

Testimony of
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On
Understanding the Digital Advertising Ecosystem
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Chairman Latta. Ranking member Schakowsky, and members of the subcommittee, thank you for the opportunity to testify today on the Digital Advertising Ecosystem. I am Howard Beales, a Professor of Strategic Management and Public Policy at the George Washington School of Business. I have published a number of academic articles on privacy regulation. From 2001 to 2004, I was the Director of the Bureau of Consumer Protection. During that time, the Commission re-thought its approach to privacy regulation and promulgated the National Do Not Call Registry.

I want to make three essential points this morning. First, internet content is a public good: it is not used up in consumption. Private market provision of such public goods has generally depended on revenue from advertising, as does internet content today. Second, the value of advertising depends critically on the availability of information about the likely viewer. When information is available, advertising prices are roughly 3 times higher than when there is no information about the viewer. Impairing the flow of information would significantly reduce the revenues available to support internet content, an impact that would be particularly problematic for smaller publishers. Third, advertising is actually beneficial to consumers. It leads to more competitive markets, with lower prices and more product improvements. It also narrows the differences between different demographic groups.

Internet Content is a Public Good

The Internet has allowed an unprecedented diffusion of information to consumers. Among a nearly infinite variety of possibilities, consumers can now listen to radio broadcasts, watch television programs, read the daily paper, or just hang out with their friends online. Although these activities have considerable value to consumers, they are frequently supplied to

consumers free of charge. Instead, Internet content is largely funded by advertisers who pay to have their ads included along with the online content.

From an economic perspective, Internet content is a “public good.” Unlike private goods, public goods are not “used up” in consumption, and instead remain available for other consumers to enjoy. A classic example of a public good is free broadcast radio or television. Any number of consumers can enjoy the content, without any additional costs of providing it.

Long before the Internet, publishers developed effective mechanisms to finance content that consumers wanted despite the public good nature of their product. Conventional media markets face the same underlying economic issues, and offer valuable insights into successful models for the provision of content.

The most common market mechanism for providing public goods is advertising. In effect, advertising converts the public good of media content into a private good of exposures to advertising. Content becomes a way for the publisher, to attract an audience that in turn can be sold to advertisers. Because advertisers ultimately want to reach individual consumers, a larger audience is more valuable than a smaller one – it produces more advertising exposures available for sale.

The business of producing content and selling advertising is a “two-sided” or “platform” market. Content must attract an audience, but the platform must also attract advertisers. The financial support for the content comes from advertising revenue. In some circumstances, such as directories or fashion magazines, advertising may increase the overall value of the product to consumers. In other circumstances, however, advertising is a nuisance: Too much advertising, or advertising that is too intrusive or offensive to consumers, may drive away some of the

audience, thereby reducing the number of advertising exposures that can be sold. The publisher must consider both sides of the market in deciding what content to provide and how much advertising to offer.

Throughout history, advertiser support has been a vital revenue source for media companies. Many, such as free broadcast radio or television, depend almost entirely on advertising revenue for survival. Also common are mixed models, such as the typical magazine or newspaper, or cable television programming, where subscription payments from consumers provide some revenue, but typically advertising revenue remains vital and is frequently the largest source of revenue.

There are, of course, some models that are purely supported by subscription revenues, such as satellite radio or premium cable TV channels. Market behavior makes clear, however, that most consumers most of the time are not willing to pay a premium price to avoid advertising content.

There is nothing fundamentally different in the provision of online content from providing similar content in conventional media markets. Publishers, ranging from major media companies to specialty sites that specialize in particular niches, must cover the costs of producing the content they provide. Although there are other models, by far the most common business model supporting the provision of Internet content is advertising. Given the long history of advertiser supported media markets, that fact should not be surprising.

The Value of Advertising Depends on Information

In any media market, the price of advertising depends on the characteristics of the audience. In conventional media, where large numbers of consumers of necessity see the same advertisement, advertisers choose where to advertise based on the demographic characteristics of the audience as a whole. Not surprisingly, some audiences are more valuable than others, because more advertisers are interested in reaching them or they are harder to attract to programming. Advertising prices therefore depend on audience demographics as well.

Online, each consumer who visits a website can be served a different advertisement. What advertisers are willing to pay for that slot, however, depends critically on what they know about the viewer. And in turn, what advertisers are willing to pay determines the resources available to support the content of that particular website. Anonymity may appear attractive to an individual viewer, but because it reduces the price of the advertisement, it reduces the revenue available to support the content of the website that the viewer is enjoying. It is, in short, a subtle form of free riding on the contributions of others.

