Joon H. Ro

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(Updated on July 08, 2013)

Education

- 2014, (Expected) Ph.D. Marketing, University of Texas at Austin, Austin, TX
  - Dissertation Committee: Jason Duan and Leigh McAlister (Co-advisers), Ty Henderson, Raghunath S. Rao, Stephen P. Ryan (Economics)
- 2009, M.S. Economics, University of Texas at Austin, Austin, TX
- 2007, M.A. Economics, Sogang University, Seoul, South Korea
- 2005, B.A. Economics and English Language and Literature, Sogang University, Seoul, South Korea

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Research Interest

Dynamic Structural Models, Durable Goods Market, Network Effects, Used Goods Market, Imperfect Competition, Discrete Choice Models, Consumer Analytics

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Working Papers

Pricing and Resale Market Strategy for Durable Goods: A Dynamic Equilibrium Model of the Video Game Market

(with Jason Duan)

We study how the used goods market affects equilibrium outcomes and the implications of prohibiting resale in the video game industry. We develop a general modeling framework that incorporates (a) inter-temporal price discrimination by a game producing firm, (b) a used game market, (c) rational expectations by both consumers and the firm, and (d) market equilibria for both new and used games. We construct the demand function for each game from heterogeneous consumers with their valuations distributed on a Hotelling line. Even without observing sales data, our model enables us to use varying rates of price decrease after a game's release to identify the sales volume for each period as a percentage of total demand; this is possible because we explicitly solve for the equilibrium prices for both new and used games. Applying this model to a unique price data collected from the web, we estimate the game-specific demand for multiple games released in the U.S. market. Policy simulations suggest that the effects of prohibiting resale largely depend on the shape of the game's demand distribution, because most of the benefits come from consumers with high valuations making game purchases earlier while the price is still high. Hence, removing the used game market significantly increases the predicted profit for games whose demand mostly consisting of high valuation consumers, whereas it gives less benefit to ones with demand consisting mainly of low valuation consumers; and in some extreme cases, the used game market can even benefit the firm.

Quality Uncertainty and Variety Seeking Behavior: the Role of Ratings in the Movie Industry

(with Romana Khan)

In this paper, we study variety seeking across genres in consumers' choices at movie theaters. While variety seeking encompasses an array of behaviors that promote diversity in choices made, we focus on two components: the tendency to engage in exploratory behavior, and the tendency to seek sequentially varied experiences. Although movies are a hedonic good for which we expect consumers to engage in variety seeking, several factors, uncertainty about movie quality in particular, mitigate this tendency. Online ratings provide signals of movie quality and serve as a mechanism to alleviate this uncertainty. We investigate the extent of variety seeking in movie choices, and the impact of online ratings on variety seeking. Using a unique consumer level panel data of movie-going at theaters, we estimate a movie choice model that accounts for consumers' intrinsic preferences for movie attributes, demographics, state dependence, and online movie ratings. Surprisingly, consumers exhibit positive state dependence (inertia) over genres in their choice of movies. However, higher online ratings diminish positive state dependence and induce consumers to seek more variety. We find considerable heterogeneity in exploratory behavior and sensitivity to online ratings across consumers. Demographic factors account for some heterogeneity, as older consumers show more inertia and less sensitivity to online ratings.

Work In Progress

A Model of Downloadable Contents

I extend the model in the first essay to examine the implications of an additional marketing strategy, post-release add-ons. Many video game producers release add-ons called downloadable contents (DLC) for a relatively low price, which extend playing time of their video games. This can be an effective strategy to reduce competition from the used goods market. This is because in order to play the DLC, a consumer must physically have the original copy of the game; hence, forward-looking consumers who anticipate that a DLC will be released in the near future will likely to hold on to their disc rather than selling them, effectively reducing the used copy supply. Counterfactual analysis will shed light on profit implications and optimal release-timing of the DLC.

Measuring Benefits from Bilateral Free Trade Agreement: A Dynamic Structural Approach

I estimate dynamic structural model to quantify the impact of bilateral free trade agreements (FTAs) on consumer welfare and firms' profit in the Korean automobile industry. Due to the significant time gap between the announcement of FTAs and the actual date when FTAs enter into effect, consumers may postpone automobile purchases, expecting future price decline once the agreements come into effect. Thus, modeling dynamics is crucial in calculating the impact of such agreements. Using a unique dataset consist of automotive characteristics information collected from the web, I use an aggregate dynamic demand model with random coefficients to estimate new automotive demands, and conduct counterfactual analyses under different tariff levels to measure the effects of FTAs.

