

Does better pricing technology necessarily make consumers worse off?

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The intuitive answer is yes. If firms know how much you're willing to pay, they will charge exactly that to maximise profits— that's just rational economics. To many, personalised pricing is the epitome of digital capitalism. It's a world where you are charged just below your tipping point. Yet the economics of personalised pricing is more complicated than what our intuition suggests. Additionally, personalised pricing is different from dynamic pricing as the latter varies prices across time in response to changing market conditions while personalized pricing varies prices across consumers' estimated willingness to pay.

If personalised pricing became widely used, we should expect an increase in efficiency, redistribution of welfare between consumers and firms, and new challenges for competition policy. However, the most important effects would depend less on the technology itself than on how evenly access to it is distributed. Recent economic research suggests that consumers may be harmed most not when personalised pricing is absent or universal, but when it is adopted unevenly by companies with unequal access to data. The consequences of widespread personalised pricing could therefore come from changes in informational power. Specifically raising questions on who controls consumer data, how that data is used, and whether market competition can regulate those who control it.

The effects can be understood with the economics of price discrimination. Personalised pricing is a form of price discrimination wherein firms use information on individuals to gauge their willingness to pay and set prices accordingly. In Hal Varian's microeconomics framework, economists distinguish between first-, second-, and third-degree price discrimination. Personalised pricing aligns with the first-degree discrimination wherein every consumer is charged a unique price equal to their reservation value, or willingness to pay.¹

In terms of efficiency, personalized pricing can be beneficial because with uniform pricing, some

¹ Varian, Hal R. "Price Discrimination." In *Handbook of Industrial Organization*, vol. 1, edited by Richard Schmalensee and Robert Willig, 597–654. Amsterdam: Elsevier, 1989.

consumers whose willingness to pay exceeds marginal cost but falls below the market price are opted out from purchasing. Personalised pricing allows firms to offer these consumers lower prices while charging others more which increases output and reduces deadweight loss. In the extreme case of perfect personalization, every consumer who values the product more than its cost of production will purchase it, achieving a socially efficient level of output.

Figure 1. Perfect personalised pricing eliminates deadweight loss but transfers consumer surplus to the producer.²

