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Much Ado About Price Discrimination

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Online selling technology raises the specter of widespread dynamic pricing, or *price discrimination* (PD). Articulating a widely held view, Paul Krugman writes, "[D]ynamic pricing is undeniably unfair: some people pay more just because of who they are." Implicit in this view are two claims: (C1) PD is unfair because it violates the *equal treatment* norm; and (C2) equal treatment of buyers by sellers requires *unitary pricing*—the same price for one and all. These claims may be thought to underwrite a third: (C3) PD ought to be met with public policy initiatives deterring it. I argue that this view is mistaken: (1) On any reasonable concept of equal treatment, buyers are treated *more* equally under PD. (2) Although some public policy initiatives aim to deter PD; it is not because PD treats *some* buyers unfairly with respect to *other* buyers. (3) Despite emerging online selling technology, PD promises to be *ephemeral*.

Introduction

The advancing technology of electronic commerce (e-commerce) raises the specter of widespread and more sophisticated price discrimination or, as it is often called in e-commerce, *dynamic pricing*. Discovery of their experiments in dynamic pricing and the ensuing public outcry led Amazon.com (Amazon) both to apologize publicly for and to abandon the practice:

> In September 2000, Amazon.com got headlines when customers found that the same DVDs were being offered to different buyers at discounts of 30, 35, or 40 percent. Amazon insisted the discounts were part of a random "price test," but critics suggested they were based on customer profiling.

> After weeks of bad press, the firm offered to refund the difference to buyers who had paid the higher prices. The company vowed it wouldn't happen again.[1]

In a recent and widely remarked upon paper, Andrew Odlyzko predicts that online price discrimination will become both more common and more cleverly concealed.[2] It will become more common because advances in technology will permit firms to more accurately estimate a buyer's reservation price. It will be more cleverly concealed through marketing strategies such as personal bundling (i.e., offering consumers a basket of goods at a single price that is unlike other baskets offered to other consumers and hence not directly price comparable) because of the negative public reaction price discrimination elicits when it is practiced transparently.

Price discrimination strikes most people as being *unfair*. In a *New York Times* column written in the aftermath of the Amazon controversy, Paul Krugman articulates this widely held view: "[D]ynamic pricing is undeniably unfair: some people pay more just because of who they are."[3] Because of the outrage that dynamic pricing generates, Krugman predicts that it may become a major consumer and perhaps even political issue.[4]

In the present article, I argue that the widely held view about the unfairness of price discrimination is untenable; fairness considerations incline either no more against or else strongly in favor of price discrimination, as against other pricing regimes. Although there exist public policy initiatives intended to combat price discrimination (e.g., the Robinson-Patman Act), these are motivated by concerns far different from those informing Krugman and most others who claim that price discrimination is unfair. Whatever the concern, it is generally believed that the specter of widespread price discrimination calls for new public policy initiatives designed to deter it. To the contrary, I argue that price discrimination promises to be ephemeral and, where it does not, if there is legitimate locus of concern, it is not price discrimination but *monopoly power*—for the deterrence of which a well-developed public policy apparatus exists already. Consequently, the prudent public policy response is a dispositionally conservative one: Launch no new initiatives.

Ground Rules

In this exploration of price discrimination, I will say nothing about the current state of online selling technology. No argument will turn on its limitations. Every argument will be compatible with the assumption that sellers possess the means to predict potential customers' reservation prices[5] exactly.

Similarly, no argument that I advance will turn on the efficiency-enhancing characteristics of price discrimination; for example, marketable products with high fixed costs but low variable costs.[6] The principal complaint against price discrimination is that it is unfair. It is a widely held intuition that fairness considerations, in most cases, most of the time, have normative priority over efficiency considerations. Whatever the merits of that intuition, no argument of mine will depend upon overthrowing it or claiming that price discrimination presents a case in which efficiency considerations should trump fairness.

By the same token, no argument I advance will turn on the fact that there exists widespread opposition to price discrimination or that sellers known to be practicing price discrimination tend to lose business for that reason. All of my arguments are equally compatible with public ignorance of or indifference to price discrimination.

