

Targeting in Advertising Markets: Implications for New and Old Media

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Extended Abstract

The ability of firms to target consumers is an element of rising importance in determining the allocation and the price of advertisement in a market. In this paper, we set out to understand its role. We first describe the equilibrium allocation of advertisement in a central medium visited by heterogeneous buyers. We then introduce many markets with the possibility of targeting. In this context, we extend the analysis to allow for display advertisements, and for sponsored search, which is naturally viewed as advertising with a particularly effective targeting technology.

In the model, we consider a countable set of advertising markets (media), and a countable set of products (firms). A continuum of buyers is distributed across the markets. Each buyer is only interested in one product, so each product has share of potential customers. A consumer can only purchase a product if she is alerted by an advertisement message. Firms can purchase messages on each market separately, so the concentration of similar buyers in a given market is a measure of the targeting ability. However, each message is received at random (with uniform probability) by one of the consumers. This generates two kinds of information frictions: first, a message might be received by an uninterested consumer; second, a consumer may receive multiple, but redundant messages. Therefore, the advertising technology displays decreasing returns.

We consider a fixed supply of messages in each market, which are sold at a single price. In equilibrium, we find that only firms with large shares of buyers (on a given market) buy a positive number of messages. We also find that the concentration of buyer types and the targeting ability improve the efficiency of the equilibrium allocation, measured by the total number of purchases (matches). We then analyze the implications of increasing the targeting ability on the equilibrium prices and allocation of advertisements. An increase in the targeting ability increases the concentration of advertisement messages, by reducing the number of participating firms in each market. An increase in the targeting ability also leads to an increase in the social welfare, and in the social value of advertisements. Despite this, we find that over a large range of parameter values, the equilibrium price is decreasing in the targeting ability. This result can be traced to the strong

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decrease in competition for a more targeted audience, which causes a decline in the demand for advertisement.

The interaction of new and old media is of particular interest when consumers can be exposed to advertisement on both. We trace out the implications of targeting for the prices and revenues each medium can sustain in the presence of competition. In this respect, we think of the interaction of traditional media – such as newspapers or TV – with both display (banner) and sponsored search advertisements. Display advertisements allow for targeting through superior knowledge of the consumer’s preferences (attribute targeting). Sponsored keyword search advertisements allow to infer the consumer’s preferences from her actions (behavioral targeting). We find that the implications of these two online channels are similar, despite very different price formation mechanisms. As expected, competition lowers the price of advertisement on the traditional medium. However, we show that competition by an online (targeted) medium lowers the revenues of old media more than competition by a similar (traditional) channel.

KEYWORDS: Targeting, Advertisement, Online Advertising, Sponsored Search, Media Markets.

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