There are two predominant forms of online advertising: search advertising and, broadly speaking, display advertising. Search advertising is purchased based on the keywords that a consumer has just entered in a search engine and is usually sold on a cost per click basis. That is, the web page is paid based on the number of clicks on the advertisement, rather than the number of consumers who see it. Advertisers bid for keywords, and the search engine provider will select which advertisements to include in the results based on the bid price and its own estimate of the likelihood that this consumer will find the advertisement sufficiently interesting to click on

it. Information that enables the search provider to make better estimates of the likelihood that a consumer will click on the link will increase the provider's revenue.

The other major category of online advertising is display advertising, which includes display and banner ads, rich media, and digital video ads. Display advertising is generally sold on a cost per thousand (CPM) basis. Third party intermediaries, including advertising networks and ad exchanges, are key participants in this marketplace. Advertising networks pool inventory from numerous, usually small publishers. Advertising is increasingly sold in real-time auctions, with advertisers bidding for particular advertising availabilities based on what, if anything, they know about the viewer. In the auction, the highest bidder wins the advertisement, at the price offered by the second highest bidder. Information about the viewer is obtained through cookies, which enable advertising networks and others to determine what other websites that particular user has visited.

In two separate studies, I have examined the impact of better information on the price of digital advertising. In a 2010 study, I surveyed 12 of the 15 largest advertising networks to determine the impact of behavioral targeting, which uses data based on user browsing behavior across multiple web sites to categorize likely consumer interest in a given advertisement. I compared the price of advertising on a CPM basis when it was sold based on behavioral targeting with the price when the advertisement was sold on a "run of network" basis, meaning that it could appear anywhere on the network with no specification as to the characteristics of the user. I found that the CPM for behaviorally targeted advertising was roughly 3 times higher than the

price of run of network advertising – a substantial price premium. I also found that the majority of advertising revenue was passed through to the publisher.¹

A second study, with Jeffrey Eisenach, analyzed 2013 impression-level data from two anonymous operators of automated advertising exchanges to determine how better information influenced the auction price. We found that more information led to a price premium that was both statistically and economically significant. If there was a cookie available with the impression, the price was roughly 3 times higher than if there was no cookie. Moreover, the longer the cookie had been in place, the greater was the increase in price. The price of an impression with a cookie that had been in place for 90 days was 3.7 times higher than the price with no cookie on one exchange, and 7.1 times higher on the other. The study also used data from Adomic, which measured the relative prevalence of different advertising sales models across the top 4,000 Internet publishers. Even the largest publishers sold about half of their advertising availabilities through third-party technologies, while smaller, “long-tail” publishers relied on these approaches for up to two thirds of their advertising sales.²

Other studies support the same conclusion: the value of online advertising, and hence the revenue available to support the production and development of online content, depends critically on the availability of information about the likely viewer of the ad. Regulatory requirements that impair the flow of information will significantly reduce the revenue available

¹ Howard Beales, “The Value of Behavioral Targeting,” published online by Network Advertising Initiative, available at http://www.networkadvertising.org/pdfs/Beales_NAI_Study.pdf, March, 2010.

² J. Howard Beales and Jeffrey A. Eisenach, “An Empirical Analysis of the Value of Information Sharing in the Market for Online Content,” published online by Digital Advertising Alliance, available at <http://www.aboutads.info/resource/fullvalueinfostudy.pdf>, January, 2014.

to online content producers, leading to a less vibrant Internet. The impact will be greatest on the smaller publishers, who are most dependent on third-party technologies for advertising revenue.

It is also vital to recognize that regulatory rules are likely to have very different impacts on different companies. Companies that utilize sign-ins are likely to have the most information, because they can typically observe the consumer's behavior whenever he or she is signed in to the service. Thus, Facebook and Google likely have significant informational advantages over other participants in the online advertising marketplace. Some large publishers with many different content pages will have information about behavior as the consumer moves around their various offerings. Other important participants in the online marketplace, however, are not consumer-facing at all. Instead, they work with publishers or advertisers to observe behavior across independent websites through the use of cookies. There are numerous such companies, most of whom consumers have never heard of – for example, 33across, Accuen, Acuity, and Adara, which happen to be the first four names on the the list of members of the Network Advertising Initiative. More elaborate consent requirements could seriously disadvantage these companies, and help protect the market shares of the current leaders in the online advertising market: Facebook and Google. As in many other areas, large players in online advertising markets have incentives to agree to regulatory requirements that they can satisfy more easily than their smaller competitors. And as in any other market, creating regulatory barriers that have the effect of protecting market leaders from competition is bad for consumers.

