Opting Out of the Algorithm: Evidence from Personalized Recommendations in E-Commerce*

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Abstract

What do consumers give up when they opt out of personalization? We study more than 150,000 consumers who turned off personalized recommendations on a major Chinese e-commerce platform after a 2022 regulation required platforms to offer this choice, linking their platform activity to their payments outside it. Attention falls sharply while purchases barely change: monthly item views fall by about a quarter and time on the platform by 12 to 15%, while orders fall by 3% or less. Total consumption is unchanged, as a small decline in platform spending is offset by spending elsewhere. Consumers stop exploring but keep buying through search and sellers they already know. Personalization thus generates attention far more than consumption, and opting out comes at little cost to consumers.

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Extended Abstract

Personalized recommendations are among the most visible uses of consumers' personal data online. Platforms argue that they help consumers find products they value; critics argue that they mainly hold consumers' attention and steer purchases consumers would have made anyway. Privacy and algorithm regulations increasingly give consumers the right to opt out of personalization, yet little is known about what changes when they do. Answering this question requires two things that are rarely available together: a long-lasting removal of personalization, and a measure of consumption beyond the platform. A platform observes only its own sales, so a decline in those sales could reflect lost demand or purchases that simply moved elsewhere.

We study consumers who turned off personalized recommendations on Taobao, a major Chinese e-commerce platform, after China's 2022 algorithm recommendation provisions required platforms to offer this choice. The toggle replaces the personalized feed with a generic feed based on platform-wide popularity. Consumers keep full access to the marketplace and its search function, and can switch personalization back on at any time. We ask three questions. How do attention and purchases respond when personalization is removed? Does spending move to other channels? And how do consumers shop without personalization?

We use administrative records for more than 150,000 consumers who opted out, observed monthly from August 2021 to July 2023. The records cover browsing and purchases on the platform and, through a link to the same consumers' Alipay payments, their spending outside it. Item-level records around the opt-out date complement the monthly panel.

Consumers choose when to opt out, and their activity typically rises in the weeks before the switch. We compare earlier with later opt-outers in a staggered difference-in-differences design (Callaway and Sant'Anna, 2021), measure effects against months before this run-up, and bracket the estimates with comparisons to consumers who never opt out, including a group matched on prior purchase histories. The browsing results survive substantial violations of parallel trends (Rambachan and Roth, 2023).

We report three main findings. First, attention falls sharply while purchases barely change. Monthly item views fall by about a quarter and time on the platform by 12 to 15%, while orders fall by 3% or less. A month after opt-out, purchases and spending are back at their level of a month before the run-up, while item views settle 26% below it. The browsing decline reflects the loss of personalization rather than the timing of the choice: it appears immediately after the logged switch, it is larger for consumers who relied more on the personalized feed, and it reverses when consumers switch personalization back on, with item views rising by 43% and orders unchanged.

Second, the small decline in platform spending reflects a reallocation of spending

rather than a loss of consumption. Among consumers who regularly shop both on and off the platform, platform spending falls by about 3% after opt-out, spending outside the platform rises by about 2%, and total spending is unchanged (-0.3%, s.e. 1.0%), ruling out a decline of more than about 2%. Without the linked payment records, the decline in platform spending would be indistinguishable from lost demand. To our knowledge, this is the first evidence on how removing personalization affects consumption beyond the platform that runs the algorithm.

Third, consumers stop exploring but keep buying through established habits. Clicks on the generic feed fall by 81%, consumers view 30% fewer distinct sellers and fewer items they have not seen before, and views through search and the shopping cart fall rather than replacing the feed. Purchases continue through search and familiar shopping relationships: the share of purchases from recently patronized sellers rises from 18 to 24%. The purchases that remain are not worse matches, as refund rates and checkout completion do not change.

Together, these results suggest that personalization on this platform generates attention far more than consumption. Much of the browsing it induces is spent on products consumers never buy. Whether that time is enjoyable window shopping or wasted attention, the consumers who opt out reveal that it is worth little to them: 83.5% never switch personalization back on, although doing so takes one click, and they spend 28 to 32 fewer minutes per month on the platform with no loss in consumption. The findings have implications for privacy policy. For consumers who exercise it, the right to opt out comes at little cost in purchases or product matches. The cost falls instead on the platform's attention-based revenue, a wedge between platform and consumer interests predicted by models of search diversion and biased intermediation (Hagiu and Jullien, 2011; de Cornière and Taylor, 2019). For regulators concerned that algorithms induce excessive consumption, as China's provisions are, our evidence points to attention and engagement rather than spending as the more relevant margin.

The paper contributes to three literatures. It adds to research on what recommendation systems produce (Kumar and Hosanagar, 2019; Sun et al., 2024) by following total browsing and purchasing for months after personalization is removed, and by observing consumption outside the platform. It is the e-commerce counterpart of social media deactivation studies (Allcott et al., 2020), in a setting where the outcome, purchases, is measured administratively. It also adds a consumer-side measurement of what follows the exercise of a privacy choice to research on the economics of privacy and consumer opt-outs (Acquisti et al., 2016; Johnson et al., 2020). Because opt-outers are self-selected heavy users, our estimates describe the effects for consumers who choose to opt out, not for the average user.

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