

Avery Michael Haviv

Rotman School of Management
University of Toronto
105 St. George St
Toronto, Ontario,
M5S 3E6
Canada

Phone: 647-669-3331
Email: avery.haviv09@rotman.utoronto.ca

EDUCATION

Ph.D, Marketing, Rotman School of Management , August 2014 (expected)
University of Toronto, Toronto, Ontario, Canada
Dissertation: “Does Purchase Without Search Explain Counter Cyclic Pricing? Essays on Dynamic Models of Consumer and Firm Behavior”
Committee: Avi Goldfarb (chair), Andrew Ching, Ron Borkovsky, Victor Aguirregabiria

M.Sc., Statistics, University of Toronto, April 2009

B.Math., Statistics, University of Waterloo, April 2007

RESEARCH INTERESTS

Quantitative Marketing, Empirical Industrial Organization, Dynamic Models, Discounting Rates

WORKING PAPERS

“Does Purchase Without Search Explain Counter Cyclic Pricing?” (Job Market Paper)

“An Empirical Study of the Dynamics of Brand Building” (with Ron Borkovsky, Avi Goldfarb and Sridhar Moorthy)

“Estimation of Dynamic Discrete Optimization Problems with Generalized Discounting Rates”

“Efficient Estimation of Discount Factors in Nested-Pseudo Likelihood Iterations”

DISSERTATION ABSTRACTS

“**Does Purchase Without Search Explain Counter Cyclic Pricing?**” (Job Market Paper)
Basic economic theory tells us to expect that an increase in demand should lead to an increase in prices. However, previous studies have found the opposite trend in the prices of seasonal goods, such as canned soup. I propose an explanation of this phenomenon: consumers are more likely to purchase without search in low demand periods, reducing the gains of temporary price reductions, and decreasing estimated price sensitivity. Purchase without search is

consistent with consumers using shopping lists to make their purchase decisions before observing prices. I test this explanation using a novel dynamic, structural inventory model where consumers make decisions on whether to search, which reveals price promotions, and which products to purchase given their search decision.

Estimating this model using previous methods is a computational challenge because of the expansion of the state space required to model seasonal preferences. To overcome this challenge, I develop a cyclic-successive approximation algorithm, which removes the computational burden of adding cyclic variables to the state space of a dynamic model. I find that consumers purchase without search 61% of the time in winter, and 82% of the time in summer. This causes price elasticities that are twice as large in winter as they are in summer. I find that the dominant cause of seasonal search is seasonal consumption preferences, rather than seasonal price variation.

“An Empirical Study of the Dynamics of Brand Building” with Ron Borkovsky, Avi Goldfarb, and Sridhar Moorthy

In this paper, we explore the dynamics of brand building in a model in which firms use advertising to build and sustain brand equity. Our framework allows us to address several fundamental questions on the nature of brand-building in the presence of competition: How strong are the leading firm’s incentives to perpetuate their brand equity advantage? How strong are the follower’s incentives to overcome the gap they face? How efficient is the conversion of advertising into brand equity and how quickly does brand equity depreciate? We estimate our model using data from the stacked chips category, a brand-focused duopoly that displays interesting brand equity dynamics over time. We also devise a new tool for measuring brand value in a dynamic equilibrium context, providing a more complete measure of the value of a brand as an intangible asset. Using this tool, we assess the effects of change in industry fundamentals on brand value. This yields several counterintuitive results. For example, we find that an increase in the rate at which brand equity depreciates can reduce the expected net present value of a firm’s future cash flows while simultaneously increasing the expected net present value of the cash flows driven by its brand. Thus firm value can fall while brand value rises.

“Estimation of Dynamic Models with Generalized Discounting Patterns”

Many fundamental economic behaviors, such as savings, investment, and insurance, involve agents making trade-offs between current and future payoffs. Dynamic models allow for agents that rationally make decisions which affect their future payoffs in such cases. The value that economic agents put on future payoffs is critical to the specification and accuracy of dynamic models. To date, dynamic methods have almost exclusively assumed an exponential discounting rate. However, evidence in both the economics and psychology literature suggests that agents often do not discount exponentially. In this paper, I introduce methods that can estimate an infinite horizon discrete dynamic model for any convergent discounting function.

When discounting is not exponential, agents face time inconsistency, a misalignment between the preferences of their current and future selves. This time inconsistency turns a dynamic optimization problem into a game, which I analyze in a Markov perfect equilibrium framework. I show that there always exists a Markov perfect equilibrium where the agent employs a stationary strategy. Then, by assuming the agent employs a stationary strategy, I show how expected discounted payoffs can be calculated. In the special case of hyperbolic discounting, I derive a closed form solution. I then demonstrate how to estimate a dynamic model with hyperbolic preferences, using data on sales force compensation. All proofs are complete, working on the estimation algorithm and application.

