.[196] In another study involving photos for purchase at a theme park, the researchers included an additional treatment: a PWYW price with half the money going to a well-known and well-regarded charity.[197] The number willing to buy under the charitable PWYW regime went down, although those who did buy paid significantly more than in the regular PWYW treatment.[198] The authors attribute this pattern of results to self-signaling and maintenance of a pro-social image, in which people do not want to perceive themselves as having gotten the picture too cheaply, especially in the charity treatment, but also did not want to pay very much for it.[199]

While these results reveal an interesting psychological constraint on participation in PWYW approaches, these effects would likely be attenuated in an ordinary for-profit context.[200] To the extent they remained, however, the particular protocol for eliciting valuations might matter. A would-be buyer might participate in a valuation interface in which she states her maximum acceptable price but would not retain

195. Ayelet Gneezy et al., *Pay-What-You-Want, Identity, and Self-Signaling in Markets*, 109 PNAS 7236 (2012), https://doi.org/10.1073/pnas.1120893109. Passengers from different cruises were offered the different pricing options. *Id.* at 7237.

196. *Id.* at 7238. The percentages were 23% (at $15), 64% (at $5), and 55% (for PWYW). *Id.*

197. *Id.* at 7237.

198. *Id.* The percentages were 8.39% (regular PWYW) and 4.49% (PWYW + charity), and the average amounts paid were $0.92 and $5.33, respectively. *Id.*

199. *Id.* at 7237–38. In one of the theme park treatments, the experimental design manipulated whether other people in line could observe the amount paid (via the placement of the cash register screen). This did not appear to have any significant impact, reinforcing the supposition that self-signaling is the driving force. *Id.* at 7238; *see also* Schmidt et al., *supra* note 5, at 1232 (considering a variety of explanations for observed preferences among some buyers for posted prices over PWYW, including Gneezy et al.'s focus on "concerns for self-image and identity" (quoting Gneezy et al., *supra* note 195)).

200. The experimental results did show this effect even outside of the charity frame, so the attenuation may not be complete, nor would we necessarily expect it to be. As an analogy, consider a person who will not dine in a restaurant, even if she can afford the food, unless she also feels sure she can afford a suitable tip. Although the tip is technically optional, and certainly is so above some minimum threshold, some people might skip the restaurant meal altogether rather than be in a position of giving a paltry or just minimally acceptable tip. Another explanation for the observed results relates to the cognitive effort involved in coming up with a price, which might be alleviated by offering a default or a menu of options. *See* Di Domenico et al., *supra* note 165, at 405; Schmidt et al., *supra* note 5, at 1232.

control over whether the transaction occurs or its exact price.[201] This approach would take a lot of the pressure off the buyer in trying to come up with a "suitable" price or worrying that the amount paid is not enough.[202] The ultimate decision about the figure's appropriateness would be made by an algorithm.

Consumers will also want assurances about the means through which opt-in price discrimination is pursued. Two common threads in the kinds of price discrimination that have proven uncontroversial are some degree of transparency and some measure of perceived consumer control over the process. Haggling is a polar example: everyone knows that they will have to pay more if they negotiate badly, and everyone gets a chance (in theory) to negotiate well. In price discrimination that is mediated by demand revelation mechanisms or consumer data, the uses to which information will be put and the chance to constrain its use will be especially important to consumer acceptance. Of particular concern will be whether information supplied by the consumer, such as a WTP figure that serves as an input into a pricing outcome, will have repercussions beyond the specific purchase in question.[203]

In sum, consumers will want assurances regarding the means as well as the ends of optional price discrimination. Acceptable means will be those in which the buyer retains some agency, the seller exhibits significant transparency, and there are some checks in place to guard against repurposing valuation information for unacceptable ends. For sellers, concerns will revolve around whether the above assurances can be provided cost-effectively, and whether the resulting buy-in will be sufficient to make the system as a whole work. Sellers will also be concerned about additional exposure—legal or reputational—as a result of engaging in such a pricing scheme. At the same time, however, they will need to be able to make binding representations about how data will be used in pricing. Thus, they need to be in a position to *risk* legal and reputational exposure if they misrepresent the way they are using information in an optional price discrimination approach, but they will also need to be reasonably sure they can *avoid* major legal and reputational hits if they keep their promises.

201. *See infra* notes 224–29 and accompanying text (describing the BDM demand elicitation method).

202. Charities struggle with this issue more generally. One potentially effective strategy, "legitimizing paltry contributions," is epitomized by the message that "even a penny helps." Robert B. Cialdini & David A. Schroeder, *Increasing Compliance by Legitimizing Paltry Contributions: When Even a Penny Helps*, 34 J. PERSONALITY & SOC. PSYCH. 599 (1976), https://doi.org/10.1037/0022-3514.34.4.599.

203. *Cf.* Wertenbroch & Skiera, *supra* note 187, at 230 (discussing the possibility that participants prompted to reveal their demand in experimental settings will believe the information will be used outside of the experiment to influence prices or product development).

This litany of requirements might raise doubts about whether any optional system of price discrimination could ever get off the ground. As the nonprofit examples suggest, however, the constraints that a firm self-imposes need not be ironclad to be effective, nor is universal customer participation required for success. Would it be possible to devise workable systems of price discrimination that involve self-binding by firms, and opting in by consumers? The next Section provides some preliminary thoughts on how that might work.

