The infinite cloning of the ultimate seller

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Abstract

The great breakthrough of e-commerce in the Web 2.0 era is also a formative event in price discrimination. The digitization of sellers’ and buyers’ activity, including Big Data, increasingly sophisticated algorithms, and acute price disparities, enables personal robotic price discrimination to take place on unimaginable scales for the first time—creating a sellers’ utopia and a buyers’ dystopia.

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Behind every good e-commerce site lurks a rug merchant.

The Grand Bazaar in Istanbul is on every visiting tourist’s “must-see” list. One may doubt the antiquity and the authenticity of the wares on sale there, but everyone will admit that it’s an impressive place. If you happen to visit, you may come away with a small rug or a ceramic bowl, all the while while pitying the “struggling” merchant toiling away in the stall every day. After all, it’s not a career that you’d want for yourself; it’s not exactly the cutting edge of the business world.

One of the great mistakes people make, however, is to dismiss the bazaar’s rug merchant as an archaic commercial phenomenon, an obsolete commercial anecdote compared to our ostensibly wonderful new world of e-commerce and the endless ability it gives us to pick and choose, make digital payments, and receive deliveries at our doorstep. Many of us see this as a new world of “consumer power” and “democratization of information about goods and services.” But is it really so?

One can understand those who regard the bazaar’s rug merchant as a representative of the Third World or a relic of a bygone epoch (and that’s a good thing, in their opinion). However, it is a big mistake to think there is nothing to learn from from the merchant or nothing to drawn on from the bazaar’s business model. And it’s an even bigger mistake to view the current world of digital commerce as a new reality that operates under completely novel rules and new methods, a place that has nothing whatsoever to do with the bazaar dealer. Likewise, we should not delude ourselves that we are necessarily living in better times due to the digitization of commerce, giving consumers greater power and more equal access to consumer as well as commercial information.

To understand this, one should first understand what transforms an ordinary rug dealer into a really good rug dealer. Several components contribute to this, but one of them is truly the most important: the ability to apply personal price discrimination, known as personal pricing. What really matters in the rug merchant’s business model is the ability to understand the customer at several levels and extract from that customer the highest price they are willing to pay. This is the essence of personal price discrimination, which we will define in the following practical way: *the ability to profile each customer individually in terms of their wealth, understanding, and propensity to consume, and to sell to them the good or service that the dealer offers at the highest price the customer is willing to pay.*

One of the things that makes our merchant great is being a human customer relations manager. Installed in the merchant’s head is software that scans every customer and determines how rich or poor they are on the basis of their appearance (depending, for example, on their clothing or their watch—it takes our merchant only a split second to distinguish between a real Rolex and a knock-off), or whether, on the basis of the customer’s language, whether they are local or tourists (and, if the latter, then from which country and sometimes even which part of a country). After a brief exchange of words, the merchant also knows whether the customer is a compulsive consumer with a quick finger on the “buy” trigger, whether they’re buying it for their own use or a gift, and whether—and, very importantly, to what extent the customer knows anything about rugs. Thus, this human “software” is able to characterize the customer by socioeconomic cross-section, knowledge, and behavior.

Now let’s assume that the rug merchant buys all his or her merchandise, which is a week old at the most, from the same wholesaler. Let’s also assume that each rug costs $30. After the merchant’s mental software completes its scan and processes its findings, the merchant will know what kind of customer he or she is facing. In one case, it may be a wealthy Chinese tourist, an amateur buyer who is clueless about rugs; therefore, the dealer can sell that $30 rug for $3,000 as an outstanding sample of the finest ancient Kurdish rug standard. In another case, a thrifty Scottish tourist[[1]](#footnote-1) who served with the Royal Fusiliers in Afghanistan and knows a great deal about rugs, may refuse to part with more than $50 for that particular item. Our merchant’s purpose is to conclude the most worthwhile and profitable deal, that which yields the greatest return on the time and effort expended. In each case, then, the merchant will do exactly what we have described—extract from each customer the most that the customer is willing to spend.

