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March 6, 2020

How Consumer Data Affects Competition Through Digital Advertising

Control of internet users' personal data has become a widespread concern. Data-protection legislation has been implemented by states (e.g., the California Consumer Privacy Act) and other countries (e.g., the European Union's General Data Protection Legislation). Two bills introduced in the 116th Congress (S. 2637, S. 1578) would establish a national system through which individuals could request that their internet activity not be tracked. In addition to privacy implications, the collection of consumer data may affect competition among advertisers and among websites and apps that rely on digital ads as a source of revenue. This CRS product focuses on the competitive implications of the collection of large amounts of consumer data in digital advertising. As Congress considers legislation related to consumer data collection, there may be potential competitive effects to consider.

Consumer Data in Digital Advertising

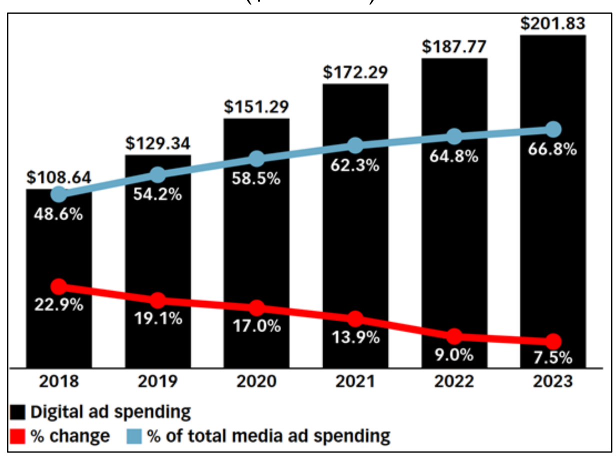
Digital advertising allows advertisers to send targeted ads, so that different users viewing the same website or app at the same moment may see different ads. To determine which ad each user receives, advertisers and operators of websites and apps can use software known as "ad tools." Advertisers use these tools to place automated bids in a marketplace that runs an instantaneous auction. Advertisers identify their target audience based on demographics, past content views, and other factors. They also indicate the level of exposure they want to achieve and the amount they are willing to bid. Websites and apps use ad tools to offer "ad spaces"—places where ads may be displayed—in the marketplace, with information about the user currently viewing the page. The user sees the ad chosen by the marketplace, selected based on the advertiser's bid and the relevance of the ad to the user. Ads receive higher relevance scores when they receive positive feedback, such as users clicking on the ad, whereas ads that trigger fewer responses receive lower scores.

Advertisers, as well as operators of websites and apps, have incentives to improve the targeting of ads by collecting detailed information about each user. Advertisers expect more precise targeting to increase user response. Websites' revenue may depend on how frequently users click on the ad or how much time is spent viewing the ad. For example, an advertiser of baby toys may want to present ads to users who have recently searched for diapers online, as they may be more likely to purchase baby toys. A website interested in displaying the ad would want to collect information on its users' search histories to identify those who have recently searched for diapers, as they may be more likely to click on the ad.

By using targeted ads, websites and apps may have an advantage over other forms of media that cannot target ads to individuals, such as magazines, radio, and broadcast networks. According to eMarketer, in the United States digital ad spending made up more than half of total ad spending in 2019 and is expected to make up about two-thirds of total ad spending by 2023 (**Figure 1**). Revenue from digital ads has been increasing over the last two decades. Much of the growth in recent years has come from advertising on mobile devices.

Figure 1. Estimates and Forecasts of U.S. Digital Ad Spending

($ in billions)



Source: eMarketer, February 2019.

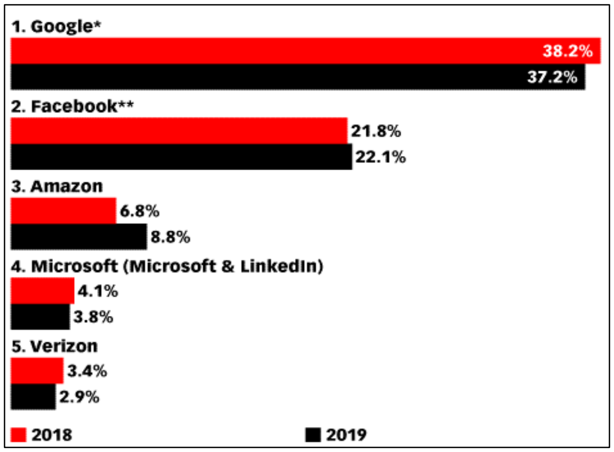
Note: % change reflects the year-on-year increase in digital ad spending. Estimates include advertising that appears on desktop and laptop computers as well as mobile phones, tablets, and other internet-connect devices; includes messaging-based advertising.