B. *Building Price Discrimination Options*

The previous Section considered the sorts of assurances that both buyers and sellers would require in order for voluntary price discrimination to be of interest to both. We can boil down the relevant requirements to three essential elements: (1) some method for sellers to credibly commit to surplus division rules (including buyer-seller and buyer-buyer subrules); (2) some way of eliciting valuations from buyers; and (3) some way of bounding the relevant transaction (or set of transactions) to which the buyer's opt-in would apply. The first element is a necessary antecedent to the second: buyers will only be interested in providing valuation information (or allowing data to be used to infer valuations) with a surplus division rule in place that constrains how that information will map onto transaction prices. The third element defines the opt-in decision unit and thereby specifies the domain within which these other elements operate.

1. Surplus-Dividing Rules

Consider the sorts of surplus division rules that people might demand in order to voluntarily participate in a price differentiation scheme. For starters, sellers would need to curtail their own extraction of surplus and credibly communicate how additional sums would benefit consumers as a group, whether by ensuring product access, expanding product availability, or funding innovations that will redound to the benefit of consumers in the future. In short, sellers would need to bind themselves in ways that resemble the nondistribution constraint to which nonprofits are subject or the profit constraints applied in regulated industries. On its own, such a rule would not commit the seller to any particular division of surplus, but would instead specify that the additional amounts collected through price discrimination would remain within the ecosystem of the product line or otherwise be applied to the benefit of consumers.

How could a seller make this kind of credible commitment? Simply making clear and comprehensible representations at the point of sale could put significant reputational capital at stake, just as other forms of guarantees and representations about product quality already do. I will consider below the potential role of law in structuring and polic-

ing such communications by setting requirements for transparency, standardizing formats, and enforcing against misrepresentations.[204]

Another potential check on sellers comes in the form of competition or threat of entry by rivals. Price discrimination need not imply market power,[205] and even presently dominant firms may be vulnerable to rivals entering the field if they persistently reap supernormal profits. To the extent that buyers perceive sellers to be operating in a competitive environment, or one in which new entry is a very real possibility, the market conditions themselves would provide a form of assurance. Sellers who already find themselves constrained in this fashion would be giving up little or nothing by communicating surplus division rules that return the bulk of the gains from price discrimination to consumers; efforts to do otherwise would not be sustainable as a business practice.

Even the most credible, verifiable, and enforceable constraint on sellers' extraction of surplus may not address how surplus will be divided up among customers. Hence, buyer-buyer surplus division rules, either express or implicit, would also be necessary.[206] We could imagine a variety of distributive objectives that such rules might pursue, either singly or in combination, such as (a) reciprocity over the long run; (b) providing access to goods to those who could not otherwise afford them; or (c) advancing horizontal equity and non-suckerdom among those who are similarly situated. Different distributive rules will appeal to different buyers, and acceptance of any given rule is likely to be heavily context-dependent. Sellers might specify that surplus will be divided up in some particular way among consumers, or that no buyer will receive worse terms than any other similarly situated buyer.[207]

A given surplus division protocol might combine buyer-seller and buyer-buyer rules into a single edict. For example, we might imagine a Rawlsian approach: divide the surplus in such a manner as to maxi-

204. *See* discussion *infra* Part IV.D.

205. *See* Levine, *supra* note 33.

206. An implicit division of buyer-buyer surplus might flow from the demand elicitation mechanism. *See infra* Part IV.B.2. To take a simple example, a PWYW approach divides up surplus among buyers based on the relationship between their actual valuation and their chosen price.

207. "Similarly situated" is the key term here. Differential treatment among buyers is the hallmark of price discrimination. Nonetheless, within particular subgroups or tiers, there might be an equal treatment condition that could operate similarly to a "most favored nations" provision in other assembly contexts. *See, e.g.*, Doug Lichtman, *Patent Holdouts in the Standard-Setting Process*, ACAD. ADVISORY COUNCIL BULL. (Progress & Freedom Found., D.C.), May 2006, at 11–12, https://doi.org/10.2139/ssrn.902646 (discussing the use of most-favored nations clauses in patent contexts, wherein licensees couple royalty payments to known patent holders with guarantees to match any higher royalty rates that may later be paid to other patent holders).

mize the surplus enjoyed by the least-well-off consumer.[208] In some cases, maximizing the surplus for the least-well-off will require granting some extra surplus to the supplier today to fund or incentivize investment and development tomorrow. Further, maximizing the surplus available to the least-well-off is dependent on the surplus being made available in the first place, which is dependent on the participation of all those necessary to cover the requisite fixed costs.[209]

Although the kinds of surplus division rules we could dream up are limitless, there are practical constraints on the kinds of surplus division restrictions that can plausibly be the subject of credible commitments, capable of being monitored and enforced in some fashion.[210] It would be difficult for a contract to specify in enforceable terms a Rawlsian rule of surplus division, although a company could certainly state such an aspiration and provide disclosures aimed at backing up its efforts to pursue that goal. By contrast, sellers could credibly guarantee that excess payments beyond covering production costs would be plowed back into the same product line. Alternatively, sellers could commit to return any excess (over what is necessary to sustain a particular chunk of production) to customers according to some formula, whether through rebates, future price reductions, or store credit. Other constraints might take in-kind forms, such as a commitment to keep a good available for a particular span of time once a given revenue threshold is reached, or a route for allowing high-paying customers to have some input into future product development.

Another alternative would be some means by which a consumer could track the benefits (if any) she receives from a pricing system. In some contexts, consumers might alternate positions over time in paying more or less than their share of fixed costs. Here, a vendor might provide a shadow reference price for each product to track how much people are underpaying and overpaying across a given accounting period as they participate in a particular retailer's price discrimination system. To avoid gaming, these numbers could be tied to the average uniform prices offered by rivals. A consumer who can see for herself

208. *See* JOHN RAWLS, A THEORY OF JUSTICE 78–83 (1971).

