



When online sellers use different prices for different consumers

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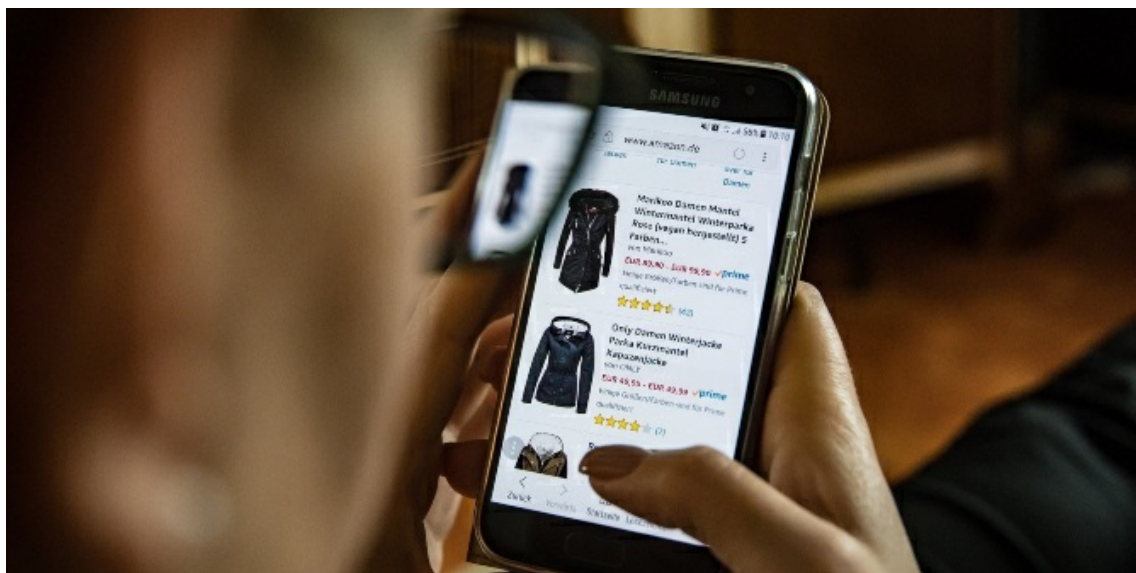
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When online sellers use different prices for different consumers



Do you shop online? If so, sellers are likely to know a lot about you: purchase histories, browsing histories, where you live, [which operating system](#) you use, and so on. Consumers and [policymakers](#) are concerned that online sellers may use data of consumers to learn about how much they are willing to pay, and then charge different prices to different consumers—so-called personalised pricing.

Should we worry about personalised pricing? My recent work provides a simple theory that argues the opposite: Sellers have an incentive to avoid personalised pricing, and consumers might worry about the absence of personalised pricing. To see the first part, imagine that an online seller uses consumer data to personalise prices. Then, consumers would try to game the system. For example, they may create new user accounts to see whether they receive lower prices, or go to privacy settings and [erase cookies](#). Such behaviour will lower the quality of data and prevent the seller from not only pricing effectively but also improving its recommendation system and search engine. To avoid this, the seller can commit to not personalise prices. The commitment encourages consumers to provide more data, which enables the seller to display products that are directly relevant to each consumer. Large online retailers may especially benefit from this strategy, because the crucial part of their business is to match consumers with relevant products. When sellers can use data to personalise non-price aspects of their services and create value, they might be better off by committing to not personalise prices.

Surprisingly, this seemingly consumer-friendly policy may hurt consumers. To see this, imagine that a seller commits to not personalise prices, and all consumers except you provide their data. The seller can use data to learn consumers' tastes, and show each consumer the products he or she likes. Because the seller can present each product to consumers who value it highly, the seller can set a relatively high price for each product. Since prices are not personalised, you will also have to pay these high prices, regardless of whether you provide data. The key is that, when the seller does not personalise prices, data provision by some consumers can hurt other consumers through high prices (this resembles what economists call [negative externality](#)). Because consumers do not take this into account, each consumer chooses to protect privacy too little, compared to the level that maximises consumers' joint welfare. This problem does not occur under personalised pricing, because each consumer takes into account how data provision affects prices charged to the consumer.

The story also applies to offline shopping. Imagine that you go to buy a car. You talk to salespeople about what kind of cars you like, and they recommend a few cars. You test-drive some of them and decide which one to buy. Suppose that salespeople might give you a discount, depending on how much they think you are willing to pay. If you talk a lot, then salespeople can figure out the exact car you like, but they are unlikely to offer a discount for it. This concern will make you reluctant to provide information such as your tastes and budget. As you talk less, salespeople can only give you inaccurate recommendations. As a result, you have to spend more time and effort to find suitable cars. In contrast, suppose that the car dealer adopts a “[no-haggle pricing](#).” Then, you would be more willing to talk, because providing information never affects prices. My theory tells that the no-haggle pricing may benefit car dealers but hurt buyers. The pricing strategy eliminates your option to hide information to obtain bargaining power in subsequent price negotiation.

Does the above theory explain the reality? At least, the theory seems to reconcile two pieces of puzzling anecdotal evidence. First, personalised pricing does not seem to be widespread as much as we might expect, according to the recent “[Furman report](#).” This could be due to technological constraints or firms’ fear of consumer backlash. My theory adds another reason for sellers to avoid personalised pricing. The second puzzle is that, despite the growing concerns, consumers seem to casually share their data with online retailers. The theory tells that it could be optimal for an individual consumer to do so, as long as sellers do not personalise prices. However, this does not mean that we do not need to worry about privacy. Collectively, consumers might be giving up too much personal data.

To think about the future of personalised pricing, let me explain two crucial assumptions of the above theory. One assumption is that sellers can use data to improve something other than pricing, such as efficiently matching consumers with products. With the advancement of information technology and increasing product variety, such a situation will continue to be relevant in the future.

The other crucial assumption is that consumers can control their data. This is important because the idea that sellers want to avoid personalised pricing holds only if consumers can choose to hide their data. If sellers could freely gather data without consumer consent, then sellers would collect as much data as possible and use it to tailor prices. Do we have control over our data? There is no simple answer to this, and we may think the answer is no in [some contexts](#). However, the recent [General Data Protection Regulation](#) is at least trying to give consumers more control over data. But recall the punch line: If consumers have full control over their data, sellers may simply commit to not personalise prices, and non-personalised pricing may make consumers worse off.



- *This blog post is based on the author’s research article, “[Online Privacy and Information Disclosure by Consumers](#)” in the *American Economic Review* (forthcoming).*
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