Finally, I will say nothing about privacy. I take it as uncontroversial that if online sellers gather information about their prospective customers in ways that violate customers' privacy rights, that conduct is wrongful. It is wrongful *irrespective* of the uses to which the information acquired is subsequently put because *the manner of its gathering* is violative of those rights. We gain a clear picture of price discrimination's moral contours by considering the case where price discrimination is practiced on its own, rather than where it is practiced in conjunction with other, obvious wrongs.[7]

Price Discrimination and Fairness

Two claims inform the view that price discrimination is unfair to some buyers as against others:

C1. Price discrimination is unfair because it violates the *equal treatment norm*.

C2. Equal treatment of buyers by sellers requires a *unitary price*—the same price for one and all.[8]

Taken in conjunction with the observation that online selling technology promises to make price discrimination both more prevalent and more sophisticated, these two claims may be thought to underwrite a third:

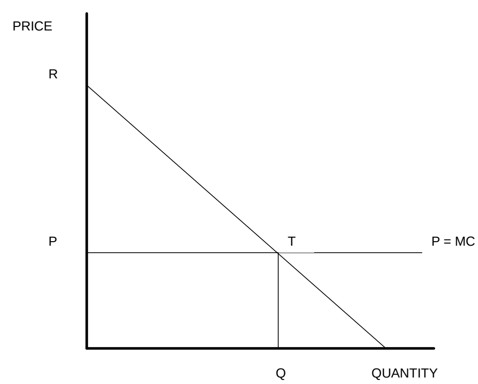
C3. Online sellers practicing price discrimination ought to be met with public policy initiatives intended to deter price discrimination.

Presumably, the equal treatment norm is apt because buyers differ in no relevant respect that could underwrite disparate treatment. If price discrimination is an example of disparate treatment, and there exists no relevant distinction among buyers that could justify disparate treatment, then price discrimination is for that reason unfair.

If price discrimination is unfair because it violates the equal treatment norm, there remains the question of what treatment the equal treatment norm demands of sellers. The view C2 articulates that equal treatment of buyers by sellers demands a unitary price—the same price for one and all. The appeal of unitary pricing is presumably that it affords all buyers *equal welfare* or perhaps equal welfare *diminution*. Under a unitary pricing regime, all buyers are out-of-pocket to the same degree; each surrenders the same to get the same. The visceral appeal of this view is obvious, but it raises an important question: Is out-of-pocket expense a welfare measure?

Figure 1

Competitive Market Equilibrium



Consider the market demand curve, familiar from introductory economics (see Figure 1). The market demand curve represents the quantities of a good or service that the market demands at different prices. For each price represented on the vertical axis, there is a quantity of the good or service demanded at that price represented on the horizontal axis. In Figure 1, at price P, Q units are demanded. The market demand curve is thus a kind of graphical input-output matrix, in which prices are inputs and quantities demanded are outputs, or *vice versa*. It is also something less obvious: Because quantities demanded vary inversely with price, the market demand curve is a *schedule of reservation prices*—that is, a schedule of prices above which different buyers will not buy.

The familiar downward sloping demand curve represents the differing reservation prices of buyers. Quantity demanded at lower prices is greater than quantity demanded at higher prices because some buyers have lower reservation prices than others. With each successive reduction in price, some buyers are priced into (and with each augmentation of price, some buyers are priced out of) the market because their reservation prices, exceeded at higher prices, are met at lower ones. Each point on the market demand curve is thus a tipping point, representing the price above which some buyers refrain from purchasing the good or service on offer.[9]

Consumer surplus is the utility derived by the buyer from a purchase. It is the utility enjoyed from the monetary sum that is the difference between the buyer's reservation price and the price at which the buyer transacts. Put differently, consumer surplus *is* a welfare measure. It is a measure of the *utility* derived by the buyer from the transaction.

If buyers are subject to a unitary price and some buyers have higher reservation prices than others, it follows that those with higher reservation prices derive greater utility from their purchases than those with lower reservation prices. If I sell my widget for twenty dollars and your reservation price is fifty dollars, you derive greater consumer surplus than does another buyer whose reservation price for the same widget is twenty-five dollars. Consequently, a unitary price affords *unequal degrees of utility enhancement* to buyers—some derive more utility, and others less, when paying the same price. The more steeply sloped the demand curve (i.e., the more price inelastic the demand), the greater this inequality across buyers.[10] To borrow Krugman's terms, under unitary pricing *some people derive more consumer surplus just because of who they are*.