209. This analysis tracks the traditional Rawlsian analysis in which a society permits inequality that works to the benefit of the least-well-off. *See id.* For a similar defense of monopoly pricing, see RICHARD A. POSNER, NATURAL MONOPOLY AND ITS REGULATION, 86 (1999) ("If in pursuit of distributive equality society impairs the conditions that would encourage natural monopolists to minimize costs, to innovate, and to price efficiently, it may harm the intended beneficiary of its efforts—the consumer—more than it helps him.").

210. Consumer control of a firm can expand opportunities to monitor surplus division and to participate in shaping organizational goals. *See* Avner Ben-Ner, *Nonprofit Organizations: Why Do They Exist in Market Economies?*, *in* THE ECONOMICS OF NONPROFIT INSTITUTIONS: STUDIES IN STRUCTURES AND POLICY 94 (Susan Rose-Ackerman ed., 1986) (discussing the role of consumer control in supporting price discrimination by nonprofits and consumer cooperatives).

that she is benefiting on net over the long run might not require the same sorts of externally enforceable commitments.

Where a buyer simply chooses her own price, she can control the amount of surplus she will receive from the deal, but not what others will receive. When she instead submits a valuation and the seller then chooses a price (subject to the profit constraint above), the seller can determine the relationship between stated valuations and prices, and hence the imputed distribution of surplus.[211] For example, a pricing scheme might be structured so that customers cover fixed costs in proportion to their valuations. These possibilities interact with the way that valuations are elicited—our next topic.

2. Demand-Eliciting Rules

A voluntary price discrimination system opens up the possibility of attempting to directly elicit demand, if appropriate safeguards can be added to reassure customers that this will be in their interest and if a mechanism can be devised for carrying it out. Here, as in other contexts where private information can jeopardize efficient outcomes, finding a mechanism for eliciting meaningful valuations presents a challenge.[212]

We can start by considering two alternatives that we would not expect to elicit accurate valuations: an open-ended PWYW system (through which the buyer can obtain the good at any positive price, or at zero price); and a pay-your-bid system like Priceline's (now discontinued) Name Your Own Price feature, in which the buyer makes a bid that, if accepted, will automatically complete the transaction at that price, but that may be rejected without further recourse.[213] Both of these systems could be expected to induce underbidding, the former because there is no connection between the amount paid and one's opportunity to obtain the item, and the latter because giving a true WTP consigns one to receiving no surplus at all.[214] In both systems, the stated amount directly determines one's payment obligation.

To say that a voluntary system does not elicit accurate valuations does not mean that it is unable to produce any price discrimination at all. Any voluntary system through which the buyer stands to gain from excess payments (either by enjoying the benefits of continued product availability or the warm glow of making it more broadly available) may produce some such contributions, and the nonprofit case shows

211. The imputed surplus would be the difference between the customer's stated valuation and the price. This would diverge from actual surplus to the degree that the valuation elicitation protocol is not incentive compatible.

212. *See supra* note 186 and accompanying text.

213. Under this protocol, the buyer extended a put option to the would-be seller that gave the seller the right but not the obligation to complete the transaction at that price.

214. *See* Wertenbroch & Skiera, *supra* note 187.

that these may be substantial. All the same, it may be difficult to induce broad participation in an optional pricing scheme without some rule for dividing surplus among buyers,[215] and the accuracy of this surplus division depends in turn on what is known, or assumed, about valuations.

Suppose a seller has bound itself to only recovering production and development costs. A simple rule would be to allocate the fixed costs of production in a manner proportionate to stated valuations, with all buyers also paying the marginal costs of the units they consume. To extend an example introduced earlier,[216] imagine that fixed costs are $40, marginal costs are zero, and A, B, and C (the only potential customers) value the good at $50, $40, and $10, respectively. If the fixed costs were allocated in proportion to valuations (assuming for the moment that these can be perfectly known), then A would pay $20, B would pay $16, and C would pay $4. Notice how this divides the surplus (valuation minus price): A gets $30, B gets $24, and C gets $6. A is paying the most but is still receiving the largest share of the surplus.[217]

This approach is mathematically equivalent to one version of a provision point mechanism for funding a public good.[218] Although these mechanisms typically refund all payments if the stated threshold is not reached, different versions of the mechanism vary in their treatment of payments that cumulatively exceed that threshold.[219] Under one specification, donors receive refunds of any excess amounts, scaled to their original contributions.[220] If we take each original contribution to represent a rough proxy for the donor's valuation, then the amounts refunded represent surplus that will track that valuation pro rata, just as in the retail example above. These refunds reduce the cost of choosing a higher contribution level and ensure that each person's net payment bears the same relationship to her initial offer as everyone

215. Bundling provides a possible exception. It implicitly divides surplus among the bundle-buyers depending on the extent to which their total valuations of the component parts exceed the uniform bundle price, yet buyers may be willing to participate based on personally receiving enough surplus to make the bundle worthwhile, without knowing or caring whether others might be receiving more.

216. *See supra* note 79.

217. The same relationship between the rank ordering of valuations and of buyer surplus holds whenever valuations are used to allocate costs, regardless of the particular numbers used. The only exception is the case where the costs exactly equal the sum of the valuations (in which case everyone has to be charged their valuation and no one gets any surplus at all).

218. *See supra* note 4 and accompanying text.

219. *See, e.g.*, Stephen K. Swallow et al., *The Bobolink Project: Selling Public Goods from Ecosystem Services Using Provision Point Mechanisms*, 143 ECOLOGICAL ECON. 236 (2018), https://doi.org/10.1016/j.ecolecon.2017.06.040 (presenting results of an experimental design that varied the way that payments were handled in soliciting donations for Bobolink habitat preservation).