“Efficient Estimation of Discount Factors in Nested-Pseudo Likelihood Iterations”

Two step estimators can greatly reduce the computational burden of estimating dynamic games. In particular, Aguirregabiria and Mira (2002) show that the components of the value function that depend on the agent’s strategy and the parameterization are multiplicatively separable. When the strategy is fixed, the component that depends on agent strategy can be pre-calculated, and the value function of each parameterization can then be cheaply computed.

The computational efficiency of this method relies on a fixed discount factor. However, the discount factor is not fixed when it is being estimated. This research note introduces an alternative computation of policy function iterations that maintains the computational advantages of two step methods when the discount factor is being estimated. This note will be submitted to *“Economics Letters”* after minor revisions.

CONFERENCE PRESENTATIONS

“Does Purchase Without Search Explain Counter Cyclic Pricing?”

- Empirical & Theoretical Symposium, Western University, May 2013
- Doctoral Workshop in Applied Econometrics, Ryerson University, April 2013

HONORS AND AWARDS

CCMF Fellowship Recipient, 2012, 2013

Doctoral Scholarship, Rotman School of Management, University of Toronto, Sept. 2009-present)

AMA-Sheth Doctoral Consortium Fellow, University of Michigan, June 2013

Initiative for Computational Economics (ICE) Sponsored Participant, University of Chicago, July 2011

Columbia-Duke-UCLA Workshop on Quantitative Marketing and Structural Econometrics Sponsored Participant, Duke University, August 2010

Teaching Assistant Award for Excellence, 2008-2009, Department of Statistics

TEACHING EXPERIENCE

Teaching Assistant, Pricing, University of Toronto, Winter 2013
Designed tutorial, received 5.93/7 student evaluation for tutorial instruction

Case Teaching Certificate, Spring 2013
2-day case teaching workshop with James A. Erskine (Ivey Business School)

Teaching Assistant, Probability and Statistics, University of Toronto, 2009
Teaching Assistant, Statistical Theory, University of Toronto, 2008

PROFESSIONAL EXPERIENCE

Statistical Consultant

Consult on strategy and analysis, program and perform advanced statistical modeling.

Associate Consultant, Harris Interactive, Toronto, Ontario, June 2007-June 2008

Performed statistical analysis, developed new methodologies, and managed projects in the telecommunications, fast food, banking, and public sectors.

ACADEMIC EXPERIERNCE

Research Assistant to Prof. Ron Borkovsky, Prof. Avi Goldfarb, 2010-2011

Developed reduced form analysis, amalgamated an IRI database and multiple statistical and analytical support functions

Research Assistant to Prof. Joanne Oxley, 2011

Created cellphone database by building a web scraper in Python

Research Assistant to Prof Allison Jing Xu, 2011

Created database linking consumer purchases to the time of purchase

Research Assistant to Sridhar Moorthy, 2009

Created movie database by building a web scraper in Python and performed reduced form analysis

COMPUTER SKILLS

Extensive software/programming expertise/experience.

Active projects use Matlab, R, C++, and GAMS. Previous projects have used Python, SPSS, and AMPL, among others.

Experience with advanced optimization solvers

ADDITIONAL QUALIFICATIONS AND HONOURS

Completed P and FM levels of Society of Actuaries

Achieved 740 (97%) on the GMAT

SELECTED GRADUATE COURSEWORK

Marketing

Consumer Behaviour	Andrew Mitchell
Marketing Strategy	Sridhar Moorthy
Workshop in Marketing	Mengze Shi
Current Topics in Marketing Strategy	Sridhar Moorthy
Econometric Methods in Marketing	Andrew Ching

Industrial Organization

Industrial Organization I	Frank Mathewson
Industrial Organization II	Victor Aguirregabiria
Empirical Applications of Economic Theory	Carlos Serrano/Junichi Suzuki

Econometrics

Econometrics I	Christian Gourieroux/Adonis Yatchew
Econometrics II	Martin Burda/Victor Aguirregabiria
Advanced Econometrics	Christian Gourieroux
Methods for Empirical Microeconomics	Dwayne Benjamin

Microeconomics

Microeconomics I	Matthew Turner/Ettore Damiano
Microeconomics II	Martin Osborne/Xianwen Shi

Statistics (M.Sc.)

Monte Carlo Methods	Jeffrey S. Rosenthal
Statistical Data Mining	Nancy Reid
Nonparametric Methods	James Stafford
Statistical Consulting	Lawrence Brunner

REFERENCES

Avi Goldfarb

Professor of Marketing
Rotman School of Management
University of Toronto
Email: agoldfarb@rotman.utoronto.ca

Andrew T. Ching

Associate Professor of Marketing
Rotman School of Management
University of Toronto
Email: aching@rotman.utoronto.ca

Ron N. Borkovsky

Assistant Professor of Marketing
Rotman School of Management
University of Toronto
Email: ron.borkovsky@rotman.utoronto.ca

Victor Aguirregabiria

Professor of Economics
Department of Economics
University of Toronto
Email: victor.aguirregabiria@utoronto.ca