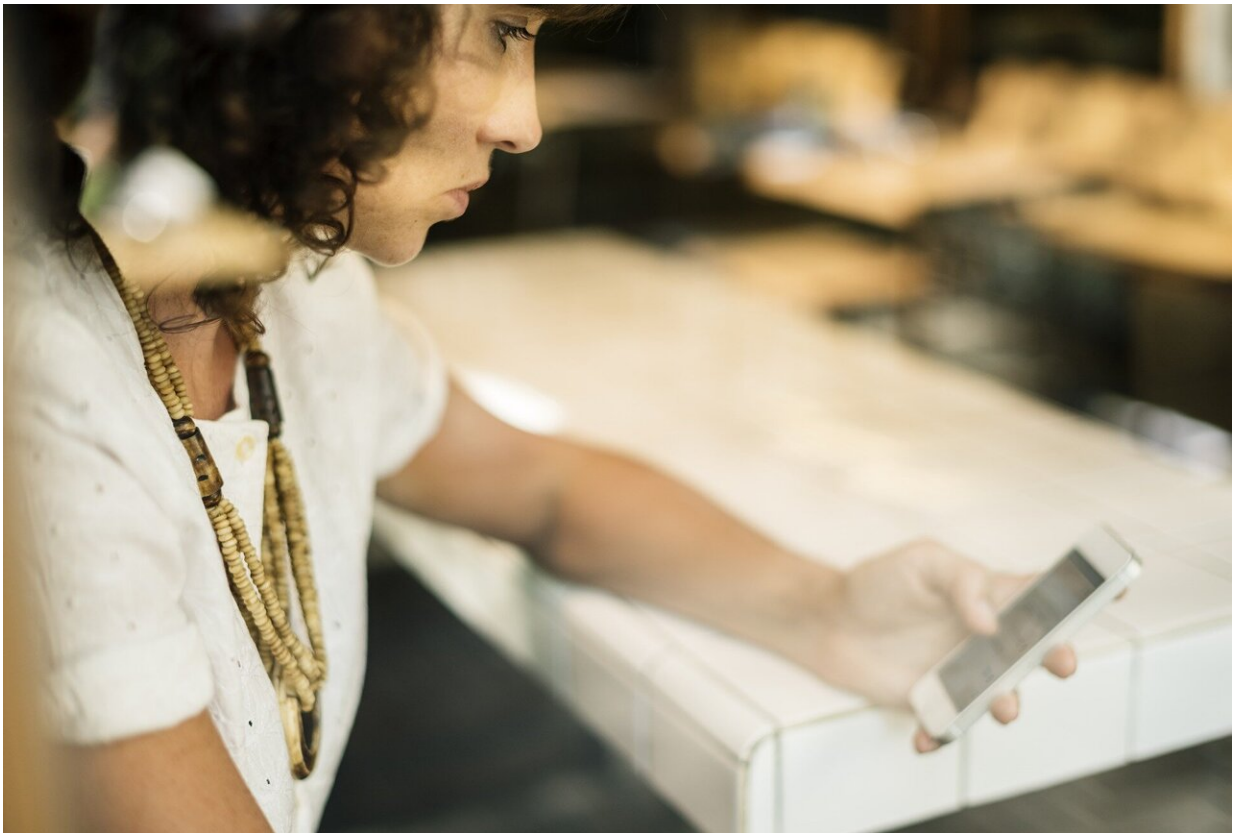# Big Tech privacy policies may limit ad variety, reducing performance and revenue

September 10 2024, by Shannon Roddel



Credit: CC0 Public Domain

In 2020, Google began the practice of "data minimization," or automatically deleting user data including location history and web activity after 18 months, in a bid to improve user privacy.

Such privacy-preserving policies by Google and other tech giants, especially those that reduce the retention period of consumer behavioral data, result in unintended consequences for advertisers, according to a new study from the University of Notre Dame.

The policies may limit ad variety, impacting both ad performance and revenue, according to lead author Shijie Lu, the Howard J. and Geraldine F. Korth, Associate Professor of Marketing at Notre Dame's Mendoza College of Business. Lu's research, "Within-Category Satiation and Cross-Category Spillover in Multi-Product Advertising," is published in the *Journal of Marketing*.

Along with Sha Yang from the University of Southern California and Yao (Alex) Yao from San Diego State University, Lu examined how policies designed to enhance consumer privacy affect advertising effectiveness, consumer behavior, advertiser profits and platform revenues.

The team focused on multi-product ads (MPAs), where multiple product advertisements are displayed within a single ad space.

"We found that while these privacy measures protect consumer data, they can inadvertently decrease consumer engagement and satisfaction with ads, ultimately resulting in fewer clicks and reduced ad performance," said Lu, who specializes in online advertising and user-generated content.

"This decline is largely driven by the reduction in ad variety leading to less diverse and less relevant ads displayed in MPAs due to the shorter periods of consumer data used for targeting."

According to the study, when a platform's privacy policy uses fewer days' worth of behavioral history data to match users with advertisers,

the result is that fewer categories such as men's clothes, hiking equipment, basketball t-shirts and men's shoes will appear, reducing the diversity of the ads.

Therefore, if a consumer has clicked all four of those product categories over the past 14 days, but only one of them in the past day, a policy that uses data from the past 14 days will have a greater variety of ads for them than a policy using only data from the past 24 hours. In that case, only one ad category would qualify, significantly reducing the variety of ads.

The team found the decrease in ad variety intensifies "within-category satiation," causing consumers to lose interest in ads for similar products within the same category after repeated exposure. At the same time, it diminishes "cross-category complementarity" where exposure to ads from different product categories enhances consumer interest in both.

"These insights are critical for platforms as they strive to balance consumer privacy concerns with the need to sustain effective advertising strategies," Lu said.

The study explored two additional policy scenarios related to ad variety.

First, it analyzed the economic impact of adjusting ad-serving policies by incorporating predicted clicks and bids (the amount of money an advertiser is willing to pay for an ad).

Predicted clicks, which reflect consumer behavior influenced by ad variety, proved more advantageous than relying solely on bids in assigning ad slots. By incorporating both factors, platforms can improve ad effectiveness and increase revenue without compromising advertiser profits or consumer engagement.

Next, the researchers investigated how modifying the reservation price (minimum bid) in ad auctions influences ad variety and [consumer behavior](#). They found that higher reservation prices reduce the number of product categories in MPAs, leading to a decrease in ad variety.

"While this approach may boost platform revenue in the short term, it has a negative impact on consumer satisfaction and advertiser profits," Lu said. "As a result, platforms must carefully calibrate reservation prices to balance their revenue objectives with the potential effects on consumer experience and advertiser returns."

For practitioners and stakeholders in the advertising industry, the research underscores the importance of understanding the trade-offs between privacy policies and ad effectiveness. Platforms should consider the implications of their privacy-preserving measures on ad variety and consumer engagement. While protecting consumer data is essential, it is equally important to ensure the measures don't undermine the effectiveness of advertising strategies.

"We encourage ad platforms to use our insights to refine their ad-serving policies," Lu said.

"By finding a balance between data privacy and ad effectiveness, they can better meet consumer needs and maintain robust revenue streams. Advertisers should also be aware of how changes in data usage and ad variety can affect their bidding strategies and overall campaign performance."

The team hopes their findings will inspire more nuanced approaches to ad-targeting policies and foster a more effective and consumer-friendly advertising environment.

**More information:** Shijie Lu et al, EXPRESS: Within-Category

Satiation and Cross-Category Spillover in Multi-Product Advertising, *Journal of Marketing* (2024). DOI: 10.1177/00222429241274727

Provided by University of Notre Dame