220. *See id.* at 240 (describing this "proportional rebate" mechanism).

else's.[221] Interestingly, this framing, which emphasizes that a higher valuation implies a higher refund, might prove more useful in eliciting accurate valuations than a frame that emphasizes the relationship between one's valuation and the amount one must pay.[222]

Nonetheless (and regardless of framing), buyers would still have an incentive to understate their valuations in this system, because the higher the valuation, the higher the share of fixed costs to be borne. Unreliable valuations could undo the advantages of price discrimination, potentially keeping the good from being produced at all. On the other hand, the fact that an understated valuation might contribute to the good's unavailability provides some check on this strategy, at least where the good is somewhat unique, and the valuations of the other parties are unknown. This method also guarantees that no person submitting a higher valuation would enjoy less (imputed) surplus than anyone putting in a lower valuation.[223]

Another alternative would be for one tier of consumers ("supporting customers") to split the fixed costs evenly while another tier ("benefiting customers") would receive the good at marginal cost. While everyone would want to be a "benefiting customer" (putting aside altruistic motives), it would be possible to design a club-like structure in which one can only be a benefitting customer if you have built up credit as a supporting customer in the past or meet other criteria (perhaps similar to those already used in price discrimination settings, like being older or younger). Once again, free riding comes at the potential risk of the good not being available at all.[224]

Could an incentive compatible mechanism for eliciting valuations be successfully used instead? One of the most well-known demand elicitation techniques used in experimental settings is the Becker-DeGroot-Marschak ("BDM") method.[225] It is remarkably simple, and

221. *See id.*

222. Although it might modestly increase transaction costs, sellers might find it useful to add features to the online purchase interface that give users the palpable experience of getting a refund back based on their valuation, even if this occurs prior to any money actually changing hands.

223. This is because the valuation determines the share of the net benefits that the individual will receive from the product, as well as the share of the costs she will bear. Both surplus and costs are necessarily allocated in accordance with the individual's valuation. This is made vivid in the provision point mechanism framing, which relies on proportional refunds; what is being given back is the donor's share of the surplus. *See* Swallow et al., *supra* note 219, at 240.

224. Put in game theory terms, buyers who hope to collectively contribute enough to cover the large fixed costs of a good do not face a Prisoners' Dilemma, but rather something more like a Stag Hunt or Chicken Game, where there are multiple equilibria and each party's best move depends on what she expects others to do. *See, e.g.*, THOMAS C. SCHELLING, THE STRATEGY OF CONFLICT 54–58 (1960); Robert B. Ahdieh, *The Visible Hand: Coordination Functions of the Regulatory State*, 95 MINN. L. REV. 578, 618–19 (2010); Richard H. McAdams, *Beyond the Prisoners' Dilemma: Coordination, Game Theory, and Law*, 82 S. CAL. L. REV. 209, 212 (2009).

225. Becker et al., *supra* note 188.

study participants report finding it very easy to understand.[226] The participant is presented with the opportunity to buy an item (such as a Coke), and is asked to state "the highest price you would be willing to pay."[227] The researcher then explains that the actual purchase price will be drawn from an urn populated with balls marked with different prices, with the following consequences: If the participant's stated valuation is higher than the drawn price, the participant must pay the drawn price and buy the item then and there. If the participant's stated valuation is lower than the drawn price, then the participant loses the chance to buy the item.[228] Because the purchase price is selected at random, independent of the participant's stated valuation, the method is incentive compatible (at least assuming that the study participant does not think the information will be used in some additional way, outside the study).[229] It is always best to state one's maximum acceptable purchase price.

This valuation technique grants the seller a special kind of put option enabling it to force a sale to the buyer at a price at or below the valuation. But the applicable strike price is contingent on what is drawn, subject to the stated cap. This approach cannot simply be grafted as-is into a retail setting because a seller who needs to cover fixed costs cannot make the payment from each customer a random function of an urn draw. For price discrimination to work, it needs to differentiate among customers based on their valuations,[230] whereas the BDM method's power to elicit honest valuations comes from attenuating prices from valuations. But could some variation or adaptation of this approach offer a way to operationalize opt-in price discrimination?

Put differently, is there a feasible way to at least partially attenuate valuations from prices? The method of allocating fixed costs in proportion to valuations accomplishes a small degree of attenuation (in that you don't pay the full valuation, but rather a fraction), and, as noted, it does guarantee surplus at least as great as that for any lower valuer. But it would be possible to go further by, for example, keying the allocation of fixed costs to the valuation of the next lowest valuer in a particular valuation round.[231]

226. *See* Wertenbroch & Skiera, *supra* note 187, at 231–32.

227. *Id.* at 239–40.

228. *Id.* Even though fungible items (e.g., Cokes) may be involved, the study setting may limit outside options. *See id.* at 231 (study conducted on a beach or on a ferry).

229. *Id.* at 230.

230. Even with a wholly random draw, a larger percentage of transactions will be completed in expectation (that is, a larger share of the total urn distribution will be at or below the stated price) the higher the stated valuation. But it would complete many of these transactions at too low a price given the valuation, while at the same time locking out many customers with lower valuations (based on a randomly high price draw).

231. The rationale for this approach would track that for a second-price (or "Vickrey") auction, in which the bidder with the highest bid wins but must pay only

Another possibility would be to assign buyers to tiers based on whether their valuations were above or below some (undisclosed) threshold and then randomize the prices to be paid (à la BDM) within each tier, using a distribution of prices designed to ensure cost recovery overall. For example, everyone with a valuation between $4 and $5 might be assigned to a tier where the price could vary randomly between $3 and $6. An understated valuation might (or might not) result in access to a lower range of randomized prices, but it would invariably entail the risk of losing out on the chance to purchase the good at a favorable price. Placement in a higher tier could also come with certain benefits like earlier access to a good or priority of some kind in other rounds.

