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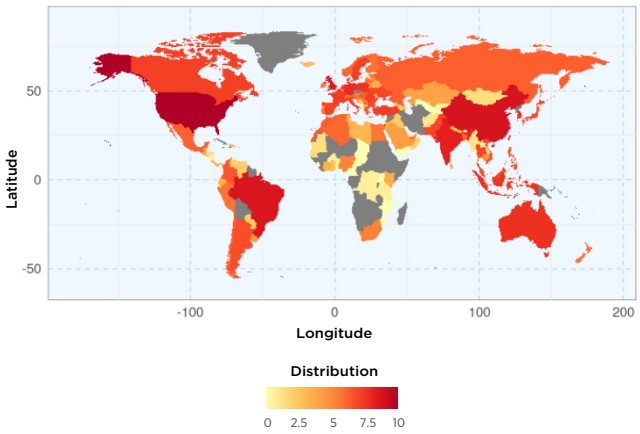
Estimating the Value of Offsite Data to Advertisers on Meta

Based on BFI Working Paper 2022-114, "Estimating the Value of Offsite Data to Advertisers on Meta," by Nils Wernerfelt, Meta Platforms; Anna Tuchman, Northwestern University; Bradley T. Shapiro, Chicago Booth; and Robert Moakler, Meta Platforms

Online advertisers benefit from data that are shared across applications; loss of such data would increase costs per incremental customer for the median advertiser by 37% and mainly impact advertisers in consumer-packaged goods, e-commerce, and retail.

Digital advertising is increasingly popular and constitutes most advertising spending, offering the ability to match ads to consumers' preferences. In part, this means that advertisers benefit when ad providers, like Facebook, can match ads to consumers based on the browsing history of other consumers who share similar characteristics. If you buy a pair of shoes, and Facebook's algorithm says that you and I are alike, then I will receive an ad for those shoes. Of course the information that you bought a pair of shoes constitutes "offsite" data for Facebook. Alternative outcomes for matching such as browsing history, or items that are currently in a user's online shopping cart are also not generated on Facebook and are thus also considered "offsite" data.

Figure 1 · Geographic Distribution of Advertisers



Note: The geographic distribution of advertisers in the authors' sample includes firms from 161 different countries. Note the log scale in the figure, though: the US is the most represented country, with around 22% of the authors' sample, with other major countries China (7%), Brazil (6%), and India (4%).

Such a service is valuable to advertisers, especially those selling niche products who otherwise might find it hard to compete against mass-produced items. In this paper, the authors estimate the value of such "offsite" data using a large-scale experiment across more than a hundred thousand advertising accounts on Meta (Facebook's parent company). This exercise is particularly pertinent as current—and possibly future—product and regulatory changes loom that may restrict use of such data. In Europe, for example, the General Data Protection Regulation (GDPR) requires explicit consent for users' individual behavior data to be used for ad targeting. On the product side, Apple's roll out of their "Ask App Not to Track" feature in iOS 14.5 meant a collective drop in valuation of $140 billion for major advertising platforms, and there is prospective legislation around the world that similarly would limit data sharing.

On the one hand, increasing privacy among consumers is viewed by many as a benefit; on the other hand, this comes at a cost to advertisers who experience fewer returns to their advertising dollars, and to users who are served less relevant ads. As the

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authors stress, any holistic assessment of costs and benefits should include the effects of policies on the advertising market. To assess such costs, the authors establish two treatment groups, the first includes ad campaigns on Meta that use offsite data ("business as usual," or BAU), while the second estimates the loss in advertising effectiveness when advertisers lose access to offsite data ("signal loss"). Broadly described, under BAU, Facebook's algorithms know who buys what; under signal loss, the algorithms only know who clicks which ads on Facebook.

Please see the full working paper for details on the authors' methodology, but at a high level, the authors run experiments on ad traffic wherein 1) they randomly select some users out from seeing ads, which allows estimations of ad effectiveness at baseline for campaigns using offsite data; and 2) they change a small fraction of traffic to be delivered as if it did not have offsite data. Repeating this process across hundreds of thousands of products, the authors can make statements about both ad effectiveness at baseline, and how much less effective the same campaigns would be without offsite data. They find the following:

- Under BAU targeting using offsite data, the authors estimate a median cost per incremental customer of $43.88, with 10th and 90th percentiles $5.03 and $172.77.

- The authors find a 37% increase in costs of acquiring new customers with the loss of offsite data. Further, about 90% of the estimated underlying effects lie below zero, suggesting a large share of the advertisers will see a decrease in ad effectiveness under signal loss.

- These cost increases are experienced mainly by small scale advertisers, which constitute most of the sample; larger scale advertisers are hurt less.

- The authors also examine the purchasing behavior of users six months after the study was run. Their experiment allows them to see whether ads delivered with or without offsite data generate more longer-term customers of those products, and they find evidence that purchase-optimized ads generate substantially more longer-term customers per dollar than click-optimized ads.

Bottom line: A wide range of advertisers, including those in consumer-packaged goods, e-commerce, and retail, obtain substantial benefit from offsite data.

Finally, while technologies may develop to meet the objectives of both privacy advocates and advertisers, until that day, policymakers and companies must weigh the tradeoffs in altering the offsite data ecosystem.

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