Compare a regime of price discrimination under which the seller charges each buyer his reservation price. The seller thereby *equalizes* the consumer surplus each buyer derives from his transaction. Each receives only that smidgen of consumer surplus necessary to induce him to buy rather than refrain, but it is the same smidgen, equal across all buyers. The lesson is clear: If fairness demands that each buyer enjoy the same welfare from purchasing the same product, then some form of price discrimination (whether one that charges each his reservation price or another price that affords each the same degree of consumer surplus) is *necessary* to achieve fairness. For *only* a regime of price discrimination could equalize consumer welfare. Any principle of equal treatment that appeals to equal welfare considerations must for that fact favor *any* consumer-surplus-equalizing scheme of price discrimination (such as, *charge each his reservation price*) over unitary pricing.[11]

One could take the alternative course, seeking to establish the superiority of unitary pricing by appeal to a concept of equal treatment that does not refer to welfare considerations. For instance, one might argue that unitary pricing is *procedurally* fair to buyers and procedural fairness ought not be abandoned when adopting pricing policies. The problem with this approach is that there exist many pricing rules one could apply, all of which could be applied in a procedurally fair manner to all buyers and so satisfy the procedurally focused equal treatment norm. *Charge each his reservation price* is exactly such a pricing rule. Thus, whereas equal welfare considerations conclusively disfavor unitary pricing, appeal to procedural equality inclines no more heavily in favor of unitary pricing than it does price discrimination.

Price Discrimination and Public Policy: Existing Initiatives

Here, the proponent of unitary pricing may appeal to public policy. The Robinson-Patman Act,[12] for example, is intended explicitly to deter some forms of price discrimination. If law is a reliable guide to our moral intuitions,[13] and we have legal norms aimed at deterring price discrimination, then there are likely some considerations in terms of which price discrimination is believed to be harmful or wrongful. The questions on the table, then, are two:

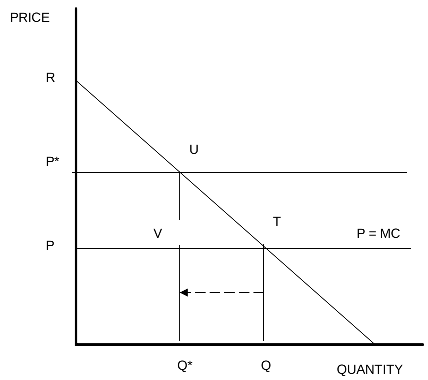
1. What are the considerations informing the Robinson-Patman Act?
2. Do those considerations, when applied to the practice of price discrimination, show that it is unfair?

The Robinson-Patman Act is a New Deal era amendment to the Clayton Antitrust Act[14] that makes it illegal to engage in price discrimination practices that have the effect of diminishing competition. For example, if wholesaler W offers better prices to retailer R_1 than to retailers $R_2, \ldots, R_n$, and this affords an advantage to R_1 that diminishes competition in the market in which retailers $R_1, \ldots, R_n$ compete, then the Robinson-Patman Act provides that those injured by diminished competition may recover from W (or from R_1).

At root, the Robinson-Patman Act seeks to protect consumer-welfare-enhancing competition by keeping upstream (wholesale) pricing policies from fostering downstream (retail) monopolies. In the example above, R_1, the beneficiary of more favorable wholesale pricing, may drive out competition through predatory pricing. Having monopolized the market by limiting output, R_1 may transform what in a competitive market would have been consumer surplus into producer surplus (monopoly rents) and deadweight losses.[15]

Figure 2

Monopoly Pricing



In Figure 2, P is the competitive market price and P* is the price extracted by the monopolist. By reducing output to Q*, the monopolist enforces P*. Consumer surplus is diminished by the area bounded by P*UTP. The area bounded by P*UVP is captured by the monopolist as producer surplus, and the area bounded by VUT is deadweight loss—lost to consumers but not gained by the monopolist.