From the dealer’s standpoint, of course, there is no point in investing much time in selling anything to our Scot because the latter offers scant profit in any case. Therefore, after negotiating for a few minutes, the Scot will walk away with the rug for the $50 that he has paid. For the Chinese tourist, in contrast, the dealer knows it is worth investing an hour if not more, pulling out dusty albums displaying yellowing photographs of eighteenth-century rug weaving. The dealer invests much time but profits immensely in return. If anything endangers the sale, it is the possibility that the Scot will enter the stall just as the Chinese shopper is winding up the transaction, explain to the latter that he or she is being deceived, and ruin the merchant’s imminent bonanza. An outstanding merchant, however, has nothing to fear because he is well aware of the risk. Therefore, the moment the merchant’s peripheral vision alerts him to the encroachment of someone suspected of being a Scot, he will let out a whistle and one of his children will suddenly pop up and delay the Scot outside the stall on all sorts of pretexts until the Chinese customer finishes the purchase, pays, and walks away.

This account may sound a little picturesque or exaggerated but isn’t all that far-fetched. Even if we agree that this method of commerce exists and works and that such merchants engage in personal discrimination to the extreme, we would still agree that it seems to be an obsolete and inefficient process based on a series of individual seller vs. customer transactions—one customer at a time. The number of transactions that can take place in this marketplace-like setting hits a rather low glass ceiling that reflects the scarcity of really outstanding merchants (those who actually can profile each customer accurately and engage them in optimal negotiations) and the need to keep customers apart in order to prevent them from sharing or leaking information.

Most of us assume that transactions in the marketplace generally yield ordinary and not exceptional rates of profitability; therefore, we consider this an archaic and difficult subsistence-level method of selling. For most of us, it doesn’t seem to pay. We tend to think that if somebody does this for a living, it can only be for lack of choice—that’s how they were born and that’s where they stay.

A sharp distinction, however, must be made between something that we consider archaic and unattractive for ourselves—working at a bazaar—and the timeliness and relevance of personal price discrimination. That’s because such a method may be Sisyphean and unprofitable in small-change, low-profit, and low-frequency transactions, but frequency becomes less important when big money and big profits are at stake. This is precisely why we are surrounded by personal discrimination based on one-on-one transactions, not only because of lack of choice, but simply because it’s worth the merchants’ while.

Behind every good financial advisor lurks a rug dealer

A marvelous example, familiar to each of us, involves the financial advisors encircling us from every direction. Everyone sees how retail bank branches are moving toward extinction. Even branches that survive are undergoing a shift of staff—from a majority of bankers who give service relating to deposits, loans, and other technical matters, toward financial advisors who sell us investment products, usually an array of funds and other saving and investment instruments, some quite complex. Ordinary customers don’t ask themselves why this is happening. By and large, they take it for granted or believe what the media says about “greater efficiencies” in the banking industry.

But that’s only part of the explanation. To really understand the matter, one has to study at the financial products in question. They’re more complex than simple savings products and, in most cases, they involve very wide knowledge gaps between advisor and the customer—making them perfect vehicles for personal discrimination. They are also much more profitable for the bank than are simple savings products. This profitability justifies the financial advisors’ wages and explains the growing bias in their direction at the expense of traditional banking.

The innocent policy holder who read about “efficiency measures” at the banks may wonder: Why not make things even more efficient, for example, by replacing twenty one-on-one financial consulting meetings (advisor and customer) with one meeting between a financial advisor and twenty customers simultaneously? After all, all customers want the same thing—finding out how to lock up their money optimally—so a joint session like this would save everyone many hours of precious work time. The bank, too, would be able to eliminate additional thousands of employee posts. If that isn’t efficiency, what is?

If you suggest to your bank that it adopt this innovative operating model, however, it will almost certainly jump up with protestations of “customer confidentiality.” But is it really customer confidentiality? Or is it possibly like the child who intercepts the Scot and keeps him from entering the rug stall until the Chinese customer leaves?

At that one-on-one financial consulting meeting, an outstanding advisor will profile the customer sitting across the desk. In addition to learning about the customer’s income data, which is immediately visible and accessible, the advisor will flood the customer with a series of questions, none of them random, in order to better understand the person seeking advice. A knowledge-deficient customer who falls for marketing slogans, media sound bites, and/or frightening allusions to impending financial disasters can be sold an inferior product, one the customer doesn’t really need, and/or one that comes with especially high management and other fees. This customer corresponds to the wealthy Chinese rug buyer. A knowledgeable customer, in contrast, will not fall into this trap. A customer who is familiar with the intricacies of the investment world, who reads and stays abreast of things regularly, realizes that these are investment products—products in every sense of the word—and that investments are neither secrets nor witchcraft that are known only to a handful of people. This customer is akin to the informed and thrifty Scot. Thus, it is clear why, even in the name of “efficiency,” the bank must never set up a joint session for multiple customers with one financial advisor. That’s because if, heaven forbid, the “Chinese” customer and the “Scots” customer face the advisor together, the highly profitable transaction with the former will unravel as the Scot will eliminate the information gaps at no charge and with overt pleasure (“Idiot, don’t you see you’re being hoodwinked? Why are you buying a structured product with a three percent fee when you can buy an ETF that charges almost nothing?).[[2]](#footnote-2)