So far, I have focused on self-reported valuations. But the increasingly vast aggregations of data about consumers offer another alternative, the very one that has given rise to many of the concerns surrounding price discrimination: inferring WTP from past behavior. An opt-in price discrimination system could simply amount to a buyer allowing the seller to use the information it has already amassed to estimate that buyer's WTP.[232] This option would sidestep the concerns about misstated valuations but introduce new ones, including the possibility that consumers would try to manipulate the system,[233] and the converse possibility that merchants could simply get customers to click an "OK" box (like all the other annoying boxes that must be closed to proceed with a transaction) and thereby get them to unwittingly agree to a price discrimination system that might not come with the guarantees and protections discussed so far.[234] While alternative ways of estimating WTP should not be ruled out categorically, stated valuations would represent an especially salient and active way of opting in that might require less governmental oversight against abuses.[235]

3. Transaction-Defining Rules

Defining the bounds of a given transaction for purposes of demand revelation and surplus division is important for two reasons that push in opposite directions. First, as already suggested, buyers will be con-

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the amount of the second-highest bidder. *See* William Vickrey, *Counterspeculation, Auctions, and Competitive Sealed Tenders*, 16 J. FIN. 8, 20–21 (1961), https://doi.org/10.1111/j.1540-6261.1961.tb02789.x. Under this approach, a bidder with an idiosyncratically high valuation can bid her true valuation with confidence, knowing that she will not have to cover the increment of her valuation that is unique to her. *See id.*

232. *See generally* Klaus M. Miller et al., *How Should Consumers' Willingness to Pay Be Measured? An Empirical Comparison of State-of-the-Art Approaches*, 48 J. MKTG. RSCH. 172 (2011), https://doi.org/10.1509/jmkr.48.1.172 (discussing alternative ways to estimate WTP).

233. *See* Barry et al., *supra* note 73, at 728–29, 762–65.

234. On deceptive and misleading website interfaces, see generally Jamie Luguri & Lior Jacob Strahilevitz, *Shining a Light on Dark Patterns*, 13 J. LEGAL ANALYSIS 43 (2021).

235. *See* discussion *infra* Part IV.D (addressing the government's role).

cerned about valuations disclosed in one context being used in another, more problematic context.[236] Anonymizing user inputs could address this concern, although consumers will likely be skittish about data leaks and nefarious uses by the same seller or other sellers. This type of concern suggests consumers would be more comfortable with a narrow transaction scope.

Second, and cutting in the other direction, are the opportunities for reciprocal advantages that arise from repeated interactions over time and across products. If a given consumer's valuations of different goods and services are not well-correlated, iterated rounds of price differentiation can produce net gains in a manner similar to more traditional forms of bundling (as seen in the examples involving streaming services, subscriptions, and so on). Thus, one of the ways that a consumer might be convinced that optional price discrimination is in her interest would be by observing that her excess payments in some situations would be more than counterbalanced by the ability to obtain a below-average-cost price at other times—something that might be facilitated by conceptually grouping these transactions together. This consideration pushes for a broader transaction frame.[237]

Different merchants may choose different strategies with respect to transaction framing. A merchant who offers a lot of different goods that are differentially valued by different consumers (think Amazon) is in the best position to offer an ongoing program of voluntary price discrimination that could sell itself through reciprocal benefits. By contrast, a seller who has only a narrow and value-correlated set of goods to offer might be in the best position to follow a "firewalling" strategy that guarantees the valuations will be used only in that specific context. Such a seller might be able to provide high valuers with ongoing advantages that relate to the very niche-ness of the enterprise, including the continued availability of products and services tailored to their needs and interests.[238]

C. *Some Possible Models*

The discussion to this point has suggested a variety of potential benefits of price discrimination and a variety of potential methods for pursuing those benefits through voluntary methods of price discrimination. To connect these threads, I offer a very brief sketch of three prototypes here, keyed to three different ways that consumers might find optional price discrimination attractive. The first involves support of niche markets that might wind up underserved in the absence of

236. *See* Steven H. Hazel, *Personal Data as Property*, 70 SYRACUSE L. REV. 1055, 1063–68 (2020) (noting "the problem of onward transfer" given the structure of personal data markets).

237. For discussion of transaction frames in a different context, see Daryl J. Levinson, *Framing Transactions in Constitutional Law*, 111 YALE L.J. 1311 (2002).

238. See discussion *infra* Part IV.C.1.

price discrimination. The second involves supporting expanded access to goods and services that would be produced in any event, but at suboptimal levels. The third relies on bundle-building (across products and over time) to return benefits to consumers.

1. Niche Market Support

One of the primary benefits of price discrimination is its ability to support the production of goods that generate aggregate benefits in excess of aggregate costs, but for which no uniform price exists that would cover those costs.[239] This situation can occur when there are large fixed costs to make a particular product available at all (whether owing to the innovation involved or indivisibilities in production processes). Niche markets may have this structure if there are not enough buyers among whom the fixed costs can be spread at a price point that enough of them can or will pay. The average cost curve may lie above the demand curve at every point.

Because a niche market presents the risk that goods may not be made available at all, high valuers have an incentive to voluntarily participate in price discrimination schemes that will allocate the fixed costs in a way that ensures a given good's production. This is the story Hansmann tells for cultural goods like opera that have high fixed costs and rely on large donations.[240] But it could also be the case for consumer goods that have a large fixed cost component. The availability of the good can be incentive enough for some consumers, especially if combined with an altruistic desire to make it more broadly available to others who are not in a position to share in covering fixed costs. Any number of highly specialized products or services related to unusual hobbies, health conditions, or lifestyles might be developed or made more widely available through a price differentiation mechanism. A checkout interface for a niche good could prompt buyers to contribute additional amounts to go to further research and development of related products, or to broaden access for the good in question.

