Joon H. Ro

Department of Marketing, McCombs School of Business, University of Texas at Austin

Phone: +1 (512) 529-4596, Fax: +1 (512) 471-1034, Email: Joon.Ro@phd.mccombs.utexas.edu

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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

Research Interest

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

Working Papers

A Dynamic Equilibrium Model of Durable Goods: Pricing and Resale Market Strategies for Video Games

(with Jason Duan)

This paper studies how the used goods market affects market outcomes and the implications of eliminating it in the video game industry. We develop a general modeling framework that incorporates rational expectations on new and used goods prices, inter-temporal price discrimination, and a competitive used goods market. The demand function is constructed from heterogeneous consumers modeled by a distribution of their valuation on a Hotelling line, which enables us to estimate sales volume shares over time from the varying decreasing rates of new and used goods prices without the need of observing real sales data. The equilibrium prices and sales for both new and used game markets are solved explicitly assuming that the observed new game prices are set optimally by firms and the used game prices clear a competitive used goods market. A producer's inter-temporal pricing strategy is determined not only for price discrimination, but also from considering competition from the resale market. Using this model, we estimate game specific demand with hand-collected prices data. Counterfactual analysis suggests the used game market harms most games in terms of profitability, but can still benefit a smaller number of games, depending on the consumer valuation distribution and expected playtime. Hence the results imply different optimal strategies regarding the used goods market for different games.

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: Add-on and Secondary Market

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 that consists of hand-collected automotive characteristics information, I use a 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 Conference (Scientific Python) 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, Sogang University
- 2005, Graduate School Department Scholarship, Sogang University
- 2005, Unbong Scholarship Foundation Scholarship, Korea
- 2003-2004, Undergraduate Distinguished Student Scholarship, Sogang University

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

Principles of Marketing, Marketing Research, Pricing, and Data Mining.

Instructor

- 2012, Principles of Marketing, University of Texas at Austin

    - 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

Jason Duan
Assistant Professor of Marketing
McCombs School of Business
University of Texas at Austin
+1 (512) 232-8323
Jun.Duan@mccombs.utexas.edu

Leigh McAlister
Professor, Ed and Molly Smith Chair
McCombs School of Business
University of Texas at Austin
+1 (512) 471-5458
leigh.mcalister@mccombs.utexas.edu

Ty Henderson
Assistant Professor of Marketing
McCombs School of Business
University of Texas at Austin
+1 (512) 232-3746
ty.henderson@mccombs.utexas.edu

Raghunath S. Rao
Assistant Professor of Marketing
McCombs School of Business
University of Texas at Austin
+1 (512) 232-3748
Raghunath.Rao@mccombs.utexas.edu

Stephen P. Ryan
Associate Professor of Economics
University of Texas at Austin
+1 (512) 475-8543
sryan@utexas.edu