

MISQ Archivist

Toward a Digital Attribution Model: Measuring the Impact of Display Advertising on Online Consumer Behavior

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Abstract

The increasing availability of individual-level data has raised the standards for measurability and accountability in digital advertising. Using a massive individual-level data set, our paper captures the effectiveness of display advertising across a wide range of consumer behaviors. Two unique features of our data set that distinguish this paper from prior work are (1) the information on the actual viewability of impressions and (2) the duration of exposure to the display advertisements, both at the individual-user level. Employing a quasi-experiment enabled by our setting, we use difference-in-differences and corresponding matching methods as well as instrumental variable techniques to control for unobservable and observable confounders. We empirically demonstrate that mere exposure to display advertising increases users' propensity to search for the brand and the corresponding product; consumers engage both in *active search* exerting effort to gather information, and in *passive search* using information sources that arrive exogenously. We also find statistically and economically significant effects of display advertising on increasing consumers' propensity to make a purchase. Furthermore, our findings reveal that the longer the duration of exposure to display advertising, the more likely the consumers are to engage in direct search behaviors (e.g., direct visits) rather than indirect ones (e.g., search engine inquiries). We also study the effects of various types of display advertising (e.g., prospecting, retargeting, affiliate targeting, video advertising, etc.) and the different goals they achieve. Our framework for evaluating display advertising effectiveness constitutes a stepping stone toward causally addressing the digital attribution problem.

Keywords: Online advertising, big data analytics, display advertising, advertising effectiveness, digital attribution, quasi-experiment