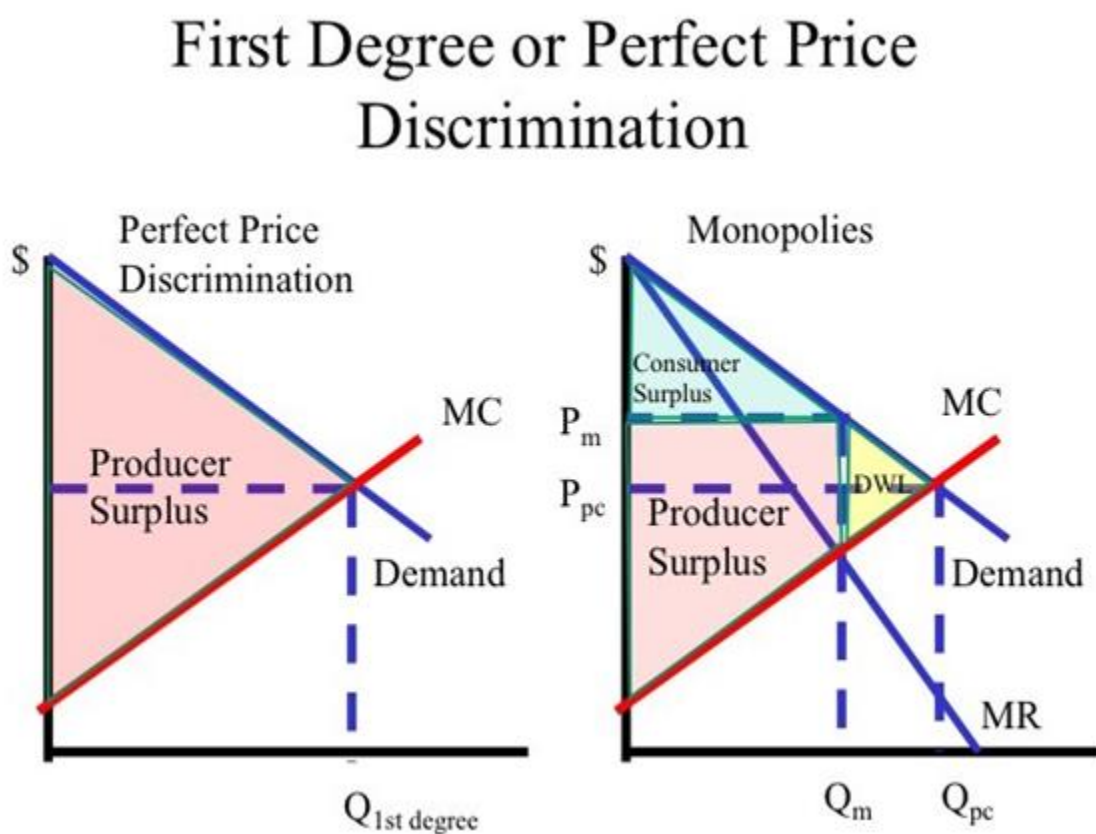


Figure 1 reveals how the same process that eliminates deadweight loss also transfers surplus from consumers to firms. Under uniform pricing, consumers whose willingness to pay exceeds the market price keep consumer surplus. Under perfect personalisation, much of that surplus is given to the producer instead. The key question is therefore not simply whether personalised

² Brigham Young University–Idaho. “ECON 150: Microeconomics.” Lesson 8, Section 02: Price Discrimination. Accessed June 1, 2026.

https://courses.byui.edu/econ_150/econ_150_old_site/lesson_08.htm.

pricing increases welfare, but who receives the gains that it creates.

This insight is developed by Bergemann, Brooks, and Morris as their analysis shows that the welfare effects of additional information are essentially undetermined. Depending on how consumers are segmented and how firms use the information available to them, personalised pricing can lead to very different distributions of consumer and producer surplus in economic theory. More information does not automatically mean more exploitation or welfare. Since the theoretical welfare effects are not fixed, the consequences of personalised pricing cannot be directly found from the information firms have, but instead they depend also on the market structure in which the information is used.³

There is strong empirical evidence that supports this stance. Dubé and Misra's field experiments, in a single-firm setting, found that personalised pricing increased firm profits by 19 percent relative to the optimal uniform price while reducing total consumer surplus by 23 percent.⁴ At first glance, this seems to confirm concerns that personalized pricing mainly benefits firms. However, the same study found that more than 60 percent of consumers actually paid lower prices with personalised pricing. The losses were concentrated among consumers with a high willingness to pay, while many lower-value consumers benefited from targeted discounts.

These findings complicate the usual view on personalized pricing. It does not just transfer welfare from consumers to firms; it also redistributes welfare among consumers themselves.

Some consumers lose because firms can charge more, while others benefit from lower prices that they would not receive with uniform pricing. Dubé and Misra also show that if a society places greater importance on equality, personalized pricing can be more beneficial overall.⁵ Whether personalised pricing is desirable therefore depends on how one values the distribution of gains and losses in a society.

However, focusing only on how surplus is divided misses a more important point. The biggest effects of personalised pricing may come not from pricing itself, but from who controls the information that enables it.

³ Bergemann, Dirk, Benjamin Brooks, and Stephen Morris. "The Limits of Price Discrimination." *American Economic Review* 105, no. 3 (2015): 921–957.

⁴ Dubé, Jean-Pierre, and Sanjog Misra. "Personalized Pricing and Consumer Welfare." *Journal of Political Economy* 131, no. 1 (2023): 131–189.

⁵ Dubé and Misra, "Personalized Pricing and Consumer Welfare."

The conventional assumption is that more personalisation inevitably means more consumer harm. Recent research by Rhodes and Zhou challenges this view as their analysis suggests that the relationship between personalisation and consumer welfare is non-linear: consumers can actually be worse off when only some firms use personalised pricing than when all firms do or none do.⁶ This is because markets act differently when there are information asymmetries.

When all firms have the same personalisation tools, each firm's customers become targets for its rivals. Specifically, if a firm tries to charge its loyal customers more, it risks losing them to competitors offering targeted discounts. This creates a prisoner's dilemma, a dynamic Thisse, Vives, and later Corts, spotted in models of competitive price discrimination: although firms would prefer less aggressive competition, each one still has an incentive to poach their rivals' customers.⁷ This results in stronger competition and also limits how much any firm can exploit its information advantage.

If competition works only when all firms have similar personalisation, then the biggest problem is when only some firms have it.

