Online Advertising and Market Polarization

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Internet has enhanced the capacity of firms to measure the impact of their advertising on sales and overall business performance. On the one hand, advertisers can better target their ads to the activities consumers are doing. On the other hand, advertisers can also compute the returns on their publicity spending by tracking the purchasing behavior of the consumers that click to their ads (Goldfarb, 2012; Blake et al 2015; Goldfarb and Tucker, 2018). Despite the positive outlook, advertisers struggle when efficiently designing their advertising campaigns. Because a growing fraction of internet consumers frequently browse multiple publishers (newspapers, social networks, news aggregators), it is difficult to avoid offering the same customer the same ad multiple times and consequently wasting valuable resources. This inefficient duplication of exposure evidently reduces the impact of advertising expenditures on firms' sales.

For this reason, advertisers may design their advertising campaigns considering the publishers' share of loyal and switching consumers. Recent theoretical research by Athey et al. (2018) shows that advertisers may place ads in a limited number of publishers to reduce their costs in markets with a large presence of switching consumers (and with imperfect tracking). By contrast, advertisers may contract ad space in a larger number of publishers to increase their reach and access more consumers when the share of loyal consumers is relevant. Our research project aims to contribute to this literature by empirically examining the relationship between advertising performance and market polarization in the context of internet news publishers. In particular, we consider the fast polarization process in the audience of Spanish news outlets following some recent episodes of political turbulence surrounding the secessionist movement in Catalonia, a region in Spain.

By 2010, a part of the Catalan society demanded the opening of a political process that had to lead to the celebration of a referendum for the independence of Catalonia from Spain's central government control. This popular mobilization forced the celebration of a regional election in September of 2015, in which for the first time some Catalan political parties officially included the independence of Catalonia in their political program. Because of the polarization of Catalan and overall Spanish society, Spanish digital news outlets followed suit increasing their partisanship and experiencing important changes to the composition of their audiences. Our research project will use the Catalan regional elections in 2015 and 2017 as exogenous sources of variation in the polarization of the market for news in Spain to examine the effect of polarization and multi-homing on advertisers' strategies and advertising performance.

Specifically, the success of our research project relies on the examination of the factual relevance of three different empirical facts: (i) the extent to which polarization in the market for news outlets existed and which news outlets affected; (ii) whether the polarization of the market (increase of loyal consumers) changed advertising strategies (reach and advertising intensity); (iii) whether there is heterogeneity in the impact of the changes in the advertising strategy across advertisers (e.g. high vs. low value advertisers); and, (iv) whether Catalan (local) advertisers (as opposed to non-Catalan firms) changed their advertising activity to compensate for a potential boycott of consumers outside Catalonia.

Data and empirical methodology

Our study will combine information from two complementary sources. We will use data at the domain level from SimilarWeb, a web measurement company providing traffic data and user-engagement statistics. The data set contains information for 80 Spanish online domains, 50 news

outlets and 30 non-news outlets. This data set includes information about each domain daily number of visits, and several engagement metrics per day. We complement these data with information on advertising metrics at the domain-advertiser-page level from Arce Media, a firm specialized in the collection and analysis of advertisement information in Spain. We will consider several measures for our analysis, such advertisement Intensity, daily revenues, and daily advertisers. The data we use come exclusively from desktop users.

At present, our data set covers the period from June 1, 2014, to Dec 31, 2015, which includes the first political event in Spain mentioned above. However, our objective is to extend the data set until Dec 31, 2017 in order to consider the second regional election that took place in October of 2017. We will acquire the second half of the data with the support of the financial aid provided by this grant.

Our research project will use a model of difference-in-differences using data from before and after the 2015 and 2017 regional elections, respectively. We will use the advertising activity in the news outlets as the treatment group and in non-news outlets as the control group.

Contributions to the literature

Our project contributes to several strands of the literature. On the one hand, a recent group of theoretical papers analyzes the advertising market when consumers multi-home, showing that multi-homing reduces the advertisers' willingness to pay for ads and increases publishers' competition (Anderson, Foros and Kind, 2013; and Ambrus, Calvano and Reisinger, 2014). Our paper is closely related to Athey et al (2018) in that market polarization is associated with a decrease in multi-homing. First, Athey et al. (2018) show that in markets with a larger number of loyal consumers advertisers should multi-home. Second, higher-value advertisers should be more likely to multi-home, as for them is more profitable to inform consumers, while lower-value advertisers should be present in an smaller number of publishers, or should place their ads in smaller publishers where the prices are lower and there are less swishing consumers.

Our project also contributes to the empirical literature that analyzes the role of targeting in online advertising. Sherman and Deighton (2001) use web site-level data to suggest optimal placements of advertisements. Chatterjee et al. (2003) examine how exposure to banner advertisements may influence click-through rates. Manchanda et al. (2006) consider the effect of banner advertising on actual purchasing patterns. Additionally, several recent papers have shown the effectiveness of different types of online advertising (Goldfarb and Tucker, 2011 a,b,c; Lambrecht and Tucker, 2013; Tucker, 2012). For example, Golfdfarb and Tucker (2011 c) show that online advertising is either more effective or higher priced when offline advertising is not permitted, which implies that these two channels are substitutes. Chandra and Kaiser (2014) examine how targeted advertising in the magazine market in Germany has changed with the Internet. Contrary to theory predictions, they demonstrate that targeted advertising is more valuable when advertisers know that consumers multi-home because multiple exposures increase brand awareness. Finally, Shiller and Waldfogel (2017) show that widespread use of ad blockers may decrease the quality of websites.

Finally, our analysis of advertisers' response to the Catalan conflict contributes to an existing literature analyzing the impact of social conflict on firms' product sales. Ashenfelter, Cicarella and Shatz (2007) and Chavis and Leslie (2009) study the case of French wine in the US during the Iraq war in 2003, which the French government strongly opposed to. Hong et al. (2011) examine the boycott of French automobiles in China during the Beijing Olympic Games in 2008, after a series of political clashes between the Chinese and French governments on the political situation in Tibet and human rights issues. Cuadras-Moraró and Raya (2016) analyze the consequences of politically motivated boycott calls on sales of Catalan cava (local sparkling wine).

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RESEARCH BUDGET ESTIMATE

Research Assistant $5000

RA duties will include classifying identity of all advertisers in ARCE data as well as matching their identities to existing free data sets with information on industry, size in number of employees, sales, and HQ location.

Data Purchase

SimilarWeb $5000

Data necessary to examine the impact of 2017 election on polarization.

ARCE data $5000

Data necessary to examine the impact of 2017 election on polarization and advertiser market strategy.

Total Data Purchase $10000

TOTAL $15000