When financial advisors sell investment products, even if it’s profitable—indeed, even highly profitable—to employ thousands of such advisors, the glass ceiling of the number and frequency of possible transactions still applies. The reasons resemble those relating to the rug merchant. The scarcity of abilities exists here, too—not every financial advisor is able to use the arsenal of personal discrimination—and here, too, the necessity to sell individually, avoiding information leaks from one buyer to another, limits the number and frequency of deals.

**Personal price discrimination is perfect price discrimination**

Cassady was one of the first to give personal price discrimination a definition that continues in use to this day. It relates to a sales tactic that invokes at the practical level what economic price theory calls *first-order price discrimination.* In both cases, this is perfect price discrimination. The definition of personal discrimination, echoing Cassady, is merely a softer, more generalizing, and more practical way of looking at the harsher and more theoretical definition of first-order discrimination.

Also, according to price theory, every seller should try to charge the buyer the highest price that the buyer is willing to sacrifice for the good or service that he or she buys. This price, of course, is immeasurably preferable to selling at a standard price. If the seller manages to do this to each and every buyer, the seller will pocket all of the *consumer surplus,* a concept that many vaguely remember from their economic studies. The consumer surplus is the difference between the personal sale price after discrimination and the standard price that would prevail without it. Absent discrimination, the entire disparity would have remained in the buyers’ wallets. This is first-order discrimination. Those who abandoned their studies of economics or had no penchant for price theory have almost certainly forgotten all this even though they are exposed to it continually in real life.

Once we replace the definition of first-order discrimination and consumer surplus (whatever they may be) with the definition of personal discrimination, our ability to understand the business model of the rug dealer and his clones—the bots that work for the internet giants at the e- commerce companies—improves.

The digital cloning of the rug merchant

However, along with so much else, this, too, has changed; the glass ceiling has been shattered. Web 2.0 changed it by launching a nuclear destroyer of personal price discrimination. Very few buyers realized this at first. They were amazed by the abundance of what was offered, the elegance and efficiency of the interfaces, and the convenience of doing everything from their armchairs. In academic research, some did realize what was happening almost in real time. At the dawn of Web 2.0, Acquisti and Varian investigated personal discrimination techniques based on buyers’ behavioral consumption profiles (Acquisti & Varian, 2005). Here and there, some members of the internet’s founding generation who favored e-commerce at its outset changed their minds when they realized what was happening. And what happened? Today we live in a new world of personal price discrimination on an inconceivable scale and without any human contact. In a far-reaching overview carried out several years ago by Deloitte in conjunction with Salesforce, personal pricing was found to be the main reason for the injection of AI algorithms into the sales process (Deloitte & Salesforce, 2018). According to Hannak et al., most large e-commerce websites in the United States mined behavioral consumer information for use in price discrimination (Hannak et al., 2014). Today, it is likely that all of them, without exception, do this. Thus, we inhabit a world of robotic digital commerce, in which virtual algorithmic entities (robots or “bots” for short) are repeatedly cloning and recloning the outstanding rug merchant and making the capabilities and the applications increasingly sophisticated. The bots may still lack verbal sophistication, humor, and some other soft capabilities, but already in their current iterations, the clones have amassed powers never seen before.

Today’s buyer faces robotic dealers that have no limit to the number of transactions they can perform simultaneously with an infinite number of buyers. They sell to each buyer individually and do almost everything that theory expects personal pricing discrimination to do while shattering the glass ceiling of the number and frequency of transactions.

Bots profile buyers in a continual process based on amassing information from which they deduce the buyer’s wealth and propensity to consume. They know how rich or poor the buyer is. They know how impulsive the buyer may be, how much the buyer likes expensive brands, and to what extent the buyer is willing to wait for a sale. The buyer reveals this to the bot simply by shopping under his or her username; alternatively, this information is immediately disclosed via a cookie planted in the buyer’s computer, or divulged it by information that the buyer posted on various social networks, which sold the information to the sellers’ bots. The state of powerlessness is almost pitiful—one lone buyer versus e-commerce monsters who know everything about them and are just waiting for them to visit the site and start to shop in order to unleash the entire arsenal of robotic personal discrimination.