Competition Among Websites and Apps

Although any website or app can have digital ad spaces, most digital advertising revenue is collected by a small number of firms. The *IAB Internet Advertising Revenue Report* (October 2019) found that, in the second quarter of 2019, 76% of internet advertising revenue was concentrated in the top 10 leading ad-selling companies. According to eMarketer, Google and Facebook jointly received 60% of U.S. digital ad spending in 2018 and 59% in 2019 (**Figure 2**).

Websites and apps can obtain more consumer data by increasing the number of users or by acquiring more information about each user. Increasing the number of users potentially creates more ad spaces to sell to advertisers. Acquiring more information on each user can improve ad targeting, particularly if the website operator is able to create detailed profiles of individual users. Such information might, for example, enable the website operator to better predict future product needs or set different prices for its products based on the day of the week. The ability to correctly predict consumer behavior could be further amplified by advancements in machine learning or other forms of artificial intelligence.

Figure 2.Top Companies by U.S. Digital Ad Revenue
(% of total U.S. digital ad spending)



Source: eMarketer, February 2019.

Note: U.S. total digital ad spending in 2019=$129.34 billion; includes advertising on desktop and laptop computers as well as mobile phones, tablets, and other internet-connected devices; net ad revenues after companies pay traffic acquisitions costs to partner sites; *includes YouTube; ** includes Instagram.

Certain types of websites or apps may be better suited to obtain consumer data. An online marketplace or search engine is likely to have a wide variety of interactions with individual users who repeatedly shop or search for information. In contrast, a music streaming service may know only about users' musical tastes, location, and spending on its website.

The advantage of obtaining access to a large and continuously growing collection of information about individual consumers may encourage mergers and acquisitions. For example, in 2019, Google announced an agreement to acquire Fitbit, which sells products with which users can track their physical activity or sleep. By obtaining Fitbit users' fitness and health information, Google may be able to send them better-targeted ads, particularly ads related to their health. This, in turn, may encourage more advertisers in the health industry to work with Google.

The amount of consumer data amassed by established website operators may give them an advantage over market entrants. Entrants initially may have little information about consumers' past product views, responses to ads, or browsing history. Thus, entrants may be less appealing to advertisers, resulting in fewer or lower bids.

Some companies that operate websites and apps rely on ad tools created by their competitors. While these tools may help website operators better target their ads by using more consumer information than the website operators could collect on their own, the companies providing the ad tools obtain information about the websites' users as well. As a result, any consumer data obtained by a new website or app would be acquired by its competitor as well.

Competition Among Advertisers

Improved targeting may increase competition among advertisers. Ads from less-known advertisers may end up adjacent to ads from better-known competitors in response to a search term or phrase. An advertiser may also ask a website operator to serve its ads to users who have viewed a well-known competitor's website. Targeted ads may be particularly beneficial for online-only retailers that may need to rely on advertising and word-of-mouth to obtain customers, as they lack brick-and-mortar store locations.

On the other hand, the ability to target ads precisely may not increase competition if advertisers with large revenue streams dominate the ads consumers receive. Advertisers with large budgets may be able to outbid smaller advertisers for ad spaces. For example, internet users searching for a hotel room may be more likely to encounter ads from travel booking agencies and large hotel chains than from an independently owned hotel. Although relevance scores could help mitigate this advantage, large advertisers may still maintain an advantage by conducting extensive market research to ensure their ads are successful. New advertisers or advertisers with small budgets may have difficulty competing for ad spaces under such circumstances, while consumers searching for a particular product may continuously see ads from the same advertiser.

Federal Cases on Consumer Data

The Department of Justice (DOJ) and Federal Trade Commission (FTC) enforce federal antitrust laws. They are reportedly investigating four companies—Amazon, Apple, Facebook, and Google—for anticompetitive behavior, including through their use of consumer data. The DOJ and state attorneys general are reportedly investigating Google, particularly for bundling its ad tools together and requiring the use of its ad tools to place ads on YouTube, a video streaming service owned by Google.

It is generally not considered anticompetitive to control a large amount of consumer data. The fact than an advertiser or website operator has a large amount of data could indicate that it is successful in attracting customers or users. However, companies can also obtain large amounts of data through anticompetitive behavior, depending on how the data is collected, analyzed, and used. Some have argued that there is no incentive to limit or prevent others from obtaining consumer data because it is nonrivalrous—that is, the value of data to one firm does not diminish because more companies have access to the data. However, advertisers and websites and apps that already have a large amount of consumer data may have an advantage over others, particularly if restrictions are placed on the future acquisition of consumer data but not on the use of data previously obtained.

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