Even ordinary goods like clothing may be undersupplied in particular styles or sizes that are less commonly purchased.[241] Consider how a voluntary approach might work in this context. A person who buys a niche size of clothing might receive a message like: "Would you like to add an amount to your total to help keep this size available and in stock for you and others? Any excess we receive beyond the costs to make this product available in this size will be put toward price reductions and new product designs for this size range." Or suppose instead

239. *See* discussion *supra* Parts II.C.2–3.

240. *See* Hansmann, *supra* note 3, at 343.

241. *See, e.g.*, Steve Lubet, *A Slight Affront*, FAC. LOUNGE (Mar. 7, 2022, 4:45 AM), https://www.thefacultylounge.org/2022/03/a-slight-affront.html [https://perma.cc/BQE3-43JU] (noting the lack of off-the-rack clothing options for shorter or smaller men).

that a person buys a popular size. They might receive a message like: "Would you like to add an amount to your total to ensure that this product is kept in stock and available for people with all body sizes and types? Any excess over the amounts needed to serve all our customers will be put toward price reductions and new product designs."

The extra payment options offered under these models might be free-form or structured.[242] Customers might have the opportunity to set up a profile that would let them opt in sitewide to prices that have been enhanced to support the market in their sizes or suited to their special needs, with some additional perks attached to that alternative. For items amenable to repeat purchases, customers could submit a "keep it available" price that indicates a willingness to pay more on future occasions if it is necessary to keep the product line going. Many other variations are possible, and merchants could experiment—as long as appropriate safeguards are in place to protect against forms of pricing that discriminate against protected groups,[243] and as long as the information conveyed about pricing and the use of excess funds is accurate and transparent.[244]

Customers in niche markets gain option value from having goods and services available even when they are not immediately in a position to make a purchase, and even if they do not ever make a purchase.[245] More broadly, consumers as a whole stand to gain from having more choice.[246] This does not mean that every variety of every good should be produced. But in cases where aggregate net benefits are sufficient to sustain niche goods, finding creative ways to spread their costs can generate welfare gains.

242. *See supra* notes 166–68 and accompanying text (discussing Everlane's model). On the structured end of the spectrum, a check-box in the purchase interface might prompt customers to contribute a set additional amount to a fund devoted to bringing a particular new product to market. This format would enable the merchant to provide continually updated information about how many more customers must check the box to cover the fixed costs of producing the new good. I thank Michal Gal for this example.

243. *See supra* notes 106–07 and accompanying text.

244. *See* discussion *infra* Part IV.D (addressing the government's role in enforcing against misrepresentations and ensuring transparency).

245. *See* Burton A. Weisbrod, *Collective-Consumption Services of Individual-Consumption Goods*, 78 Q.J. Econ. 471 (1964), https://doi.org/10.2307/1879478 (discussing the option or "stand by" value that consumers get from the existence of certain goods and services, such as national parks and hospitals, even if they are not currently using them); *see also* Henry Hansmann, *Economic Theories of Nonprofit Organization*, *in* The Nonprofit Sector: A Research Handbook 27, 36 (Walter W. Powell ed., 1987) (discussing option value as one motivation for donations to nonprofits).

246. There is an important caveat: Increased variety, by dispersing customers among a broader array of products, can keep economies of scale from being as fully exploited. That will raise prices for those whose favored goods would be produced in any event, relative to a world in which there was greater standardization. *See* Lancaster, *supra* note 113, at 332.

2. Fund It Forward

The niche market model above focused on cases where high fixed costs may make production of a good impossible through uniform pricing. Price discrimination can also be valuable in instances where a uniform price could support production of the good, but it would price many people out of the market who would be willing and able to pay the marginal cost of the units that they consume. Here, price discrimination expands access to goods that would be produced in any event.

In these cases, there exists a revenue-equivalent uniform price that would result in production of the good, although it would entail the deadweight loss of cutting some buyers out of the market.[247] This shadow uniform price can be used as a benchmark for assessing whether a particular buyer is paying more or less than they would if the seller were constrained to offer a uniform price. In a voluntary system, this shadow price would offer a means by which a seller could keep track of the extent to which a buyer's payment exceeds the level necessary for that buyer's consumption and helps to enable consumption by others who could not otherwise be served.

Although the most interesting applications of this idea might be intellectual property contexts featuring zero or near-zero marginal costs, the distributive benefits can be illustrated by considering a variation on the Panera PWYW model.[248] Suppose that instead of opening its doors to nonpaying customers without limit, Panera created a bank of meal assistance to which customers could add or withdraw. A similar approach has been recently used in a number of restaurants: people pay for extra meals, and tape some token on a wall that others can remove and redeem for a meal at the cash register.[249] But this model could be refined to avoid any stigma that might be associated with removing a free-meal token from a wall, and to enable people to make excess payments in less than full-meal increments. For instance, an interface at the cash register could allow customers to seamlessly and privately add to the reserve or draw from it when placing an order.[250] My point in raising this example is not to recommend it as a way of

247. *See, e.g.*, WILSON, *supra* note 7, at 24, 98.

248. *See supra* note 162 and accompanying text.