Let’s do an experiment. Consider several different shoppers who simultaneously and from different devices visit a large site that offers tourism products and who click on the same hotel room on the same dates. We will be surprised to discover that each shopper will almost always be offered a different price and, if not a different price, then the same price with or without a discount, in what amounts to just another dimension of personal price discrimination. And if shoppers visit a sales site and leave it without buying anything, they will probably start receiving emails or personally tailored pop-ups that will try to continue where the webpage left off. (This can be likened to a rug dealer who almost closes a deal and chases after the customer who has left the stall in order to persuade the customer to return and finish the purchase.)

Personal price discrimination is the focus of this article and it appears to be the most harmful of all the ills of the Web 2.0 e-commerce world in terms of consumer well-being. People sometimes confuse it with several other prominent phenomena that have emerged along with it. To put things in order, it’s important to list these phenomena and explain why they are different from personal discrimination:

* User surveillance is an inclusive term for the gathering and mining of user information that is useful for personal discrimination as well.
* Dynamic pricing is a tactic in which e-commerce sites change prices during the day for a variety of reasons entered into the algorithm, but not necessarily tailored to a given customer. It has some overlap with personal discrimination.
* Targeted advertising refers to sending marketing or advertising information to a given customer according to the customer’s consumption profile. For rather obvious reasons, this tactic is sometimes confused with personal discrimination; indeed, there are overlaps between them. Sometimes, in a subset of targeted advertising, search engines create biased outcomes in commercial sites (price steering) in order to push the more expensive productss to customers that they are able to buy according to the consumption profile attributed to them. This practice also overlaps with personal discrimination.

Are buyers doomed?

The current era is increasingly seen as a dystopia for buyers and a utopia for sellers—a place very far from the innocuous vision of consumer power and information democratization. But even in this world of powerlessness, is there, nevertheless, anything that buyers can do to counter these trends and tilt the scales back in their direction, if only slightly? Does the individual shopper have any recourse whatsoever against bots, Big Data, and internet mega firms in which thousands of people busy themselves in fine-tuning algorithms?

Recent studies such as Poort’s show that shoppers—at least in Europe—are aware of the existence of digital price discrimination and are quite averse to it (Poort, 2021). There is also an expectation that states and authorities should do something to protect retail shoppers in the digital world. Such an expectation exists among well-educated population sectors; however, to date, it has been met by feeble legislative or enforcement efforts. The European Union is, to some extent, an exception in terms of understanding the problem and being willing to tackle it (as we shall see below). Even its resolve, however, is less than total. Now it seems that even the Chinese government is beginning to think in a similar direction. A series of recent appointments in U.S. government bodies institutions in charge of competition laws and consumer policies may also indicate a change in perception. The topic has increasingly grabbed the headlines in recent years, and there have been more and more references in the academic literature to internet or competition laws. Botta’s comprehensive article offers a representative example of the European outlook, with its wide-ranging presentation of the problems in this new world and possible regulatory solutions (Botta, 2020). Ezrachi and Stucke’s book *Virtual Competition*, tackling the ethical, economic, and statutory problems that beset the current e-commerce ecosystem (Ezrachi & Stucke, 2016), makes academic literature accessible to the public at large.

An interesting point to ponder is that while regulators once struggled to prevent personal discrimination in its more antiquated forms, the battle may be more easily fought precisely in this digital world. The reason is that regulation, through prohiitions and other measures, may be better able to restrain bots and algorithms in this environment compared to an environment of human dealers who are scattered across multiple markets.

Montes, Sand-Zantman, and Valletti demonstrate the extent to which information about buyers and fierce competition for their business lie at the very heart of the digital-discrimination world. A vendor that has more information than does its rivals will earn higher profits. The more information sellers have, the more buyers’ well-being will be impaired (Montes et al., 2019).

In 2018, the European Union implemented the GDPR (General Data Protection Regulation), which requires sites to obtain the consent of users (including buyers) to collect personal information and to reveal the sites’ motives for collecting this information. Although price discrimination is not prohibited by law in the EU, but because personal discrimination in the digital world inevitably entails the collection of personal information about online browsers, the GDPR apparently creates something of a barrier, even though it was not established for that purpose. Jurists in Europe claim that the regulation gives the authorities significant room in which to maneuver, even to the extent of aggressive enforcement. In practice, even though the largest fine imposed thus far in the EU for breaching the GDPR is associated with collecting personal information for commercial purposes (€746 million against Amazon), the next-largest penalties are much smaller and concern the enforcement of other aspects of the GDPR and not the gathering of information for price discrimination purposes.[[3]](#footnote-3)

This state of affairs—partial enforcement—appears to leave buyers helpless. However, things are not all that desperate; there are quite a few actions that buyers can take in order to improve their situation and protect themselves with considerable success.

