Digitization Tutorial 2020 Application

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The Courses of Graduate Study Pursued

I am a third year Ph.D student in Marketing at UCLA and my major field is quantitative marketing. I am interested in applying structural model methodology, assisted by cutting-edge machine learning techniques, to empirically answering marketing and economics research questions. Most of the courses I have taken are taught in the Economics Department: microeconomics sequence, econometrics sequence, and topic classes such as industrial organization, applied game theory, economics of information etc. I have also taken classes from the Engineering, Operation, and Marketing Schools such as dynamic programming, large-scale data mining, theory models in marketing etc.

General Research Interests

The core of my research interests currently revolves around applying rigorous quantitative methods to assess consumer and firm behaviors. Substantively, I am primarily focused on studying how online word-of-mouth impacts firm behaviors, including product innovation decision and pricing/promoting product strategy in the online marketplace. Methodologically, I will be processing the massive amounts of textual data through machine learning methods while utilizing structural modeling to develop theories to explain my subject's behavior.

Currently, I am working on three research projects that align with my research interests. My main project utilizes mobile game review data to show that consumer reviews have a causal effect on firm innovation. Working with Prof. Hollenbeck, the second project explores the effect of incentivized reviews on the online marketplace. The third project, led by Prof. Hristakeva, explores how advertisers influence media content through the lens of a classic industrial organization research method approach.

Review & Product Innovation

Previous research shows that reviews have positive impacts on sales and when product quality is dynamic, consumers leave reviews with the intent of improving product quality. With the increasing impact of consumer review information on consumer purchase decision, intuitively, firms would value online reviews and utilize them to improve product offering. However, it is unclear how firms react to consumer reviews and how consumer reviews impact product innovation. This project aims to study that in a dynamic product quality scenario, how do review and review scores causally impact product refinement and firm innovation? This project is currently in the data collecting stage. I am scraping data from a game app review website daily. I plan to use regression discontinuity to identify the causal effect of review on app updates, and use textual analysis to link review content to app update content. With the rich data I am collecting daily, I will utilize a structural modeling framework to show the impact of platform design on consumer reviews and the corresponding firm innovation. Currently, I hypothesis that

if the review platform (e.g. Yelp, TripAdvisor) emphasizes recent review scores (e.g. showing average scores in the past 30 days, instead of average score of all the reviews), it will motivate firms to keep improving products or sustain the high quality of their current offerings. In this counterfactual scenario, the consumers benefit from better product offerings and the firms benefit from standing out when they provide high-quality products.

Incentivized Review in the online marketplace

In the second project, we seek to study the online marketplace for incentivized reviews of online products. In particular, Amazon banned incentivized reviews but a very large market continues to exist for them. These are sometimes called "fake reviews." Sellers find reviewers willing to purchase their product and then compensate them for the cost of the good and pay an additional stipend after the purchaser posts a 5-star review for the product. Because Amazon bans this practice, the "market" for these reviews takes place in private. It primarily exists in private Facebook groups where sellers post cryptic information about their products and then engage in private messages with potential reviewers. This project is in the data collecting data and we aim to use the data to achieve two goals. The first goal is to characterize the demand side of the market for fake reviews. We aim to characterize the types of products that are prominent in this market based on their category, country of origin, price range, etc. We will explore whether there is a way to identify a review we classify as fake using text analysis on our data. This research will help platforms understand how to identify them and screen them out. The second research goal is to characterize the costs and benefits of buying fake reviews for sellers. We plan to use synthetic control to quantify the additional sales lifted by the promotional reviews, and model the mechanism of this sales lift: does it work through higher star rating or higher placement in organic search listings? We would like to quantify the long term impact and short term impact as well.

Advertising Project

In the third project, we are focusing on understanding how the market for national television advertising may influence networks' product differentiation (which in this market is described by the content developed by the network). Previous research focused on competition for viewers, treating advertisers as homogeneous, or advertising elasticity estimation on TV using aggregated advertising expenditures. However, when considering how TV networks are mainly supported by the companies advertising on their platforms, it is rarely asked that to what extent these advertisers can indirectly impact the programs airing on a network. We are currently in the process of adapting CES functions from Hortacsu and Joo (2015) to build the advertiser demand function while also exploring other research methodology papers of interest found in endogenous product choice literature. The applicable television viewership and ad placement data for the project comes from Rentrak and SQAD. As of now we have found some descriptive evidence: viewer demographics differ by programming content and there is heterogeneity in the attractiveness of different viewers to different advertisers. These targeting strategies lead to differentiation in advertising demands, which may lead to further differentiation in media content. We have also found that a show is more likely to be cancelled if it has a low household rating, a low age 18-49 demo index and a declining household rating trend, indicating that networks might change the media content to please advertisers.