Two things are worth noting about the Robinson-Patman Act in connection with the present exploration of price discrimination's fairness. First, the Act is addressed to pricing policies that have the effect of diminishing competition among sellers in another market. A seller who charges different prices to consumers does *not* thereby diminish competition among sellers in another market because consumers can hardly be said to be in competition with one another, much less as sellers.

Second, although the concern that informs the Robinson-Patman Act appeals to consumer welfare, it is not a concern about how *some* consumers are treated as against *others*. If it can be considered a fairness concern at all, it is a concern that consumers *in the aggregate* be treated fairly with respect to producers *in the aggregate*. Price discrimination is objectionable, on this account, because it facilitates monopoly. Monopoly upsets the fair division of the aggregate transactional surplus between aggregate consumer surplus and aggregate producer surplus that prevails in competitive markets. Price theory tells us that one of the distinguishing characteristics of a competitive market is that aggregate consumer surplus is large and aggregate producer surplus is small. In a monopolized market, some consumer surplus is transformed into producer surplus (in the form of monopoly rents) and that upsets the fair (read: competitive market) division of the transactional surplus.

Whatever the merits of regarding the Robinson-Patman Act as a public policy initiative concerned with fairness, the *treatment of some consumers as against others* plays no role in its indictment of price discrimination. The Act is indifferent to price discrimination except insofar as its practice promises to diminish competition among sellers. Retail price discrimination affords no seller an opportunity to monopolize his market. Thus, the Robinson-Patman Act implies nothing about the fairness of charging some consumers prices that are different from those charged to others.

Price Discrimination and Public Policy: New Initiatives

By stopping here, one may be tempted to conclude that the whole of my argument consists in chastising opponents of price discrimination for misidentifying the *justification* for opposing the practice. If price discrimination is objectionable on other grounds (e.g., upsetting fair division of the transactional surplus) and advances in online selling technology threaten (per Odlyzko) its expansion, then new public policy initiatives would seem to be underwritten for these reasons, if not for the reasons with which we began. Indeed, were I stopping here, that would be the entire upshot of my argument. However, the question now on the table is whether circumstances merit new public policy initiatives.

Entertain the following as a commonsense normative principle of public policy initiatives. Call it the *public policy prudence principle* (4P):

> 4P. Durable public policy initiatives ought to be adopted to address what promise to be durable phenomena. They ought not be adopted to address phenomena promising to be ephemeral.

A number of compelling reasons support 4P. Bureaucracies implement public policy initiatives, and new public policy initiatives tend to be implemented by new bureaucracies. Bureaucracies tend to be self-perpetuating for reasons that economic historians and public choice economists have explicated skillfully.[16] Legislatures are significantly more inclined to enact legislation designed to combat a perceived problem than they are to repeal legislation the animating problems of which have since dissipated. Government and mainstream media are imbued by a culture of legislative achievement—authoring and passing new legislation is the *sine qua non* of a legislator's worthiness.

In combination, these factors imply that the costs of hastily adopted or poorly chosen public policy initiatives have an inbuilt tendency to outlive and, in the long run, outweigh their benefits. Thus, 4P is a rough political analogue to Ockham's Razor. It says that one ought not to multiply public policy initiatives beyond necessity. If 4P is correct, then public policy initiatives designed to combat online price discrimination are warranted only if the practice and the harm that flows from it promise to be durable without such initiatives.[17]

Online price discrimination, even if technologically perfected, promises to be ephemeral. To see this, suppose that Amazon develops technology that affords crystalline insight into a potential customer's reservation price. Suppose further than Amazon uses this insight to quote prices exactly equal to that customer's reservation price and will quote such prices to customers so long as their reservation prices are at or above marginal cost.[18] In short, suppose that Amazon becomes a *perfect price discriminator*.

Noting that Amazon is not a monopolist, consider: What is a competitor's best response? Barnes & Noble (for example) may secure profits and take market share from Amazon by applying the same technology, undercutting Amazon's (discriminatory) prices by a fixed percentage. Barnes & Noble can quote all such prices that are at or above marginal cost and win customers away from Amazon. Note that other competitors can do the same to Barnes & Noble, and Amazon to the other competitors, and so forth. The logical limit of this price competition is the point where price equals marginal cost. In other words, even where technology facilitates fine-grained price discrimination, *competition* pushes optimal pricing back toward a unitary price—the price equivalent to marginal cost.