The best defense is back to the bazaar

To understand how buyers can protect themselves in the digital world, it is best to go back to where we began—the analogy of the bazaar and the definition of personal price discrimination. Ultimately, powerful bots aspire to be ultimate rug merchants that carry out personal discrimination to the best of their ability. However, just as one can bargain successfully with a rug merchant, one can defeat an e-dealer if one understands how it works. If buyers rethink their situation and realize that an e-commerce site is also a rug stall, their situation can start to improve.

Here are a few possible ways of enhancing bargaining power against an e-commerce bot:

* Anonymity

We can make it harder for the bot to profile our wealth and our propensity to consume. As stated, information is the main resource that the bot needs. According to Belleflamme and Vergote, consumers can improve their welfare by going into hiding (Belleflamme & Vergote, 2016). Some buyers think that browsing in incognito mode will protect them. They may be surprised to learn about the claim raised in a class-action suit against Google in the United States in 2020 that the company continued to gather personal information even from incognito browsers.[[4]](#footnote-4) Ohm gives a good overview of the across-the-board failure of the anonymization illusion (Ohm, 2010). This may change in the future, for reasons including better enforcement.

* Training the bot

Regardless, the thinking behind ostensible anonymity is that it will make it difficult for the bot to profile us on the basis of our wealth and our propensity to consume. This recommendation is understandable but its relevance, as discussed, is highly dubious. However, all is not totally lost—there is an alternative: browsing without concealing our identity but constructing for ourselves, deliberately and over time, a thrifty “Scot’s” reputation. To do this, we need to visit and search through the sales sites, but refrain from buying. It is also recommended to visit the same sales page again and again without buying. Furthermore, we can make a point of buying mainly when discounts are given. Thus, we will show the bot that we have a slow hand on the purchasing trigger, that our consumption is not impulsive, and that we always look for low prices, bargains, and sales. Since the site’s ultimate objective function is to sell things, the site will probably “surrender” and quickly start sending us digital coupons or email messages telling us that the product that we saw a few days ago is now available at a discount. When we find these discounts attractive, we should buy occasionally in order to show the bot that it’s worthwhile to offer us low prices. And let’s not forget that even a bot has to meet monthly or quarterly sales quotas. If it lacks enough high-profit wealthy and impulsive buyers at a given moment, it will eventually reach out to us because even in a deal with us, it will sell and make a profit, albeit a smaller one.

* Making it worthwhile

But wouldn’t constructing the right profile cost more in time and energy than the return we would gain from it would justisfy? The answer brings us back to the bazaar analogy once again. In the bazaar, too, as in buying financial products and also in e-commerce, what matters ultimately is correct consumer behavior by buyers. Correct consumer behavior rests on several ironclad fundamentals. The most important of them belong to the fields of behavioral economics (e.g., self-discipline) and information economics (e.g., eliminating information disparities). Good consumers—after they learn how to apply the implications of good consumerism to digital shopping—will train the bot that they really are good consumers. Those who merely try to pass for good consumers will have to outwit the finest surveillance systems on e-commerce sites and social networks. If you put up a post with pictures of yourself dressed in expensive brands or, worse still, brag about it on social media, don’t be surprised if your attempt to pose as a Scot fails. Even as you read this, however, entrepreneurs (perhaps even in Israel) are contemplating the next tracking system that will give sellers the edge in this game.

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1. In our politically correct world, of course, one cannot describe a Scot as miserly, so we wrote “thrifty.” Similarly, every self-respecting “Brit” will tell you that the worse misers are not really the Scots but those from Yorkshire. [↑](#footnote-ref-1)
2. We still assume that financial advisors will not exploit the information gaps and will serve their customers’ best interests. [↑](#footnote-ref-2)
3. The information may be found, for example, at <https://www.tessian.com/blog/biggest-gdpr-fines-2020/>, and all fines (including very small ones) appear at <https://www.enforcementtracker.com/> [↑](#footnote-ref-3)
4. <https://www.reuters.com/technology/alphabet-ceo-pichai-can-be-questioned-privacy-lawsuit-judge-rules-2021-12-28/> [↑](#footnote-ref-4)