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Advertising disclosures: Measuring labeling alternatives in internet search engines

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ABSTRACT

In an online experiment, we measure users' interactions with search engines, both in standard configurations and in modified versions with clearer labels identifying search engine advertisements. In particular, for a random subset of users, we change "Sponsored links" or "Ads" labels to instead read "Paid Advertisements." Relative to users receiving the "Sponsored link" or "Ad" labels, users receiving the "Paid Advertisement" label click 25% and 27% fewer advertisements, respectively. Users seeing "Paid Advertisement" labels also correctly report that they click fewer advertisements, controlling for the number of advertisements they actually click. Results are most pronounced for commercial searches, and for vulnerable users with low education and little online experience.

1. Introduction

Search engines combine two kinds of links: So-called "algorithmic" links (also known as "organic" links) present the results a search engine deems most relevant for a given search phrase, selected based on page contents, keywords, links, and other factors. So-called "sponsored" links give the results a search engine is paid to show, selected based on an advertiser's payment along with an assessment of the match between the advertisement and the user's search (Edelman et al., 2007).

Search advertisements have become a huge business—the mainstay of Google's $25 + billion of annual revenue. Many search advertisements are helpful—promoting products directly responsive to users' requests. Other search advertisements are less helpful; some promote counterfeits (Thompson, 2010), others trick users into installing spyware/adware (Edelman, 2006a), and still others resort to alternative methods of deception (Edelman, 2006b).

Pursuant to longstanding legal principles and recent FTC instructions, all leading search engines now include a label near advertisements. However, no search engine uses the "Paid Advertisement" label that legal precedent has required in other media. Seeing a divergence between industry practice and applicable legal precedent, we seek to measure the effects of labeling advertisements in the way that prior cases specify.

Our motivations are several. For one, with more than two billion people now using the Internet, search engine advertisements are a strikingly important and sizeable

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market. In this context, even a small change in user understanding could result in large changes in aggregate browsing behavior. That said, other compulsory disclosures provide cause for concern; consider the ever-present "objects in mirror are closer than they appear"—often a subject of mockery. Would improved labels on search engine advertisements make any real difference? Or are users already well-informed when it comes to search engine advertisements? Our online experiment lets us address these questions, while simultaneously providing evidence for which users respond most to changes in advertisement labels.

We proceed in six parts. In Section 2, we review related research on search engine, advertisements, and user understanding. In Section 3, we present applicable regulation. In Section 4, we examine current labels at leading search engines. In Section 5, we explain our methodology, including our online experiment. In Section 6, we present results, and in Section 7 we consider policy implications.

2. Prior research

An early literature suggests that users struggle to distinguish search engines' algorithmic results from advertisements. A 2003 Consumer Web Watch study interviewed users about their searching patterns, finding that users tended to overlook disclosures associated with advertisements. (Marable, 2003) After learning that "sponsored" links are actually advertisements, one participant reported that "it wasn't clear to me what Sponsored links were or what [the term meant]" (p.24), and the majority of participants reported that "sponsored" labels were too vague, easily misinterpreted, and confusing (pp.26–27). When CWW asked users to suggest alternatives, users suggested "advertisement" and "Paid Advertisement" (p.26), the same terms we test in the experiment in this paper.

A 2005 Pew Internet & American Life report found ongoing confusion among search users: Just 38% of searchers were aware of a distinction between paid and unpaid results. (Fallows, 2005) Even among users who are aware of the distinction between paid and unpaid results, only 47% said they could always tell which results are paid (p.ii). Of various options to improve advertisement disclosures, the label "paid" was most popular among all participating users (p.19).

Our research question is closest to Jansen et al. (2007). Randomly swapping algorithmic and advertisement links, Jansen finds that searchers prefer to click links that searchers believe are algorithmic results rather than advertisements. However, our implementation employs live page rewriting: where Jansen presented participants with static screenshots depicting modified results pages, we present working interactive search results—an important advance, we argue in Section 5. Our page rewriting technique is most similar to similar Pan et al. (2007), though Pan addresses a different question (the relationship between result ordering and user attention).

Several articles consider the possibility that users dislike clicking on advertisements and will seek to avoid advertisements if they can. For example, Rayo and Segal (2010) posit an advertising platform which is able to bait-and-switch—fooling users into clicking advertisements in which they had no genuine interest. Of course such a strategy would be difficult in equilibrium; users might realize that they are being tricked. But our context presents a mechanism by which search engines could extract more clicks than users intended to perform—using labels that are less than fully informative in order to increase clicks from whatever subset of users do not understand the labels.

A parallel line of research posits that advertisements are less effective in circumstances that prompt consumers' suspicion. Kirmani and Zhu (2007) suggest that advertisers avoid such placements when deciding where to advertise, while Friestad and Wright (1994) suggest that advertisers refine their tactics in light of consumer skepticism. Putting aside the obvious legal and ethical concerns, advertisers would sidestep the concerns flagged in these articles if they could present their offers to consumers without consumers recognizing the offers as advertisements.

Separately, a sizable literature evaluates interactions between advertisements and certain kinds of users. For example, Biener and Alberts (2004) evaluate various demographic groups' relative receptiveness to tobacco marketing, finding patterns by age and race. Similarly, Jacoby et al. (1982) measure user understanding of pharmaceutical disclosures, finding differences by age, education, and race. Goldfarb and Tucker (2011) consider patterns in users' response to certain online advertisements, finding relationships between users' propensity to click on advertisements and users' stated privacy concerns.

Our findings also extend the literature on shrouded attributes. For example, Brown et al. (2010) compare the influence of item price and shipping cost in users' purchases at eBay, and Gabaix and Laibson (2006) consider users' choice of printers when ink costs vary. On one view, it is no surprise that consumers fail to consider costs of ancillary services in those contexts: in the period Brown et al. consider, users needed to visit an extra page to see shipping costs at eBay; users evaluating long-term printing costs would need to estimate cartridge lifespan, cartridge price, and their future printing needs. In contrast, search engines' disclosures appear adjacent to advertisements and require considering no additional information—a context where users might be expected to process the information particularly easily. In finding evidence to the contrary, we extend the literature on shrouded attributes, showing how information can be difficult for consumers to process even when visible and in plain view.

3. Applicable regulation

For more than two decades, the FTC has regulated advertisements that consumers might mistake for editorial or other non-advertising content. In literally dozens of cases, the FTC has pursued deceptive infomercials that purported to be independent programming rather than paid advertisements. (Ruskin, 2003, note 7) The FTC has specifically enjoined any "advertisement that misrepresents,