249. *See, e.g.*, Melanie Lawson, *New York Restaurant Owner Starts Pay It Forward Wall*, NEWS4JAX (Apr. 8, 2020, 5:02 PM), https://www.news4jax.com/news/morning-show/2020/04/08/new-york-restaurant-owner-starts-pay-it-forward-wall/ [https://perma.cc/RL4F-8H6R] (reporting on the "Pay It Forward" wall at Chickadee Human Eatery in New York); Maz Ali, *Sticky Notes Turn into 70,000 Pizza Slices for the Homeless*, USA TODAY, https://www.usatoday.com/story/news/humankind/2016/08/20/sticky-notes-turn-into-70000-pizza-slices-homeless/88953502/ (Aug. 24, 2016, 2:29 PM) [https://perma.cc/K4QR-JP4V] (similar system for prepaid pizza slices at Rosa's in Philadelphia). I thank Michael Morse for discussions on this approach.

250. An external signal similar to the Krispy Kreme "hotlight" could be illuminated (both at the restaurant and in an app) whenever reserve amounts remain available and extinguished when the reserve was exhausted. *See* Kate Bratskeir, *Krispy Kreme's Hot Light App Tells You When Donuts Are Fresh Out of the Oven*, HUFFPOST, https:/

delivering food assistance, but rather to provide a vivid illustration of how the extension of consumption opportunities might work under a voluntary system.

Consider how this model could work for the consumption of intellectual products like books, movies, and songs. Again, we could imagine many purchasers being willing to pay more than the shadow uniform price if the excess went to enable others to obtain the content at its marginal cost. Owners of intellectual property rights already offer similar models in limited circumstances, such as paid open access for academic works, but the idea could be extended. Suppose that each time you pay a personalized price, the system calculates the shadow uniform price necessary to cover a proportionate share of the fixed costs of production plus the marginal cost for your unit. You learn how much above this shadow price you paid, or how much below it, as well as whether and how your payment translated into additional access for others. The system might grant additional people access in real time as each "excess" dollar is received, or open up access to entire subsets of readers as aggregate returns reach predetermined levels. The public and charitable funding of libraries already works something like this, but sponsoring the consumption of others could be expanded and made more transparent. For instance, a counter could track and display progress toward access-triggering thresholds.

The question remains of whether anyone would be interested in funding the access of others when they could instead simply try to be a recipient of such a system. Here, the system might rely on norms of reciprocity or restrictions on the degree to which anyone can be a net taker, although this would reduce the distributive benefits. Carrots for net contributors might include recognition within the platform and the ability to get priority access to particular goods or services. People might take pride in improving the access of others, especially if benefits flow in both directions. Over time, we might see a modern digital equivalent of the "Even-Up" strategy Robert Ellickson observed among Shasta County ranchers, at least on platforms where parties repeatedly interact and gain reputational capital.[251] But the idea of reciprocity could be baked in more formally with a bundling approach, discussed next.

/www.huffpost.com/entry/krispy-kreme-hot-light-app-fresh-hot-nice_n_7276544 (Dec. 6, 2017) [https://perma.cc/J42T-HXV2].

251. *See* ROBERT C. ELLICKSON, ORDER WITHOUT LAW: HOW NEIGHBORS SETTLE DISPUTES 226–29 (1991) (describing iterated interactions among neighboring ranchers who tolerate minor and temporary imbalances in their "interneighbor accounts" but achieve rough reciprocity over time).

3. The "Pay Your Value" Club

Price discrimination is often carried out through bundling. As we have already seen, when different consumers value different parts of the bundle in uncorrelated ways, a price for the entire bundle can leave both sellers and buyers better off. But why should such bundling be limited to the sets that sellers construct? Imagine a "Pay Your Value" club that might be offered by a large seller which carries a wide variety of products with high-fixed-cost components (such as books or albums) that are differentially appealing to its many customers. Buyers could reveal their valuations for each desired good, and thereby create a put option that would let the seller complete a sale of that good to them at any price at or below that amount. However, the seller would bind itself to only exercise these options as bundles in which the buyer is made at least as well off as she would be under whatever uniform pricing would otherwise obtain for those goods.

Thus, the shadow uniform price would serve as a benchmark, and accumulated amounts paid above that level would entitle buyers to credits for receiving other goods at lower amounts, with the marginal cost of a given unit serving as the lower bound. The bundling could be extended over time, with additional low-valued items included as new high-valued items are purchased. The capacity of a large retailer to keep a running tally that measures the overall balance of payments above and below the shadow uniform prices would enable customers to track the extent to which a price discrimination system delivers them net benefits compared with a uniform price system. Such an approach bundles in two dimensions, across time and over products. Further bundling among members of families or other groups could increase the degree to which people experience reciprocal benefits from the system.[252]

D. *The Government's Role*

Some scholars have argued that antitrust law should do more to police price personalization.[253] The approach here sidesteps that debate. Instead, I suggest that some of the most important advantages of price discrimination could be achieved, without significant corresponding disadvantages, through optional forms of the practice. Because I have in mind a voluntary system, the government would not dictate the price structures that firms can offer to their customers.[254]

252. *Cf.* Lee Anne Fennell, *Sizing Up Categories*, 22 THEORETICAL INQUIRIES L. 1, 20–23 (2021) (discussing bundling across time and groups of people to produce offsets in contexts like insurance).

253. These proposals begin from the premise that modern antitrust law does little to address many types of price discrimination. For an overview, see Mehra, *supra* note 2, at 204–17. *See also* Woodcock, *supra* note 2.

254. There is therefore no need to establish, as a predicate, that certain personalized prices violate antitrust laws. *See* Woodcock, *supra* note 102, at 1459–60 (propos-

Instead, producers would offer the kinds of pricing arrangements to consumers that would induce their willing participation. In a well-functioning market with sufficient protections against fraud and misrepresentation, this would require that consumers—including high-valuing ones—are made better off as a result of the pricing protocol than they would be under uniform pricing.