On the other hand, partial adoption by the market changes this scenario. A data-rich firm can identify who is sensitive to prices and who is not. It can get away with offering discounts to win customers while charging premiums to others. Competitors without the same data cannot respond in the same way. This gives the firm a two-sided advantage. Firstly, it can take customers from rivals and secondly also protect its own. This type of moat is essentially impossible to retaliate against.

The key difference for this case is how the competition works. When all firms can identify the same consumers, they bid against each other and push prices down. When only one firm has that information, competitors cannot respond in a targeted way so now the consumer is not protected by this price war. Rhodes and Zhou support how this unfair environment can make consumers worse off compared to full adoption or no adoption at all. The main effect from personalised pricing therefore comes not from it being widely used, but from it being used unevenly.

⁶ Rhodes, Andrew, and Jidong Zhou. "Personalized Pricing and Competition." *American Economic Review* 114, no. 7 (2024): 2141–2170.

⁷ Thisse, Jean-François, and Xavier Vives. "On the Strategic Choice of Spatial Price Policy." *American Economic Review* 78, no. 1 (1988): 122–137; Corts, Kenneth S. "Third-Degree Price Discrimination in Oligopoly: All-Out Competition and Strategic Commitment." *RAND Journal of Economics* 29, no. 2 (1998): 306–323.

This insight should change how the question should be approached. The phrase "widely used" does not mean fully adopted. Between a world with no personalised pricing and one with only personalized pricing, there is likely to be a long transition period where only some firms have this technology. If consumers are most harmed during this transitional phase, then the main issue is not personalisation itself, but the concentration of information in a few firms.

This issue connects to debates about digital markets as Lina Khan, Former Commissioner of the United States Federal Trade Commission, argues that modern platforms gain competitive advantages from their ability to accumulate and exploit data at unprecedented scale.⁸ Personalised pricing amplifies this tendency. Firms with better data can better calculate their consumers' willingness to pay more accurately, increasing their advantage.

In theory, full adoption could fix this by giving every firm the same information. However, in the real world, data is not shared evenly. If only a few firms hold most of it, the perfect information world that competition requires may never appear. The danger of personalised pricing may therefore be permanent, not just temporary.

Data concentration also creates a second concern of algorithmic coordination. The antitrust law assumes that collusion between firms requires communication or an agreement between firms. However, Calvano and co-authors show that pricing algorithms can learn to maintain supra-competitive prices on their own just by interacting over time, resembling collusive behaviour. This is because over time, each algorithm understands that undercutting its rivals results in price wars that reduces everyone's profits while having higher prices results in greater long-term gains. Thus, all algorithms decide on setting high prices even with no instructions.⁹

The significance of this goes beyond theory. Controversies on algorithmic pricing systems such as RealPage suggest that shared data and pricing algorithms can lead to fixed outcomes that current competition law fails to address.¹⁰ Whether any one case is illegal matters less than the

⁸ Khan, Lina M. "Amazon's Antitrust Paradox." Yale Law Journal 126, no. 3 (2017): 710–805.

⁹ Calvano, Emilio, Giacomo Calzolari, Vincenzo Denicolò, and Sergio Pastorello. "Artificial Intelligence, Algorithmic Pricing, and Collusion." American Economic Review 110, no. 10 (2020): 3267–3297.

¹⁰ U.S. Department of Justice, Office of Public Affairs. "Justice Department Sues RealPage for Algorithmic Pricing Scheme That Harms Millions of American Renters." Press release, August 23, 2024. <https://www.justice.gov/opa/pr/justice-department-sues-realpage-algorithmic-pricing-scheme-harms-millions-american-renters>.

bigger point of how personalised pricing may create new kinds of market power that old rules were not designed for.

The strongest defence of personalised pricing is that competition should solve many of these problems. When firms compete for customers, personalisation is used to offer discounts rather than to extract more profit. Examples such as airline pricing, supermarket loyalty schemes, and some forms of insurance pricing show that better technology can improve efficiency and access to consumers. Consumers who might otherwise be priced out can pay less, while firms have stronger incentives to serve a wider range of customers.

Of course, this objection exemplifies how personalisation can benefit consumers. However, it is purely conditional on the notion that all firms have similar data. Competition only functions when firms can target each other's customers equally. The problem is that this is unlikely to happen during the transition to full adoption of personalized pricing technology. In reality, data is highly concentrated, and firms develop abilities at different speeds. In this uncertain phase, the competition needed to protect consumers may not exist.