Advertising Provides Important Benefits for Consumers

Individually, we may think of advertising as a nuisance, and many times it is. The ability to advertise, however, is critical to maintaining effective competition in markets for goods and services.

The competitive benefits of advertising are by now well known. In the words of Nobel Laureate George Stigler, “advertising is an immensely powerful instrument for the elimination of ignorance.”³ Informed consumers drive the competitive process, benefitting all consumers as sellers compete for the informed minority.⁴ Numerous economic studies have shown that restrictions on advertising increase prices to consumers, even when advertising does not mention price.⁵

Advertising also stimulates innovation. If sellers cannot advertise innovative products, or if they cannot tell consumers why new product characteristics are important, there is less incentive to make improvements in the first place.⁶ One of the best studied examples involves Kellogg’s 1984 claims for All Bran cereal, conveying the then novel recommendation of the National Cancer Institute (“NCI”) that diets high in fiber may reduce the risk of some cancers.⁷ The science, which was based largely on epidemiology rather than human clinical trials, was

³ George J. Stigler, *The Economics of Information*, 64 *J. POL. ECON.* 213, 220 (1961).

⁴ See, e.g., Alan Schwartz and Louis L. Wilde, *Intervening in Markets on the Basis of Imperfect Information: A Legal and Economic Analysis*, 127 *U. PA. L. REV.* 630 (1978-1979).

⁵ The FTC itself has summarized the empirical evidence regarding the impact of advertising on prices. See *In re Polygram*, 2003 WL 21770765 (FTC), Docket No. 9298 (July 24, 2003), at note 52.

⁶ Advertising is an intangible investment, whose value can only be recovered through repeat sales. Sellers invest in and maintain product quality to generate repeat business. See Phillip Nelson, *Advertising as Information*, 82 *J. POL. ECON.* 729 (1974).

⁷ The Kellogg incident is discussed in J. Howard Beales, Timothy J. Muris, and Robert Pitofsky, “In Defense of the *Pfizer* Factors,” in James C. Cooper, Ed., *The Regulatory Revolution at the FTC: A Thirty-Year Perspective on Competition and Consumer Protection* (Oxford University Press, 2013), pp. 83-108.

uncertain. Citing these uncertainties, the FDA threatened to seize All Bran as an unapproved new drug. When the FTC and the NCI defended Kellogg, the FDA changed course.

An FTC Staff Report documented the impact of the Kellogg campaign and its aftermath.⁸ Increased advertising about fiber content and its relationship to cancer risks led to significant changes in cereals.⁹ Claims about the relationship between diet and disease increased elsewhere as well, with similar marketplace impacts. For example, claims about the relationship between diet and heart disease rose from less than 2 percent of food advertising in 1984 to more than 8 percent in 1989;¹⁰ consumption of fat and saturated fat, the primary dietary risk factors for heart disease, fell far more sharply after 1985.¹¹ Again, advertising led to beneficial changes in diet.

Advertising is particularly important to less advantaged groups. The FTC Staff Report documented that although fiber consumption increased for all groups, it increased more among racial minorities and single parent households.¹² Another study has shown that the least educated paid the highest increase in prices when eyeglass advertising was restricted.¹³

Online advertising can be expected to have similar effects to any other advertising, and those effects are generally good for consumers. Restrictions that impair its effectiveness can only reduce those benefits.

⁸ Pauline Ippolito & Alan Mathios, Health Claims in Advertising and Labeling: A Study of the Cereal Market, FTC Staff Report (1989), available at <http://www.ftc.gov/be/econrpt/232187.pdf>.

⁹ For example, the fiber content of new cereals increased 52 percent, and the weighted average content of cereals (reflecting both product changes and changes in consumer choices) increased at a significantly higher rate than before health claim advertising began. Ippolito and Mathios, *supra* note 8.

¹⁰ Pauline Ippolito & Janice Pappalardo, Advertising Nutrition & Health: Evidence from Food Advertising, 1977–1997, FTC Staff Report (2002), available at <http://www.ftc.gov/opa/2002/10/advertisingfinal.pdf>.

¹¹ Pauline Ippolito & Alan Mathios, Information and Advertising Policy: A Study of Fat and Cholesterol Consumption in the United States, 1977–1990, FTC Staff Report (1996), available at http://www.ftc.gov/be/consumerbehavior/docs/reports/IppolitoMathios96_fat_long.pdf.

¹² Ippolito and Mathios, *supra* note 8.

¹³ Lee Benham & Alexandra Benham, Regulating through the Professions: A Perspective on Information Control, 18 J.L. & Econ. 421 (1975).

Thank you again for the opportunity to testify today. I look forward to your questions.