What of the case where not all competitors possess the technology? Suppose that patents or prohibitive cost preclude some or all of Amazon's competitors from developing the technology. If a competitor lacks the requisite technology to be a perfect price discriminator, that competitor's best response to Amazon is to charge a unitary price. Amazon and other competitors do best to follow suit. Again, competitive pressure pushes toward a unitary price.

Of course, a successful cartel arrangement among competitors could forestall the competitive pressures that eventuate in a unitary price. However, if successful online price discrimination depends upon effective cartellization of the market, then we find ourselves in well-trod territory. Existing antitrust law and enforcement mechanisms are designed to combat durable cartel arrangements.[19]

In sum, there are scant reasons to suppose that online price discrimination will be any more durable than the less technologically sophisticated kind.[20] Because durable price discrimination is the *fruit of*, not the *means to*, monopoly power, price discrimination without monopoly power promises to be ephemeral, whatever the technological sophistication with which it is effected. New antiprice discrimination public policy initiatives therefore fail the 4P test. Forces that could afford price discrimination durability (e.g., cartel arrangements) are those for which a public policy apparatus exists already.

Because durable price discrimination is the consequence rather than the cause of monopoly power, wise public policy will seek, paradoxically, to *encourage* it. By *observing* attempts at price discrimination and seeing which are durable, we may discover *which* are the firms possessing monopoly power and, hence, which should be pursued under existing antitrust law.

Conclusion

The conclusions of this discussion are three:

First, price discrimination is no less fair to buyers vis-à-vis other buyers than unitary pricing; if the concern is to achieve fairness through equal welfare, it is more so.

Second, to the extent that public policy should be concerned about price discrimination, it is not for its own sake but because the durable form evidences monopoly power. To the extent that we should be concerned about monopoly power, a well-developed public policy apparatus for addressing it already exists.

Third, the advance of online selling technology does not alter either of the first two conclusions. Technology affords sellers the means to do more accurately and in a more fine-grained way what they have heretofore done in broad brushstrokes.[21] However, this added precision does not add durability to price discrimination—only monopoly power can do that.

Consequently, the case for public policy initiatives to combat emerging online price discrimination is a poor one.[22]

Notes

1. Joseph Turow, "Have they got a deal for you," *Washington Post*, June 19, 2005, B01. [Available online at: http://www.washingtonpost.com/wp-dyn/content/article/2005/06/18/AR2005061800070.html]
2. Andrew Odlyzko, "Privacy, Economics, and Price Discrimination on the Internet," *Proceedings of the Fifth International Conference on Electronic Commerce*, ed. N. Sadeh (New York: ACM Press, 2003), 355–66. [Available online at http://www.dtc.umn.edu/ ~odlyzko/doc/eworld.html]
3. Paul Krugman, "What price fairness?" *New York Times*, October 4, 2000, A31. [Available online at http://www.pkarchive.org/column/100400.html]
4. Ibid.
5. A buyer's reservation price is the highest price the buyer is willing to pay—the price above which the buyer declines to purchase. A seller's reservation price is the lowest price the seller is willing to accept—the price below which the seller declines to sell.
6. Krugman, "What price fairness?"
7. In an otherwise thoughtful piece on how online price discrimination threatens to promote a "culture of suspicion" in e-commerce, Turow, "Have they got a deal for you," tars price discrimination with the privacy brush. That is, he argues in effect that price discrimination is harmful or wrongful because invasions of privacy are.
8. Strictly speaking, C2 is most plausibly the view that equal treatment of buyers by sellers requires the same price for one and all *at any one time and place*, for surely it does not violate the equal treatment norm to raise or lower prices in response to changing market conditions. However, nothing I say subsequently will turn on this elaboration of C2.
9. Or, alternatively, the price above which some will reduce their consumption of the good or service on offer.
10. Of course, it may be the case that the inequality is diminished by variations in the declining marginal utility of money across persons. If those with higher reservation prices derive lesser utility from an additional monetary unit than do those with lower reservation prices, then the inequality in consumer surpluses derived will be proportionally less than the differences in their reservation prices.
11. In some circumstances, this strikes people as being intuitively obvious. Journal subscriptions and memberships in scholarly organizations are frequently priced on rough ability-to-pay terms to the general approbation of their subscribers and members. Thus, graduate students and retirees pay less than tenured and tenure-track professors without anyone complaining about price discrimination.