Even if competition eventually works, there is a remaining issue of legitimacy. Consumers care about fairness, not just efficiency. Kahneman, Knetsch, and Thaler showed that people often reject prices they see as unfair, even if they make rational economic sense.¹¹

Amazon learned this in 2000 when it tried charging different customers different prices for identical DVDs. The backlash forced it to refund customers and abandon this system.¹² The case is notable because personalised pricing has not become as widespread as profitability might suggest. This shows how just because something is profitable does not mean society will accept it.

This helps explain why some price differences are accepted and others are not. People understand student discounts or risk-based insurance prices because they are clear and explainable. By contrast, consumers often see hidden attempts to charge based on willingness to pay as unfair and exploitative.

¹¹ Kahneman, Daniel, Jack L. Knetsch, and Richard H. Thaler. "Fairness as a Constraint on Profit Seeking: Entitlements in the Market." *American Economic Review* 76, no. 4 (1986): 728–741.

¹² Weiss, Todd R. "Amazon Apologizes for Price-Testing Program That Angered Customers." *Computerworld*, September 28, 2000. <https://www.computerworld.com/article/1356061/amazon-apologizes-for-price-testing-program-that-angered-customers.html>.

In the end, the question is not whether firms can predict what consumers are willing to pay. It is whether markets can still play their informational role when prices are no longer public signals but simply tailored numbers. In normal markets, the same price is visible to everyone and it conveys the same information on scarcity, cost, and demand to everyone. With personalised pricing, each consumer sees a different price based on what the firm thinks they will pay, so now the price is not fixed and thus carries no information to the general public. If this becomes widespread, the key change is not what firms know about consumers, but what consumers and the world can no longer learn from prices.

Bibliography

Bergemann, Dirk, Benjamin Brooks, and Stephen Morris. "The Limits of Price Discrimination." *American Economic Review* 105, no. 3 (2015): 921–957.

Brigham Young University–Idaho. "Price Discrimination." *ECON 150: Microeconomics*, Lesson 8. Accessed June 1, 2026. https://courses.byui.edu/econ_150/econ_150_old_site/lesson_08.htm.

Calvano, Emilio, Giacomo Calzolari, Vincenzo Denicolò, and Sergio Pastorello. "Artificial Intelligence, Algorithmic Pricing, and Collusion." *American Economic Review* 110, no. 10 (2020): 3267–3297.

Corts, Kenneth S. "Third-Degree Price Discrimination in Oligopoly: All-Out Competition and Strategic Commitment." *RAND Journal of Economics* 29, no. 2 (1998): 306–323.

Dubé, Jean-Pierre, and Sanjog Misra. "Personalized Pricing and Consumer Welfare." *Journal of Political Economy* 131, no. 1 (2023): 131–189.

Kahneman, Daniel, Jack L. Knetsch, and Richard Thaler. "Fairness as a Constraint on Profit Seeking: Entitlements in the Market." *American Economic Review* 76, no. 4 (1986): 728–741.

Khan, Lina M. "Amazon's Antitrust Paradox." *Yale Law Journal* 126, no. 3 (2017): 710–805.

Rhodes, Andrew, and Jidong Zhou. "Personalized Pricing and Competition." *American Economic Review* 114, no. 7 (2024): 2141–2170.

Thisse, Jean-François, and Xavier Vives. "On the Strategic Choice of Spatial Price Policy." *American Economic Review* 78, no. 1 (1988): 122–137.

U.S. Department of Justice, Office of Public Affairs. "Justice Department Sues RealPage for Algorithmic Pricing Scheme That Harms Millions of American Renters." Press release, August 23, 2024. <https://www.justice.gov/opa/pr/justice-department-sues-realpage-algorithmic-pricing-scheme-harms-millions-american-renters>.

Varian, Hal R. "Price Discrimination." In *Handbook of Industrial Organization*, vol. 1, edited by Richard Schmalensee and Robert D. Willig, 597–654. Amsterdam: Elsevier, 1989.

Weiss, Todd R. "Amazon Apologizes for Price-Testing Program That Angered Customers." *Computerworld*, September 28, 2000. <https://www.computerworld.com/article/1356061/amazon-apologizes-for-price-testing-program-that-angered-customers.html>