Government involvement remains necessary, of course. But its role would be a facilitative one aimed at making sure that consumers understand what they are getting and that producers provide what they are promising. Advancing these goals would require certain disclosures from producers offering optional price differentiation, as well as standardized formatting designed to meaningfully communicate terms. The government would need to be involved, as it has been in other consumer markets (such as mortgages), to manage the information flow between producers and consumers, both to promote transparency and to ease enforcement. Requiring specific disclosures in a comprehensible format would provide a legal hook for addressing fraud and misrepresentation as to both pricing and data use.

The government could also encourage sellers to experiment with voluntary models by cabining the risk of legal exposure. For instance, producers meeting specified standards might be afforded a safe harbor from antitrust liability for optional price differentiation.[255] Although a full specification of these standards is beyond the scope of this Article, some important guardrails might include: (1) certain markers of voluntariness, such as offering customers a uniform or base price as an alternative;[256] (2) properly formatted disclosures about pricing, treatment of surplus, and use of data; and (3) avoidance of below-marginal-cost pricing that might suggest a predatory pricing scheme aimed at driving out competition.[257] The government could also help underwrite experimentation with voluntary models as an adjunct to its current role in subsidizing important products and services that might otherwise be unable to cover their fixed costs.

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ing that enforcers "treat the personalization of high prices to consumers as an antitrust violation" in order to "allow enforcers to press every firm that has developed the ability to personalize prices into service in redistributing wealth").

255. Liability would still attach for violating other laws (e.g., antidiscrimination or consumer protection laws).

256. *Cf.* Paul Belleflamme et al., *Competitive Imperfect Price Discrimination and Market Power*, 39 MKTG. SCI. 996, 1007–08 (2020), https://doi.org/10.1287/mksc.2020.1234 (observing that a requirement that sellers engaging in price profiling make uniform list prices public benefits consumers by placing an upper bound on personalized pricing).

257. *See* Christopher R. Leslie, *Predatory Pricing Algorithms*, 98 N.Y.U. L. REV. (2023); *see also* Einer Elhauge, *Why Above-Cost Price Cuts To Drive Out Entrants Are Not Predatory—and the Implications for Defining Costs and Market Power*, 112 YALE L.J. 681, 703–26 (2003) (considering a variety of ways of defining costs to determine what counts as pricing below cost and urging a functional approach).

I envision that these forms of price discrimination would be optional for producers as well as consumers—no firm would be required to adopt them, and all firms would be free to continue with any other legally permissible way of setting prices.[258] But making pricing attractive enough to win approval from consumers would offer insulation against being undercut by new entrants, while complying with the standards for voluntary price discrimination would provide protection against claims of anticompetitive conduct. Meanwhile, ordinary consumer protection laws—disclosure, standardization, and fraud protection—can ensure that merchants make clear, and adhere to, their own claims about how price discrimination will be used.

Another question is whether merchants that engage in any form of price discrimination must be required to disclose it, even if (especially if) they are not binding themselves to consumer-friendly practices.[259] I don't take a position on that here. The existence of widespread optional price discrimination subject to disclosed terms should encourage firms that do not price discriminate (at all, or in particular ways) to advertise that fact.[260] We could imagine merchants placing highly visible statements on their websites and print advertising, such as: "Your price will never depend on information we have about you." These statements, too, could be policed for fraud. A merchant who doesn't say anything about how they are using information to inform pricing might suffer from the negative inference that they are likely surreptitiously using information to tailor prices.[261]

Price differentiation that contains a specified bundle of consumer-protective guarantees and that is aimed at broadening access to products and services could be legally distinguished from other forms of price discrimination. It could be given a distinctive name that emphasizes its treatment of the surplus generated by the differentiated pricing system, such as "consumer surplus pricing." This rebranding, if backed by compliance with government standards, could make optional price differentiation much more attractive to consumers, put-

258. This could include any legal forms of price discrimination that customers do *not* voluntarily choose. Whatever the merits may be of making other changes to antitrust law, I do not take them up here.

259. *See, e.g.*, Wagner & Eidenmüller, *supra* note 2, at 590 (arguing for a disclosure requirement for personalized pricing, and noting that existing EU law may already create such an obligation); Moriarty, *supra* note 101, at 495 (arguing that "online retailers should either disclose that they are personalizing prices, or stop doing so").

260. *Cf.* Levmore & Fagan, *supra* note 8, at 1525 (suggesting that the voluntary provision of pricing information by some merchants could lead to the spread of the practice).

261. *See, e.g.*, Paul R. Milgrom, *Good News and Bad News: Representation Theorems and Applications*, 12 BELL J. ECON. 380 (1981), https://doi.org/10.2307/3003562 (discussing negative inferences of nondisclosure); S. J. Grossman & O. D. Hart, *Disclosure Laws and Takeover Bids*, 35 J. FIN. 323 (1980), https://doi.org/10.1111/j.1540-6261.1980.tb02161.x (discussing incentives to disclose in the absence of legal requirements to do so, where false statements are illegal and information is verifiable).

ting pressure on more traditional and surreptitious forms of price discrimination.

V. Conclusion

In an age when concerns about exploitation through data collection and use run high, reflexive aversion to price discrimination is not hard to understand. But the online interfaces that give rise to these concerns may also provide new opportunities to expand surplus for buyers as well as sellers. While uniform prices offer simple, determinate solutions to questions of surplus division, their aura of efficiency and fairness breaks down on closer inspection. The way in which they spread fixed costs among consumers can leave money on the table in the form of depleted product offerings and unserved consumers. Optional price discrimination, as explored in this Article, allows firms to reallocate their costs in ways that make their customers better off—both collectively and individually. By enabling the production of a wider array of goods and services, and by expanding their availability to more consumers, optional forms of price differentiation can make markets fairer and more inclusive—the opposite of what "discrimination" connotes.