12. 15 U. S. C. § 13.

13. Robert Goodin, *Protecting the Vulnerable* (Chicago: University of Chicago Press, 1985) argues that the law is a reliable, though not infallible, guide to widely held moral intuitions.

14. 15 U. S. C. §§ 2–27.

15. This is not to say that the Robinson-Patman Act is grounded in sound economics. As Richard Posner (*The Robinson-Patman Act: Federal Regulation of Price Differences* [Washington, D.C.: American Enterprise Institute, 1976], 1) observes, "The Robinson-Patman Act . . . is almost uniformly condemned by professional and academic opinion, both legal and economic."

16. In his *Crisis and Leviathan* (New York: Oxford University Press, 1989), Robert Higgs emphasizes the role that crises—for example, wars, depressions—play in the growth of government and bureaucratic authority. Public choice theorists have emphasized the role that bureaucratic and legislative inertia play in the perpetuation of bureaucracies. See, for example, William A. Niskanen, *Bureaucracy: Servant or Master?* (London: Institute of Economic Affairs, 1973).

17. Note that this is a necessary, but not a sufficient, condition for prudent adoption of public policy initiatives. A further necessary condition is that the public policy initiative passes the *comparative institutions test*. In some cases, some of the time, the problem we hope to address through public policy may itself be the best we can accomplish. The comparative institutions test demands evidence that the proposed cure will be better in practice than the disease it seeks to eliminate. A regulatory initiative to address a market failure is justified only if it can be shown that life under the regulatory initiative will be better in practice than life under the market failure. On the comparative institutions test, see N. Scott Arnold, "Economists and Philosophers as Critics of the Free Enterprise System," *The Monist* 73 (October 1990): 621–41.

18. If the buyer's reservation price is below marginal cost, the seller is better off quoting a price equal to marginal cost and not selling to the buyer because the seller loses money on each transaction consummated at a price below marginal cost.

19. In adverting to existing antitrust law, I do not endorse it uncritically. Some critics of antitrust focus on doctrinal detail, arguing that particular features of antitrust law and its development undermine what is, in concept, a worthwhile public policy initiative. Other critics argue that antitrust is objectionable in concept. For problems in doctrinal detail see, for example, Robert Bork, *The Antitrust Paradox* (New York: Basic Books, 1978). For problems with antitrust in concept see, for example, Dominick T. Armentano, *Antitrust and Monopoly* (New York: John Wiley & Sons, 1982). I mention antitrust law only to consider the case most favorable to the proponent of public policy initiatives.

20. Odlyzko, “Privacy,” argues that online sellers will seek to conceal price discrimination, and hence make it more durable, through personal bundling, membership schemes, and the like. It is easy to see how this could make price discrimination harder for consumers to detect. It is more difficult, however, to see how these practices would insulate a seller from price competition. A competitor who sells identical but lower-priced bundles, or who unbundles products and sells them at more attractive prices promises to win customers away from the assiduous, price-discriminating bundler.

21. Anyone who has been quoted round trip airfares differing markedly depending upon whether a Saturday night stay over is included, or who has purchased earlier and in hardback a book that may be had later and in softcover at a significantly lesser price, has encountered price discrimination in its less sophisticated and heuristic form.

22. An early draft of this article was presented as a paper at Santa Clara University. I wish to thank Dennis Moberg for the invitation and for his incisive comments. The article is much improved by discussions with Nicholas Capaldi, Jim Child, and Spencer Weber Waller. I thank them, as well. The Social Philosophy and Policy Center at Bowling Green State University hosted me as a visiting scholar in the fall of 2004, during which visit I completed the article’s penultimate draft. I thank the directors of the Social Philosophy and Policy Center for their support.