Honors & Awards

- 2011, 2013, SciPy (Scientific Python) Conference Student Sponsorship
- 2010, 2013, Bonham Funds, Department of Marketing, University of Texas at Austin
- 2013, Nominated for Fred Moore Assistant Instructor Awards for Teaching Excellence
- 2010, Columbia-Duke-UCLA Workshop on Quantitative Marketing and Structural Econometrics Funding
- 2006, Brain Korea 21 Scholarship, Ministry of Education and Human Resources Development, South Korea
- 2005, Graduate School Department Scholarship, Sogang University, South Korea
- 2005, Unbong Scholarship Foundation Scholarship, South Korea
- 2003-2004, Undergraduate Distinguished Student Scholarship, Sogang University, South Korea

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Software Packages Authored

- BLP-Python: a Python with Cython implementation of random coefficients logit model of Berry, Levinsohn and Pakes (1995).
- Fast Cubic Spline Python: an implementation of fast spline interpolation algorithm of Habermann and Kindermann (2007) in Python with Cython.

Colloquia/Presentations

- Ro, J. H., & Duan, J. A. (2012) "A Dynamic Equilibrium Model of Durable Goods Market: Intertemporal Pricing and Durability Extension for Video Games," Paper presentation at annual INFORMS Marketing Science Society Conference, Boston, MA
- Ro, J. H., & Duan, J. A. (2012) "A Dynamic Equilibrium Model of Durable Goods Market: Intertemporal Pricing and Durability Extension for Video Games," Paper presentation at the University of Houston Doctoral Symposium
- Ro, J. H., & Khan, R. (2011) "Quality Uncertainty and Variety Seeking Behavior: the Role of Ratings in the Movie Industry," Paper presentation at annual INFORMS Marketing Science Society Conference, Houston, TX

Teaching

Teaching Interests

Marketing Management, International Marketing, Marketing Research, and Data Mining

Instructor

- 2012, Principles of Marketing, University of Texas at Austin
  - Average Rating: 4.0/5.0
  - Nominated for Fred Moore Assistant Instructor Awards for Teaching Excellence
- 2012, Instructor for *Numerical Computation with Numpy* at 2012 Software Carpentry Bootcamp at the University of Texas at Austin

Training

- 2013, Software Carpentry Instructors Study Group
- 2012, Graduate Teaching Scholars Seminar
- 2012, Supervised Teaching

Teaching Assistant

- University of Texas at Austin
  - Bayesian Econometrics (Graduate)
  - Principles of Marketing
  - Marketing Information and Analysis

Selected Coursework

Quantitative Marketing

- Marketing Models I (Frenkel Ter Hofstede)
- Marketing Models II (Jason Duan)
- Marketing Research Methods (Raghunath S. Rao)
- 2010 Columbia-Duke-UCLA Workshop on Quantitative Marketing and Structural Econometrics

Economics

- Microeconomics I (Thomas Wiseman)
- Microeconomics II (Svetlana Boyarchenko)
- Macroeconomics I (Fatih Guvenen)
- Macroeconomics II (P. Dean Corbae)
- Industrial Organization I (Kenneth Hendricks)
- Industrial Organization II (Eugenio J. Miravete)
- Empirical IO Lecture Series (Amil Petrin, Ali Hortascu, Daniel Ackerberg)

Econometrics

- Econometrics I (Stephen Donald)
- Econometrics II (Jason Abrevaya)
- Econometrics III (Russell W. Cooper, Eugenio J. Miravete)

- Bayesian Econometrics (Rob McCulloch)
- Discrete Choice Theory and Modeling (Chandra Bhat)

Operations Research

- Applied Stochastic Processes (John Hasenbein)
- Markov Decision Processes (John Hasenbein)
- Stochastic Optimization (David Morton)

Computational Skills

- General-Purpose Languages: C, Python
- Numerical Programming Languages: Gauss, MATLAB, R
- Others: Git, GNU/Linux, HTML, JavaScript, LaTeX, RegEx, VBA

References

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