



# Television, Search and Digital Advertising

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I will present research that considers the potential to improve the efficiency and efficacy of broader advertising efforts through cross channel coordination between TV and digital advertising. In our research, we consider the types of devices on which search response predominantly manifests following TV advertisements, and the degree to which shifts in search activity can be used to evaluate the success of TV advertisers' targeting efforts. We leverage data on TV advertising around Microsoft Windows 10 and an Xbox video game, in combination with large-scale proprietary search data from Microsoft Bing. Our identification strategy hinges on a combination of geographic heterogeneity in TV advertising exposure and continuous variation in the cost of TV advertisements (a proxy for TV audience size). We first demonstrate that search response peaks within three minutes of the airing of a TV advertisement, and that this manifests primarily via second-screen devices. Our estimated elasticities indicate that a 20% increase in advertising spend equates to an approximately 2.5% (3.4%) increase in search volumes for Windows 10 (the Xbox game). Second, we show that, indeed, the demographic groups targeted by TV advertisements are those most likely to respond, and we thereby demonstrate that TV ad effectiveness can be usefully measured via online search data. Third, examining sponsored search clicks in our query-level data, for queries involving brand-related keywords, we demonstrate a significant increase in rank-ordering effects in searches that take place in the minutes immediately following a TV advertisement, which implies a complementarity between TV and sponsored search advertisements. In my talk, I will also discuss the future of cross-channel advertising coordination and the many projects we have underway combining (Re)Search and TV.

## Biography

Shawndra Hill is a Senior Researcher at Microsoft Research NYC. Before joining Microsoft, she was an Assistant Professor in the Operations and Information Management at the Wharton School of the University of Pennsylvania, where she is still an Annenberg Public Policy Center Distinguished Research Fellow, a Wharton Customer Analytics Initiative Senior Fellow, and a core member of the Penn Social Media and Health Innovation Lab. Generally, she researches the value to companies of mining data on consumers, including how consumers interact with each other on social media -- for targeted marketing, advertising, health and fraud detection purposes. Her current research focuses on the interactions between TV content and Social Media ([www.thesocialtvlab.com](http://www.thesocialtvlab.com)). Dr. Hill holds a B.S. in Mathematics from Spelman College, a B.E.E. from the Georgia Institute of Technology and a Ph.D. in Information Systems from NYU's Stern School of Business.