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About Me

Born on October 6, 1995.

Canadian Citizen.

Research Interests: Industrial Organization, Quantitative Marketing

Education

Ph.D. Economics, Queen's University, 2025 (Expected).

M.A. Economics, Carleton University, 2019.

B.Com. Finance and Economics, University of Toronto, 2018.

Research

Retailer Differentiation, Learning, and Consumer Search: Application to Online Search for Cameras

Abstract: This paper develops a model of consumer search with retailer differentiation in information provision. Consumers shopping for infrequently purchased durable products that are available at multiple retailers face uncertainty over prices and match values. Their decision over which retailer to search at depends on both the distribution of prices and the product information available, interpreted as match information. Through the lens of a search model with learning, retailers providing better match information provide more precise signals of match values. Consumers may direct search to retailers that provide reliable match information so that much of the consumer's uncertainty can be resolved. Thus, retailers may attract consumers either by offering low prices or providing more reliable match information. Using the model, I estimate counterfactuals to (a) quantify the benefit to consumers of platform competition, and (b) study a retailer's ability to divert consumer search.

Job Market Paper

Using Search Data to Crowd-source Unobserved Substitution Patterns for Demand Prediction

Abstract: Many demand models rely on the characteristic-space approach to representing products and estimating consumer preferences. A practical limitation with the approach in some markets is that if demand-relevant characteristics are not observed, the substitution patterns the model predicts are unreliable. To address this limitation, this paper proposes a method of learning substitution patterns directly from search data. The approach is to treat the sets of products that consumers search for as their revealed consideration set, and measure product substitution between a pair of product by their frequency of co-searches across *all* consumers' search sets. This substitution measure can then be mapped to vectors of latent characteristics representing each product. I validate the latent characteristics by using them as an input to a simple predictive demand model applied to

data on online shopping at a large UK eCommerce platform. The aim is to predict which product a consumer will purchase given the set of previously searched products, as in a recommender system. I find that representing products with latent characteristics leads to improvement in prediction performance.

Presented: Canadian Economics Association Annual Meeting 2023

Experience

Queen's University
Instructor
ECON 250: Introductory Econometrics, Undergraduate — *Winter 2022, Fall 2022, Fall 2023*
Teaching Assistant
ECON 262: Labour Markets and Gender Differences — *Winter 2024*
ECON 445: Industrial Organization and Public Policy — *Winter 2023*
ECON 882: Research Problems and Methodology (Machine Learning), Master's — *Winter 2021*
ECON 850: Econometrics I, Doctoral — *Fall 2020, Fall 2021*
ECON 351: Introductory Econometrics, Undergraduate — *Fall 2019, Winter 2020*

Carleton University
Teaching Assistant
ECON 2220: Introductory Econometrics, Undergraduate — *Fall 2018, Winter 2019*
Research Assistant, Econometrics
Matt Webb — *May-August 2019*

Technical Skills and Competencies

Python, R, MATLAB, Stata, SQL

UNIX

Fluent in: English, Hindi, Punjabi

Awards and Recognition

Graduate Research Fellowship, Queen's University (2023, 2024)

Morgan Brown Award, Queen's University (2022)

Norman D. Wilson Fellowship, Queen's University (2021)

E.G. Baumann Fellowship, Queen's University (2020)

Ontario Graduate Scholarship, Queen's University (2019)

Gilles Paquet Scholarship in Economics, Carleton University (2019)

References available upon request.